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## 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 Hyundai 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.

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

3. Use **genuine Hyundai spare parts** for the replacement of parts.

We expressly point out that Hyundai will not accept any responsibility for defects resulting from non-genuine parts or non workmanlike repair.

In such cases Hyundai 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 Hyundai or your Hyundai distributor for the latest available information for your machine or for questions regarding information in this manual.

## **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.

Hyundai 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.

## EC REGULATION APPROVED

- Noise level (EN474-1 : 2006 and 2000/14/EC) are as followings.  
LWA : 98dB(EU only)  
LPA : 78dB
- The value of vibrations transmitted by the operator's seat are lower than standard value of (EN474-1 : 2006 and 2002/44/EC)





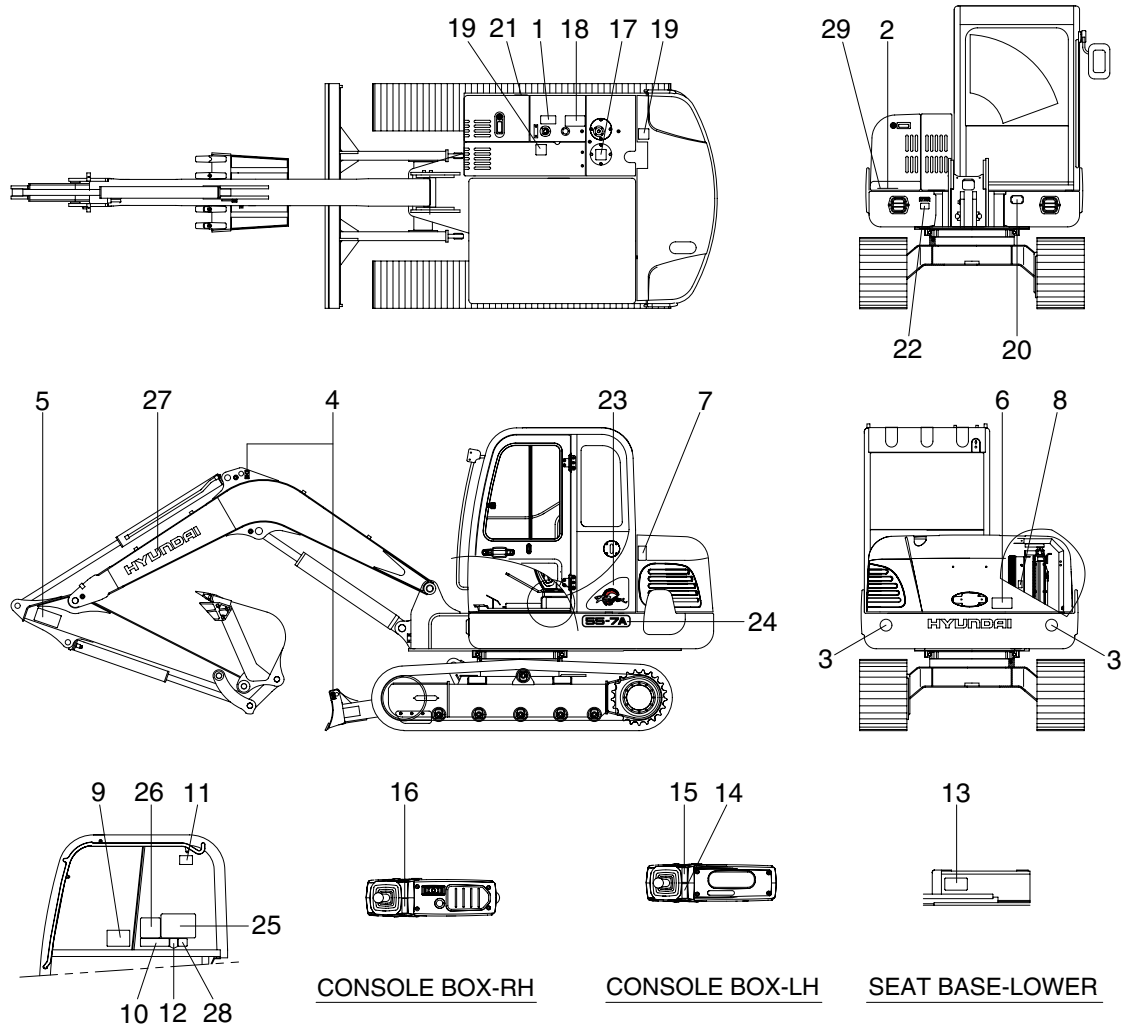
TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR	
---	--

Machine Serial No.	
Engine Serial No.	
Manufacturing year	
Manufacturer Address	Hyundai Heavy Industries co., Ltd. 1000, Bangeojinsunhwan-doro, Dong-Ku, Ulsan 682-792, Korea
Distributor for U.S.A Address	Hyundai Heavy Industries U.S.A, Inc 6100 Atlantic Boulevard Norcross GA 30071 U.S.A
Distributor for Europe Address	Hyundai Heavy Industries Europe N. V. Vossendal 11 2240 Geel Belgium
Dealer Address	

## SAFETY LABELS

### 1. LOCATION

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



R557A0SL01

- |                           |                              |                          |
|---------------------------|------------------------------|--------------------------|
| 1 Fueling                 | 11 Safety front window       | 21 General warning-frame |
| 2 Battery-accident        | 12 Emergency exit            | 22 Indicate-grease       |
| 3 Reflecting              | 13 Decal-aircon filter       | 23 Robex                 |
| 4 Lifting point ideogram  | 14 Decal console tilting     | 24 Model name            |
| 5 Keep clear-boom/arm     | 15 Control ideogram-LH       | 25 Service instruction   |
| 6 Keep clear-rear         | 16 Control ideogram-RH       | 26 Lifting chart         |
| 7 Keep clear-side         | 17 Hydraulic oil lubrication | 27 Trade mark-boom       |
| 8 Caution-engine room     | 18 Falling                   | 28 Boom swing lock       |
| 9 Control ideograms       | 19 No step-engine hood       | 29 ECM connector         |
| 10 General cautions-cabin | 20 Name plate                |                          |

## 2. DESCRIPTION

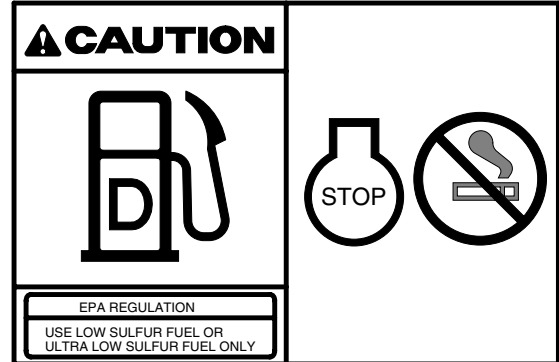
There are several specific warning labels on this machine please become familiarized with all warning labels.

Replace any safety label that is damaged, or missing.

### 1) FUELING(Item 1)

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

- ▲ Stop the engine when refueling. All lights or flames shall be kept at a safe distance while refueling.
- ▲ EPA Regulation : use low sulfur fuel or ultra low sulfur fuel only.

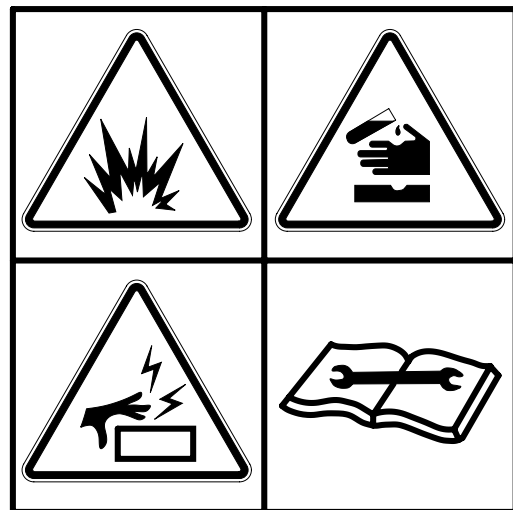


807A0FW04

### 2) BATTERY ACCIDENT(Item 2)

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 terminals with a wet hand.



36070FW05

### 3) KEEP CLEAR-BOOM/ARM(Item 5)

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

- ⚠ Serious injury or death can result from falling of the attachment.
- ⚠ To prevent serious injury or death, keep clear the underneath of attachment.

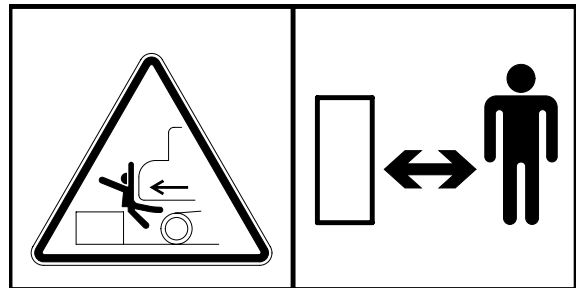


R5570FW31

### 4) KEEP CLEAR-REAR(Item 6)

This warning label is positioned on the rear of engine hood.

- ⚠ To prevent serious personal injury or death keep clear of machine swing radius.
- ⚠ Do not deface or remove this label from the machine.

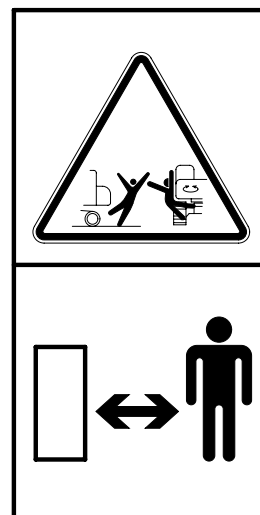


R5570FW09A

### 5) SIDE KEEP CLEAR(Item 7)

This warning label is positioned on the side of engine hood.

- ⚠ To prevent serious personal injury or death keep clear of machine swing radius.
- ⚠ Do not deface or remove this label from the machine.

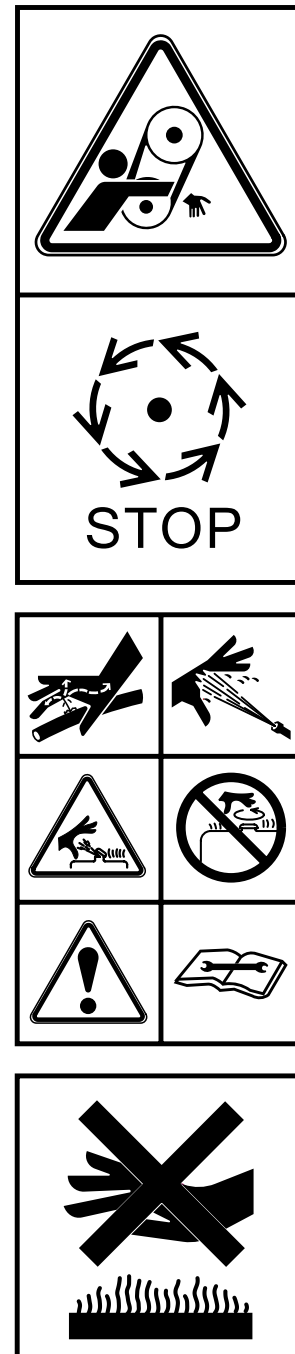


R5570FW13

## 6) CAUTION-ENGINE ROOM(Item 8)

This warning label is positioned on the side of radiator.

- ⚠ Do not open the engine hood during the engine's running.
- ⚠ Escaping fluid under pressure can penetrate the skin causing serious injury.
- ※ Study the service manual before service job.
- ⚠ Never open the filler cap while engine running or at high coolant oil temperature.
- ⚠ Study the operator's manual before starting and operating machine.
- ⚠ Do not touch exhaust pipe or it may cause severe burn.

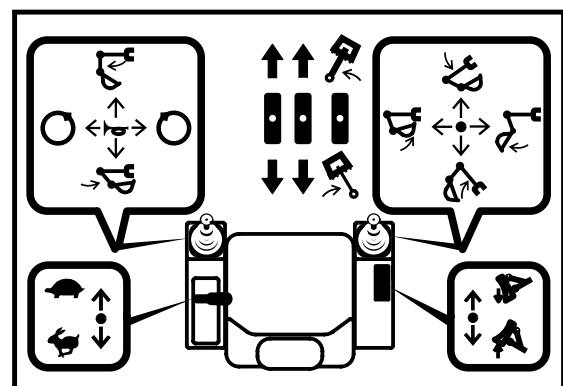


R5570FW14

## 7) CONTROL IDEOGRAM(Item 9)

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 4-6 for details.



R5570FW19A

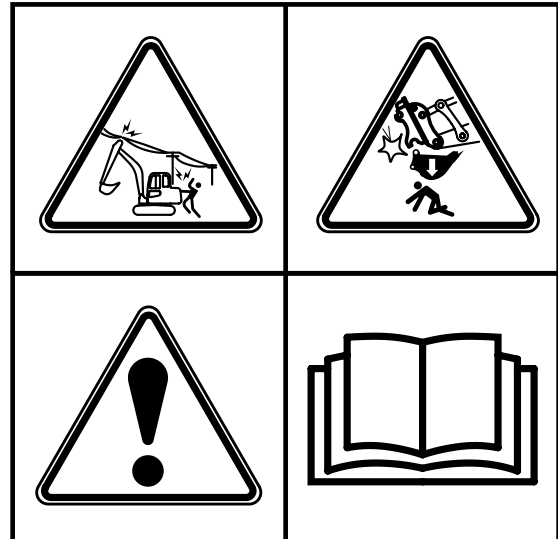
#### 8) GENERAL CAUTIONS-CABIN(Item 10)

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

- ⚠ **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 1-7.

- ⚠ **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.**

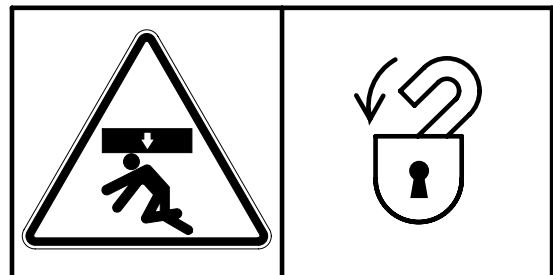


R5570FW15

#### 9) SAFETY FRONT WINDOW(Item 11)

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

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

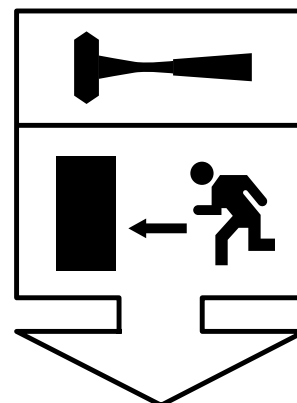


21070FW24

#### 10) EMERGENCY EXIT(Item 12)

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

- ⚠ **The right side window serves us an alternate exit.**
- ⚠ **At case of emergency, use the hammer for braking the right side window of the cab.**

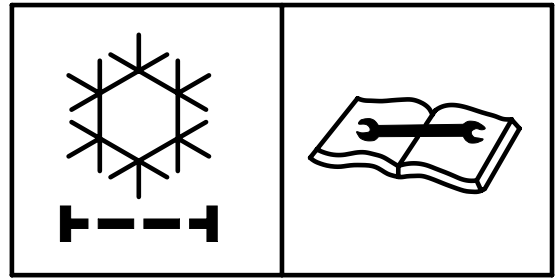


R5570FW16

#### 11) DECAL-AIRCON FILTER(Item 13)

This warning label is positioned on the lower seat base.

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

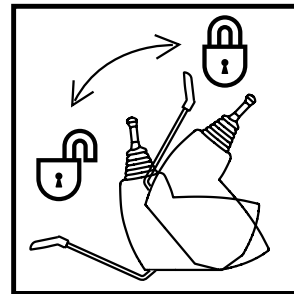


21070FW26

#### 12) DECAL-CONSOLE TILTING(Item 14)

This warning label is positioned on the LH console box.

- ※ Before you get off the machine be sure to tilt the LH console box.

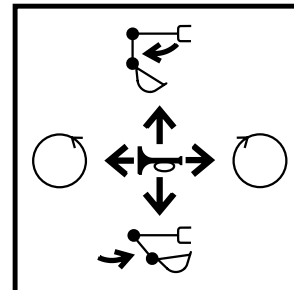


R5570FW17

#### 13) CONTROL IDEOGRAM-LH(Item 15)

This warning label is positioned on the LH console box.

- ▲ 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 4-6 for details.

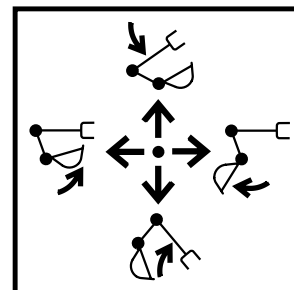


R5570FW18

#### 14) CONTROL IDEOGRAM-RH(Item 16)

This warning label is positioned on the RH console box.

- ▲ 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 4-6 for details.



R5570FW20

#### 15) HYDRAULIC OIL LUBRICATION(Item 17)

This warning label is positioned on the right side of air breather.

- ※ Do not mix with different brand oils.
- ▲ Never open the filler cap while engine running or at high hydraulic oil temperature.
- ▲ Loosen the cap slowly and release internal pressure completely.

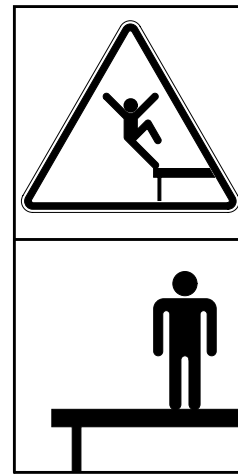


21070FW08

#### 16) FALLING(Item 18)

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

- ▲ 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.

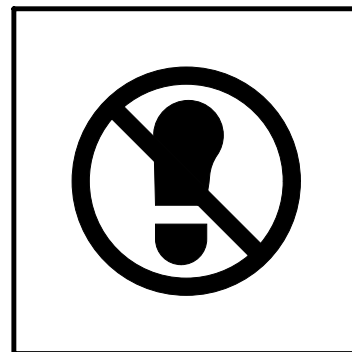


14070FW30

#### 17) NO STEP-ENGINE HOOD(Item 19)

This warning label is positioned on the engine hood.

- ▲ Do not step on the engine hood.



21070FW16



#### 18) GENERAL WARNING-FRAME (Item 21)

This warning label is positioned 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 5-6 for details.

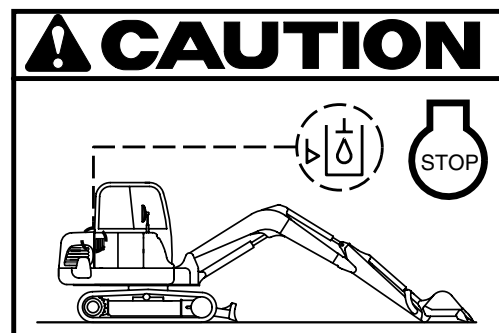
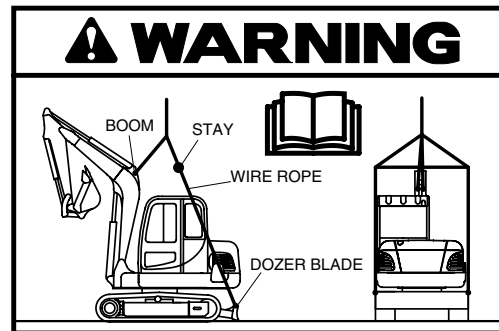
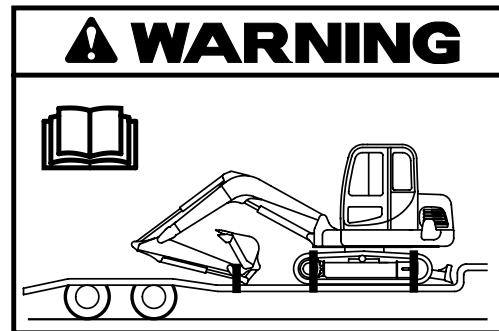
- ▲ Make sure wire rope is proper size and keep correct hoisting method.

※ See page 5-7 for details.

- ▲ 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.



R5570FW21

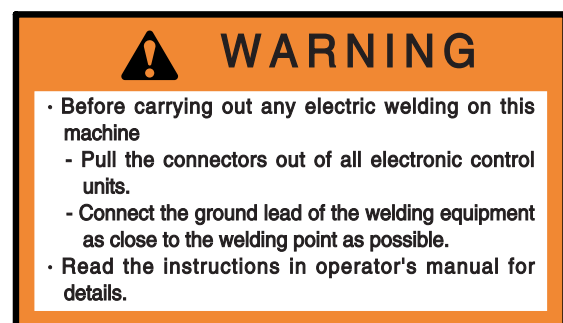
#### 19) ECM CONNECTOR (Item 29)

This warning label is positioned on the battery cover.

- ▲ Before carrying out any electric welding on this machine follow the below procedure.

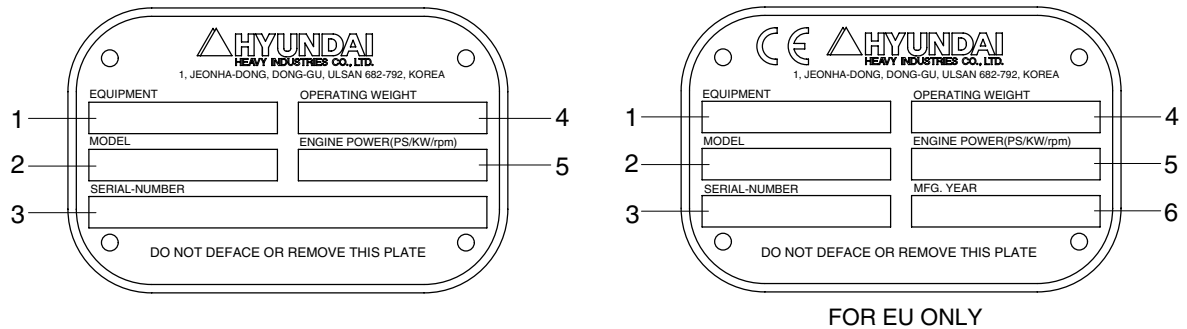
- Pull the connectors out of all electric control units.
- Connector the ground lead of the welding equipment as close to the welding point as possible.

※ See page 6-38 for detail.



7807AFW20

## MACHINE DATA PLATE



21090FW10

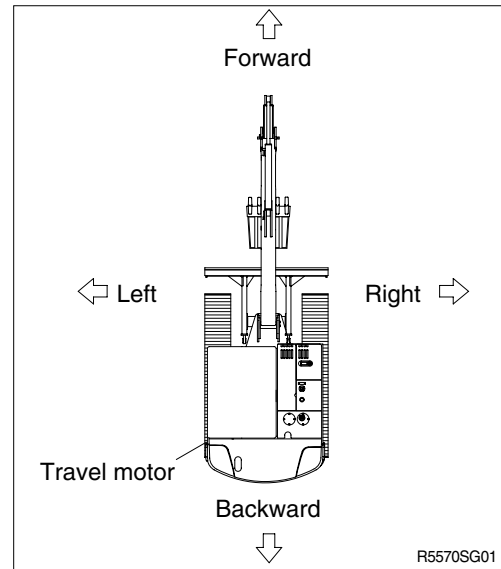
- |   |            |   |                  |   |                    |
|---|------------|---|------------------|---|--------------------|
| 1 | Equipment  | 3 | Serial number    | 5 | Engine power       |
| 2 | Model name | 4 | Operating weight | 6 | Manufacturing year |

※ 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 HYUNDAI 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.

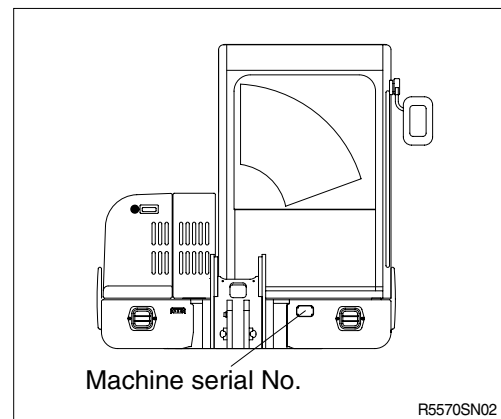


### 2. SERIAL NUMBER

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

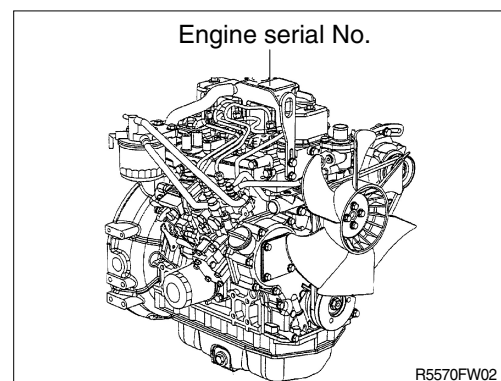
#### 1) MACHINE SERIAL NUMBER

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



#### 2) ENGINE SERIAL NUMBER

The numbers are located on the engine name plate.



### 3. 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.

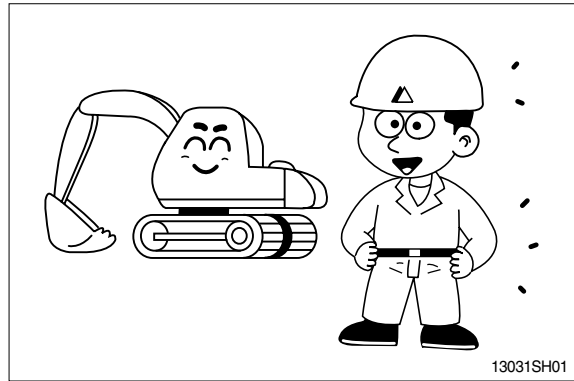
# SAFETY HINTS

## 1. BEFORE OPERATING THE MACHINE

Think-safety first.

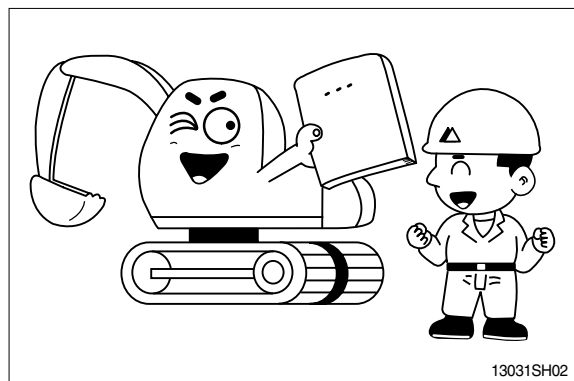
In special situation, wear protective clothing including a safety helmet, safety shoes, gloves, safety glasses and ear protection as required by the job condition.

Almost every accident is caused by disregarding the simple and fundamental safety hints.



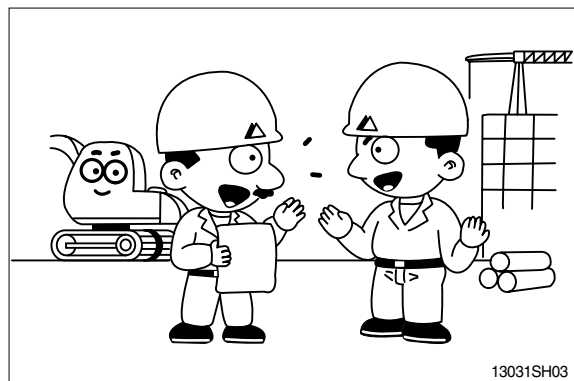
Be sure to understand thoroughly all about the operator's manual before operating the machine.

Proper care is your responsibility.

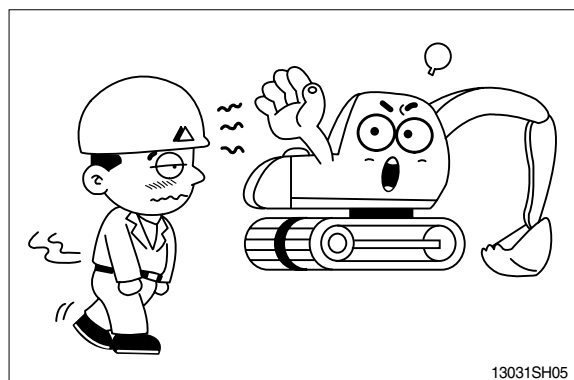


Fully understand the details and process of the construction before starting the work.

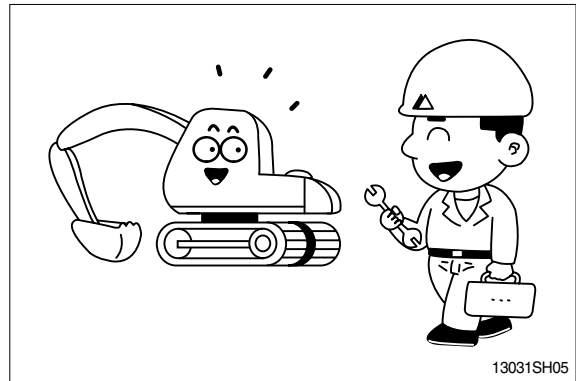
If you find anything dangerous on the job, consult with the job supervisor for the preventive measures before operating the machine.



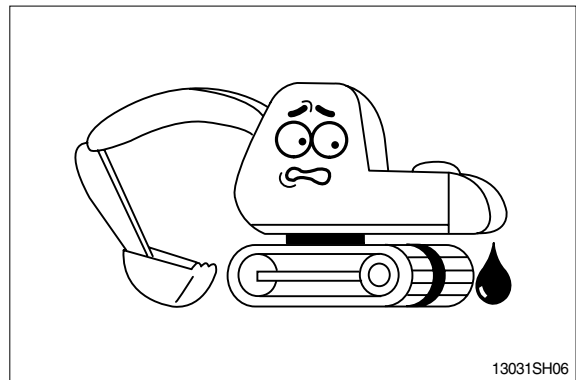
Do not operate when tired, or after drinking alcoholic beverages or any type of drugs.



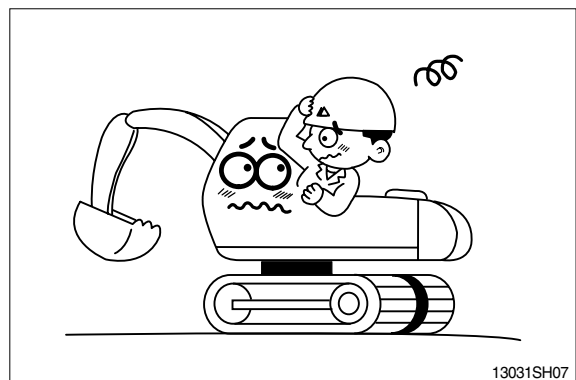
Check daily according to the operation manual.  
Repair the damaged parts and tighten the loosened bolts.



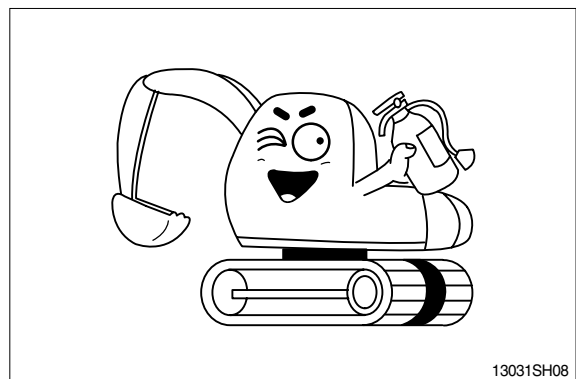
Check for leakage of engine oil, hydraulic oil,  
fuel and coolant.  
Keep machine clean, clean machine regularly.



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



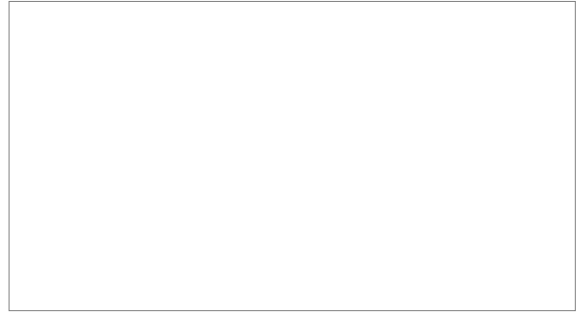
Be prepared if a fire starts.  
Keep a fire extinguisher handy and emergency  
numbers for a fire department near your  
telephone.



## UNAUTHORIZED MODIFICATION

Any modification made without authorization from Hyundai can create hazards.

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



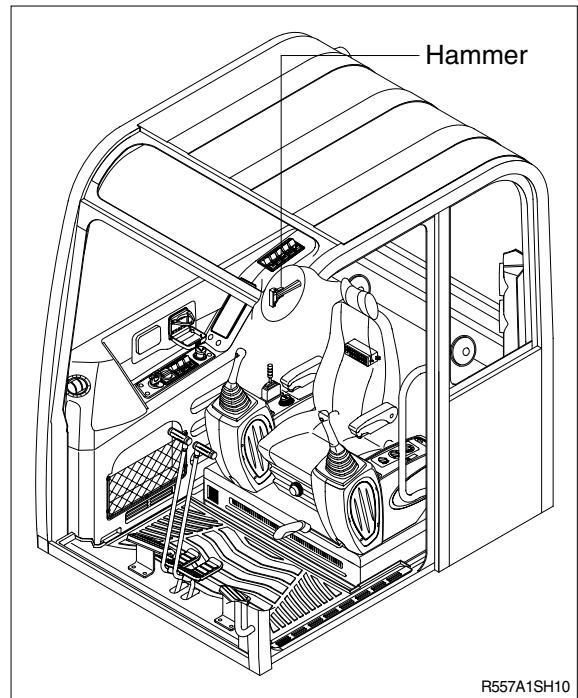
## PREPARE FOR EMERGENCY

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

Have a fire extinguisher and first aid kit ready for emergencies such as fires or accidents.

Learn how to use the fire extinguisher.

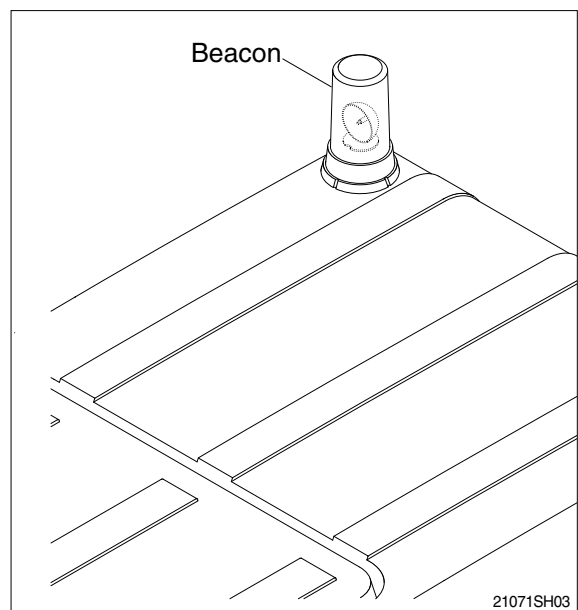
Be sure you know the phone numbers of persons you should contact in case of an emergency.



## 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 Hyundai distributor to install it.

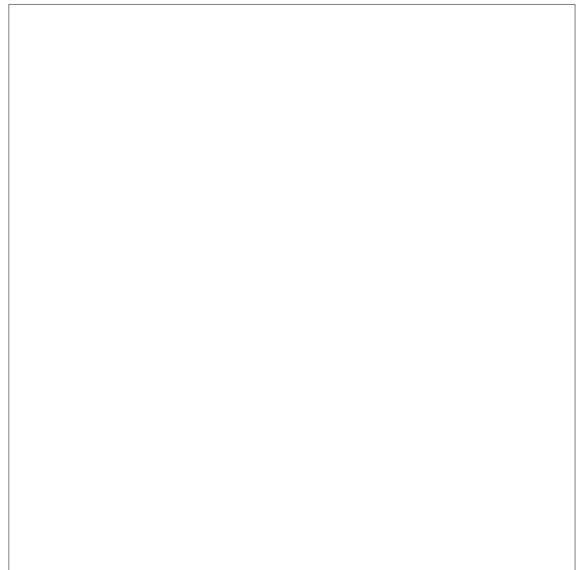


## PRECAUTIONS FOR ATTACHMENTS

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 Hyundai or your Hyundai 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 Hyundai.

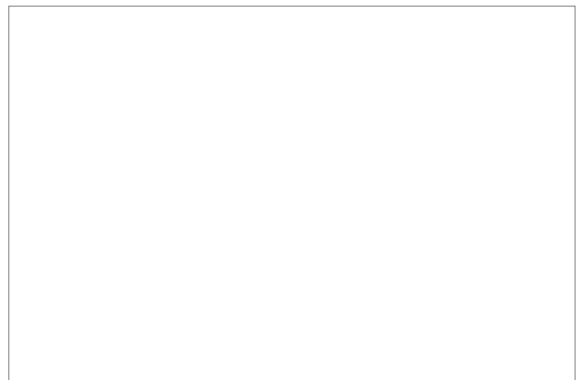


## SAFETY RULES

**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.



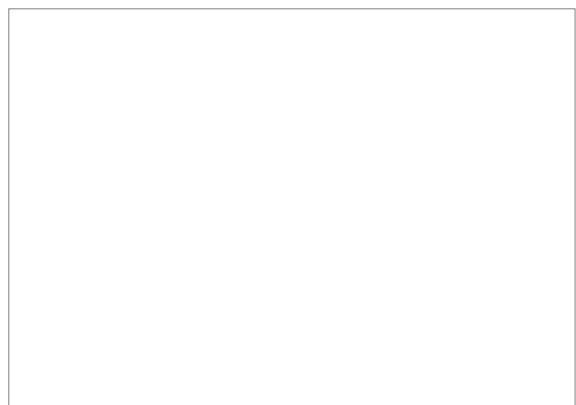
## SAFETY FEATURES

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.

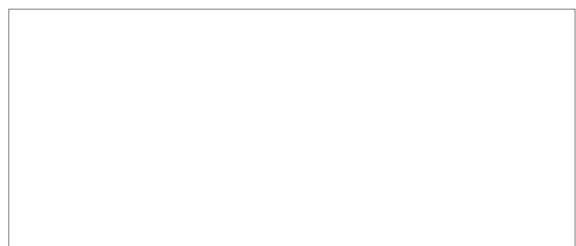


## MACHINE CONTROL PATTERN

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.

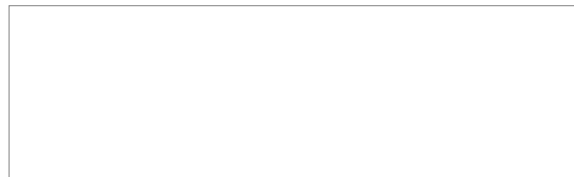
**WASH HANDS AFTER HANDLING**



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.

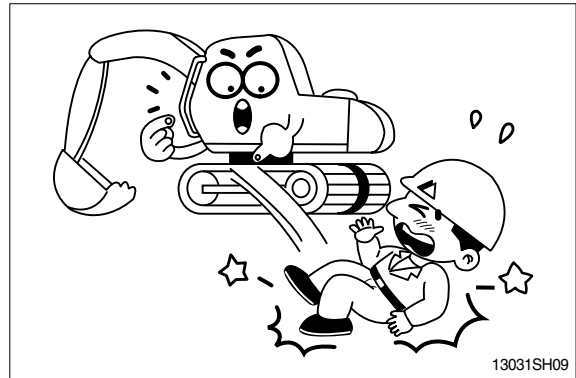




## 2. DURING OPERATING THE MACHINE

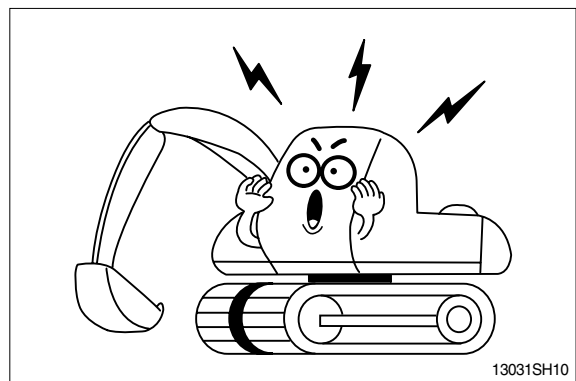
Use the handle and footstep when getting on or off the machine.

Do not jump on or off the machine.



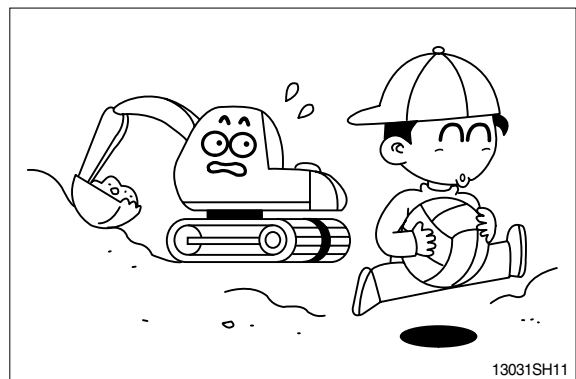
Sound the horn to warn nearby personnel before operating the machine.

Remove all the obstacles like frost on the window before operating the machine for the good visibility.

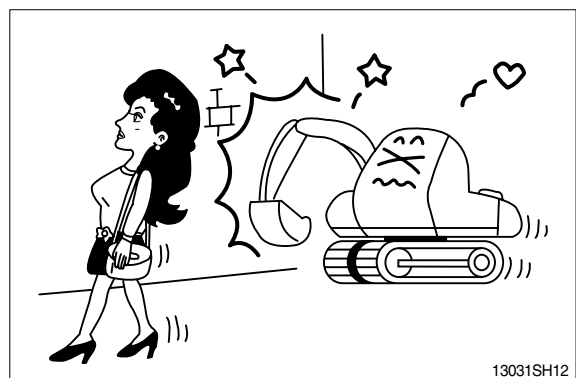


Operate carefully to make sure all personnel or obstacles are clear within the working range of the machine.

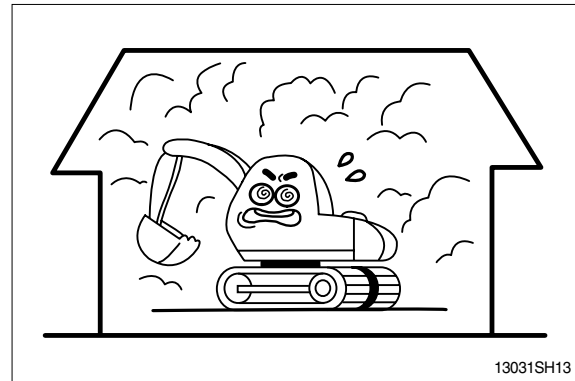
Place safety guards if necessary.



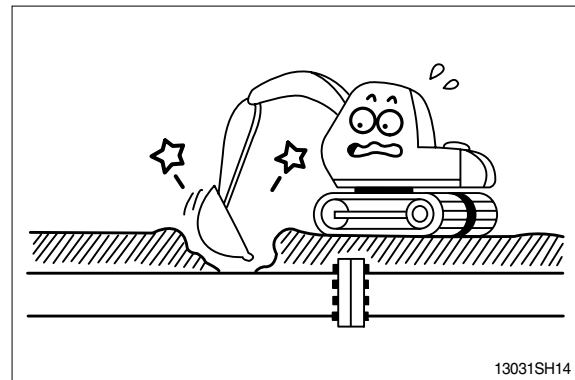
When using the work equipment, pay attention to job site.



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



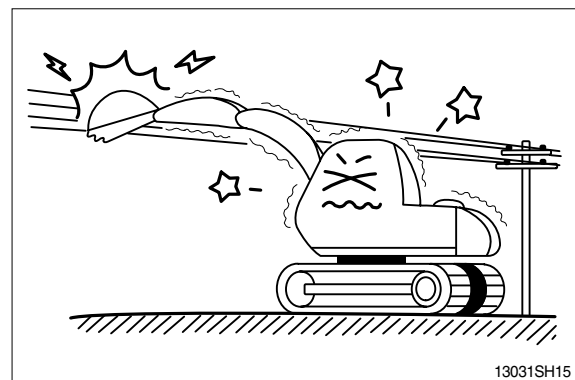
Check the locations of underground gas pipes or water line and secure the safety before operation.



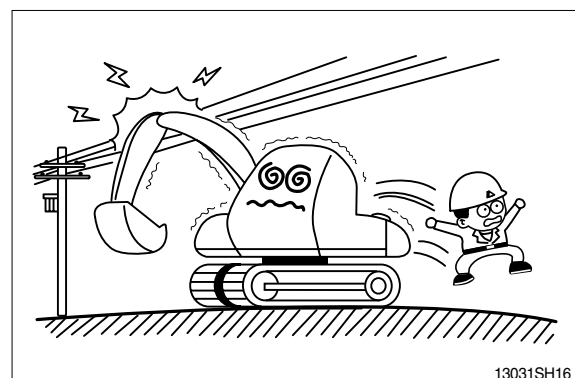
The operating near the electrical lines is very dangerous.

Operate within safe working range permitted as below.

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

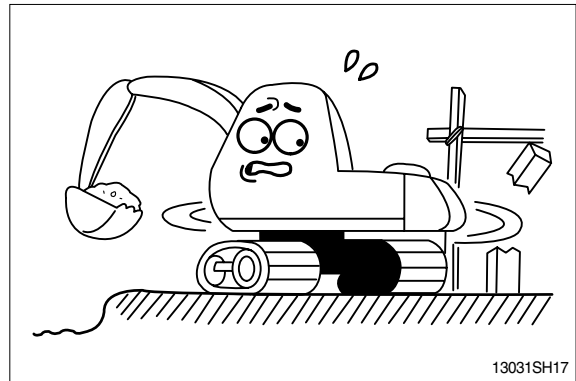


If the machine touches the electric power lines, keep sitting on the operator's seat and make sure the personnel on the ground not to touch the machine until turning off the electric current. Jump off the machine without contacting the machine when you need to get off.

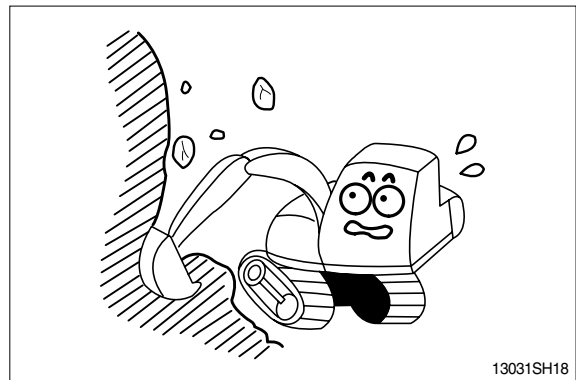


Watch out for obstacles.

Be particularly careful to check the machine clearance during the swing.

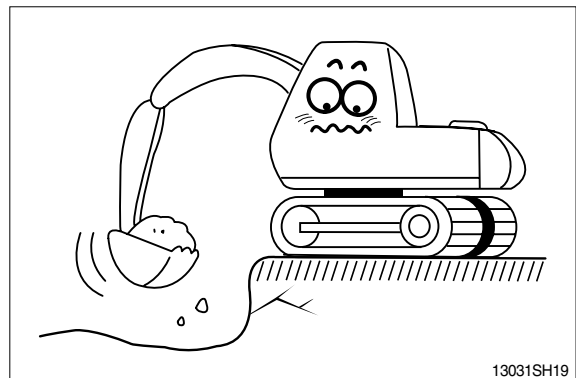


When using the machine as breaker or working in a place where stones may fall down, cab roof guard and head guard should be provided for proper protection.



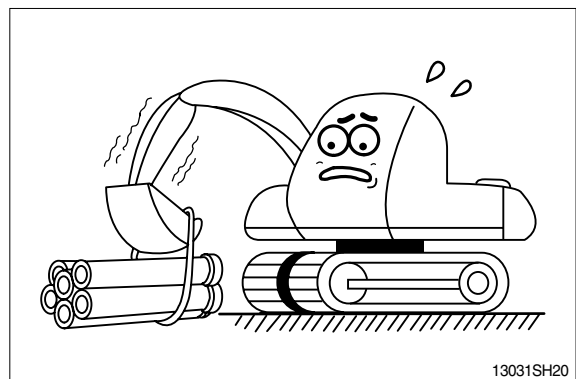
Avoid operating on a cliff or soft ground as there is danger of rolling over.

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.

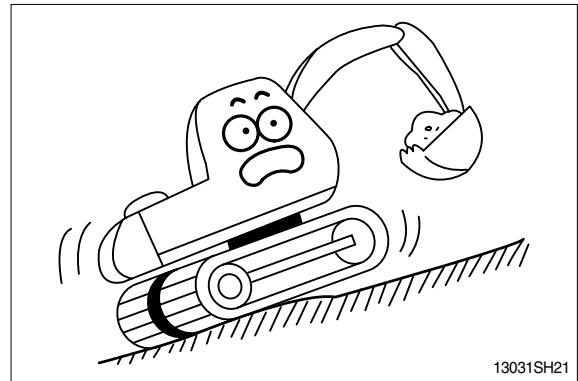


Operate for the lifting work considering the capacity of machine, weight and width of the load.

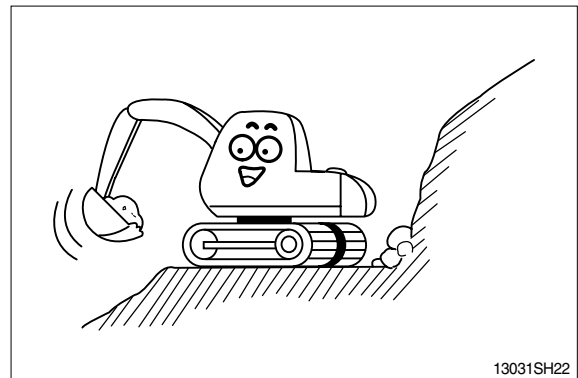
Be careful not to lift exceeding the machine capacity as it can be the cause of machine damage and safety accident.



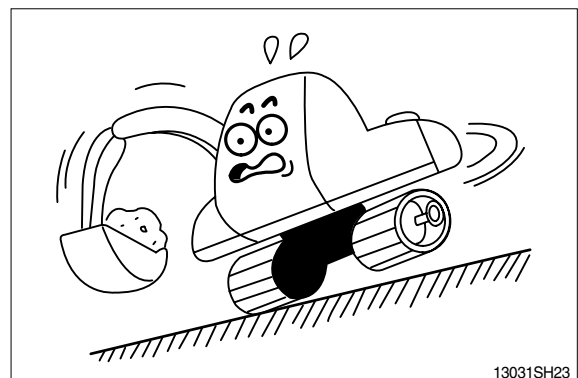
The operation on a slope is dangerous.  
Avoid operating the machine on a slope of over 10 degree.



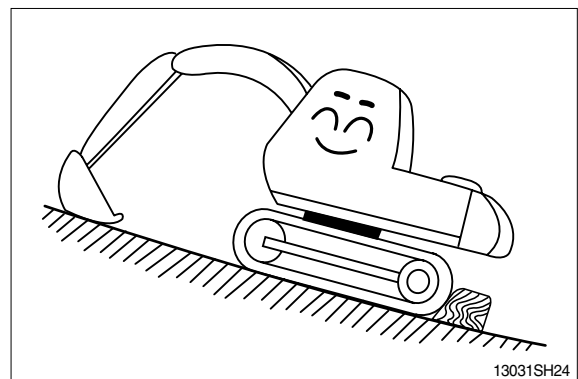
Operate the machine after making ground flat when operation is required on a slope.



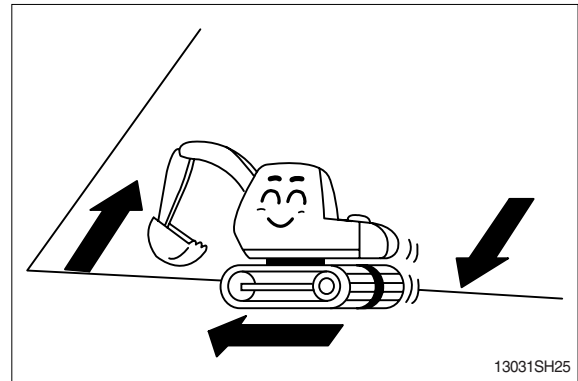
The swing on the slope can be danger of rolling over.  
Do not operate to swing the machine with the bucket loaded on a slope since the machine may lose its balance under such an instance.



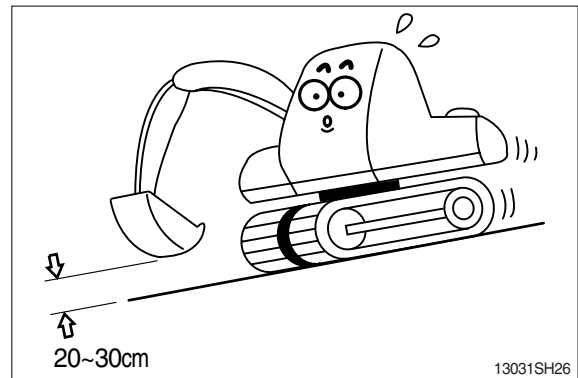
Avoid parking and stopping on a slope.  
Lower the bucket to the ground and block the track when parking.



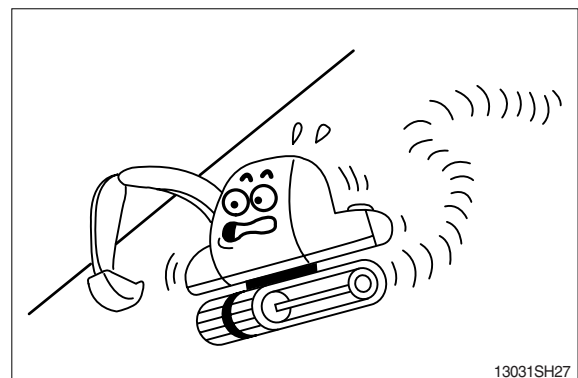
Avoid traveling in a cross direction on a slope as it can cause the danger of rolling over and sliding.



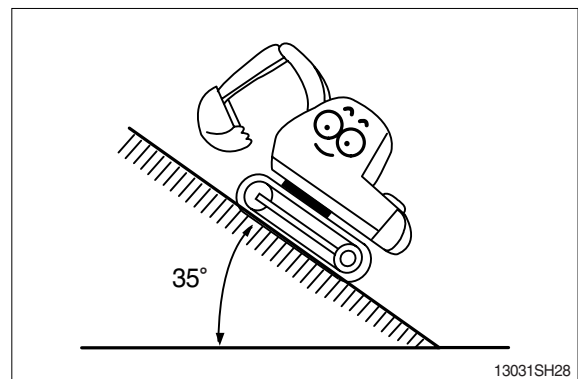
Traveling on a slope is dangerous.  
Be sure to operate slowly when traveling down a slope and maintain the bucket at a height of 20~30cm(1ft) above the ground so that it can be used as brake in an emergency.



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.

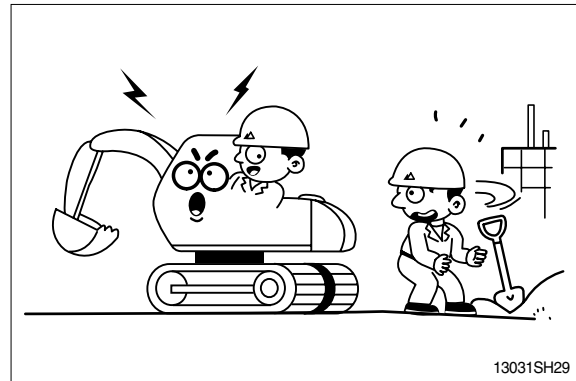


The engine angularity limits are 35 degree.  
Do not operate by more than the engine limits in any case.

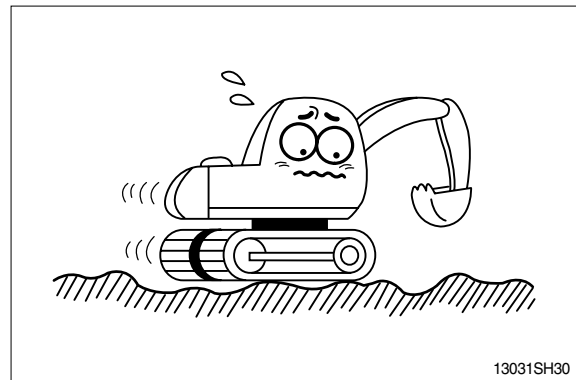


Before traveling the machine, sound the horn to warn nearby personnel.

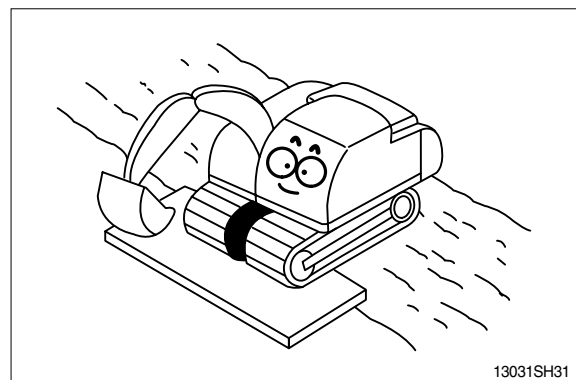
Operate forward and backward correctly with confirming the location of the travel motor.



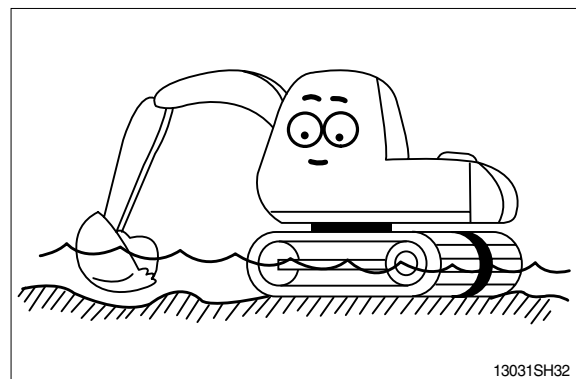
Slow down when traveling through obstacles or uneven ground.



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.



## MOUNTING AND DISMOUNTING

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

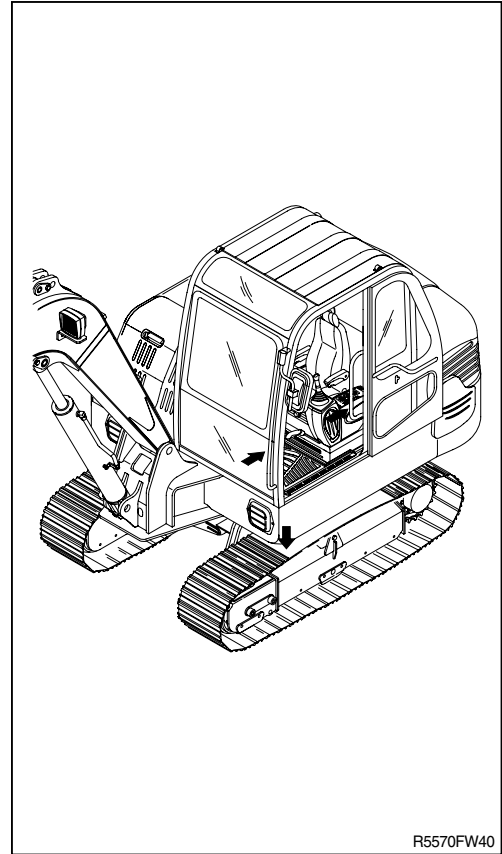
When mounting or dismounting, always face the machine and use the handrails, machine and track shoes.

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, and track shoes.

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

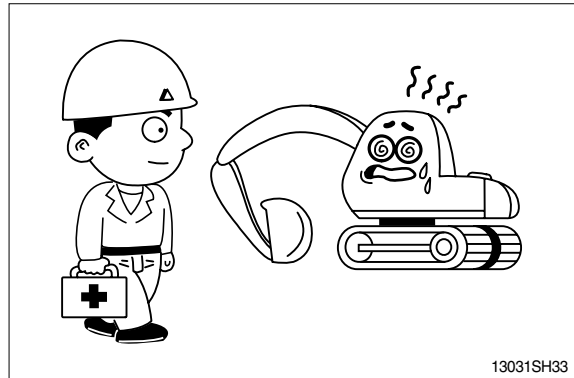
If grasping the door handrail when mounting or dismounting or moving on the track, open and lock the door securely in the open position. Otherwise, the door may move suddenly, causing you to lose balance and fall.



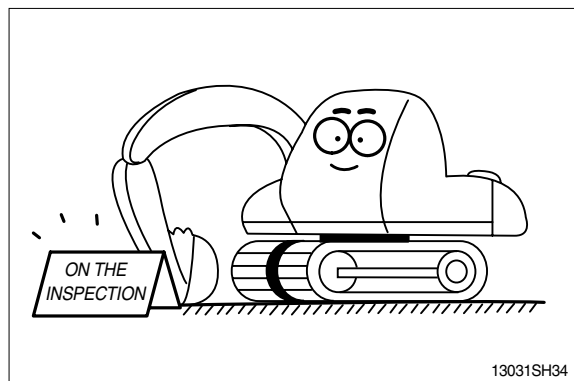
### 3. DURING MAINTENANCE

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.



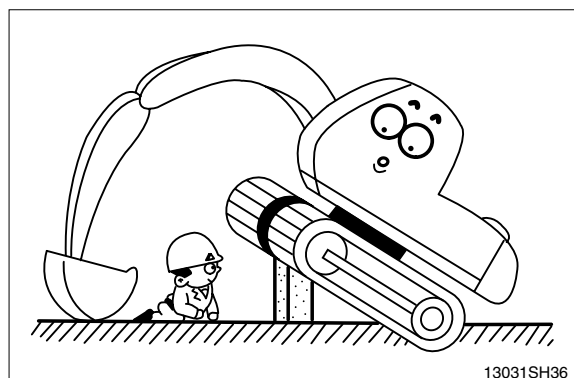
Park on a flat place and stop the engine for inspecting and repairing. Properly TAG machine is not operational. (Remove start key)  
Extreme care shall be taken during maintenance work. Parts may require additional safe guard.



Do not remove the radiator cap from hot engine.  
Open the cap after the engine cools, below 50° C(112°F) to prevent personal injury from heated coolant spray or steam.

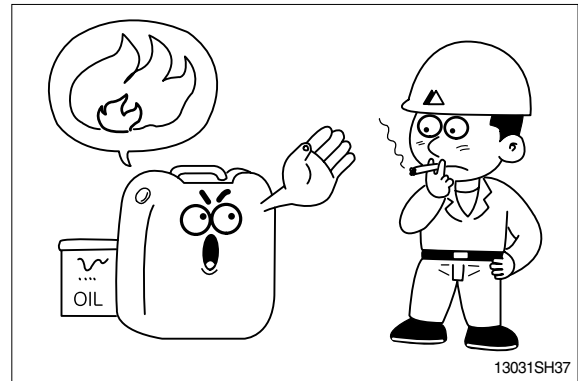


Do not work below the machine.  
Be sure to work with proper safety supports.  
Do not depend on the hydraulic cylinders to hold up the equipment and attachment.

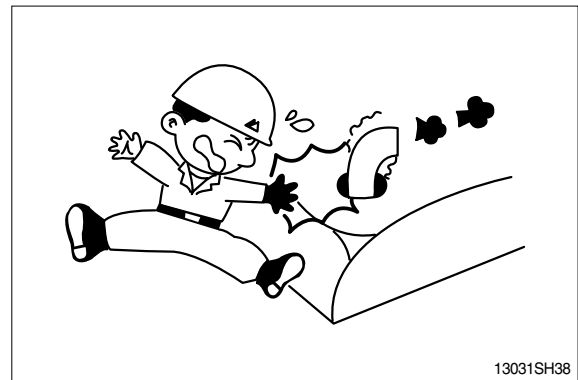




There is the danger of fire in fuel and oil.  
Store in cool and dry area, away from any open flames.



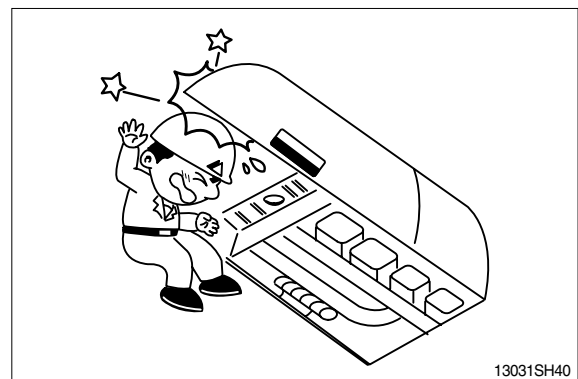
Do not touch exhaust pipe, or may cause severe burn.



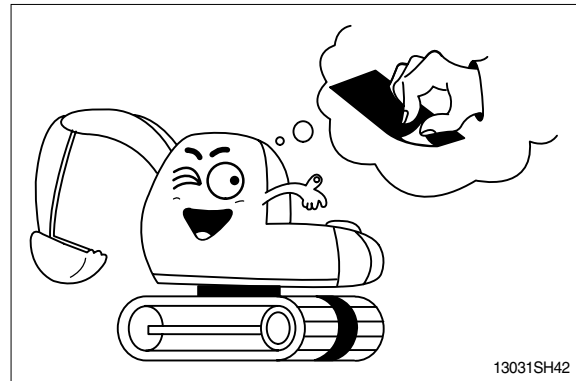
Do not open the engine hood and covers while the engine is running.



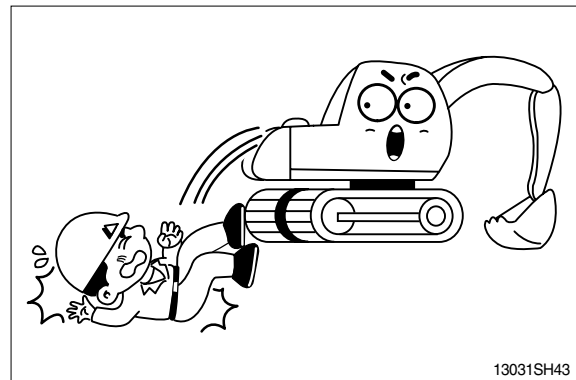
Be careful of not hitting the edges when you service engine.



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.

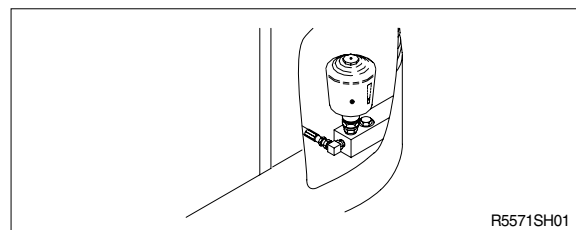


Be careful of not touching slip, fall down etc., when you work at the upper frame to service engine and/or other component.



## 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

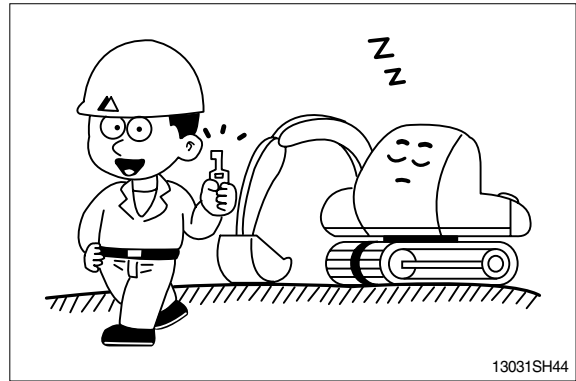
Lift eyes or tank can fail when lifting tank containing fluids resulting in possible personal injury.  
Drain tank of all fluids before lifting.



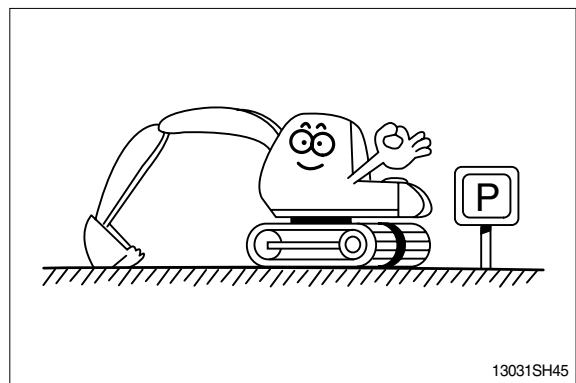
## 4. PARKING

When leaving the machine after parking, lower the bucket to the ground completely and put the safety lever at parking position then remove the key.

Lock the cab door.

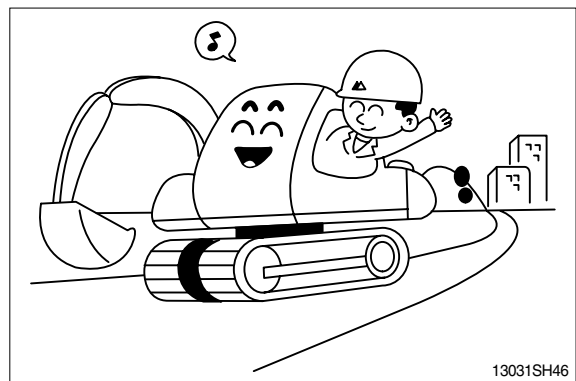


Park the machine in the flat and safe place.



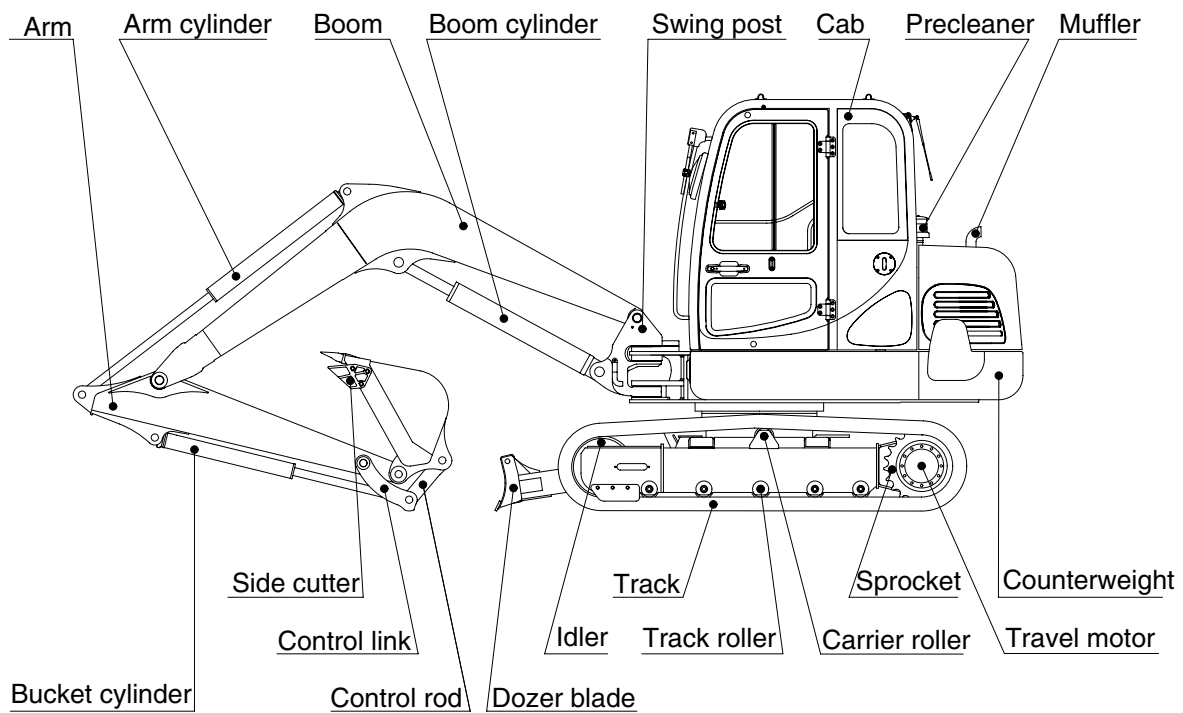
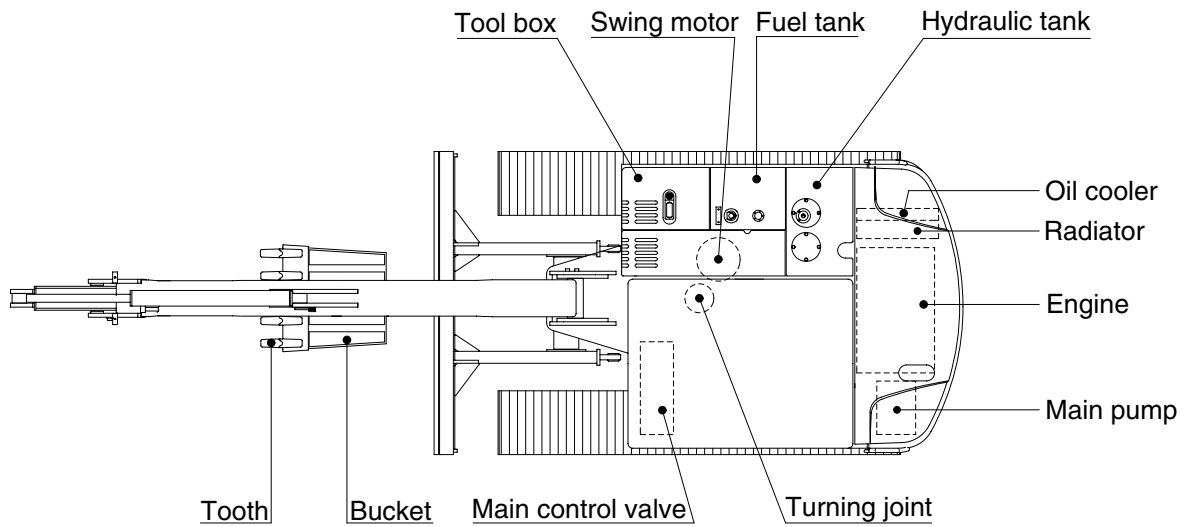
Hope you can work easily and safely observing safety rules.

For safe operation, observe all safety rules.



# SPECIFICATIONS

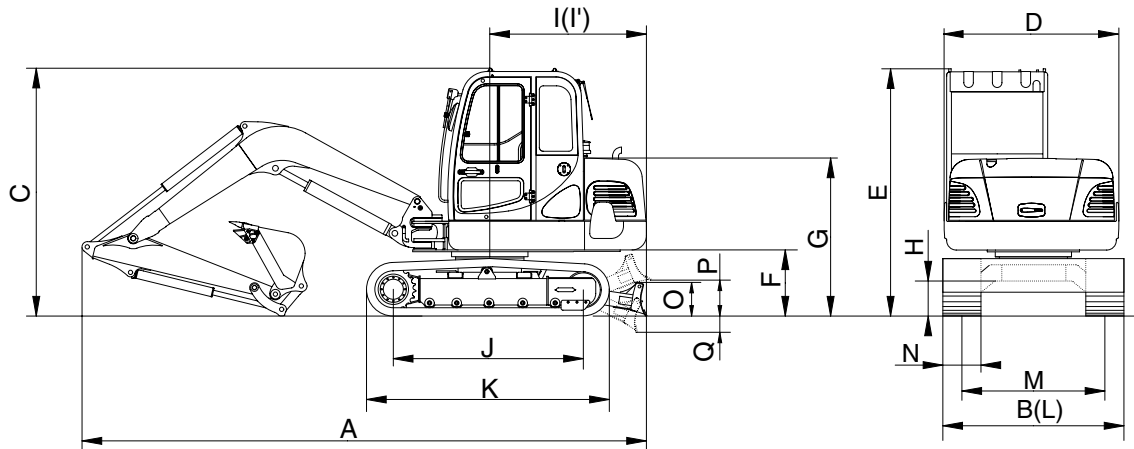
## 1. MAJOR COMPONENT



R5572SP01

## 2. SPECIFICATIONS

### 1) 3.0m( 9'10") MONO BOOM, 1.6m( 5' 3") ARM, WITH BOOM SWING POST

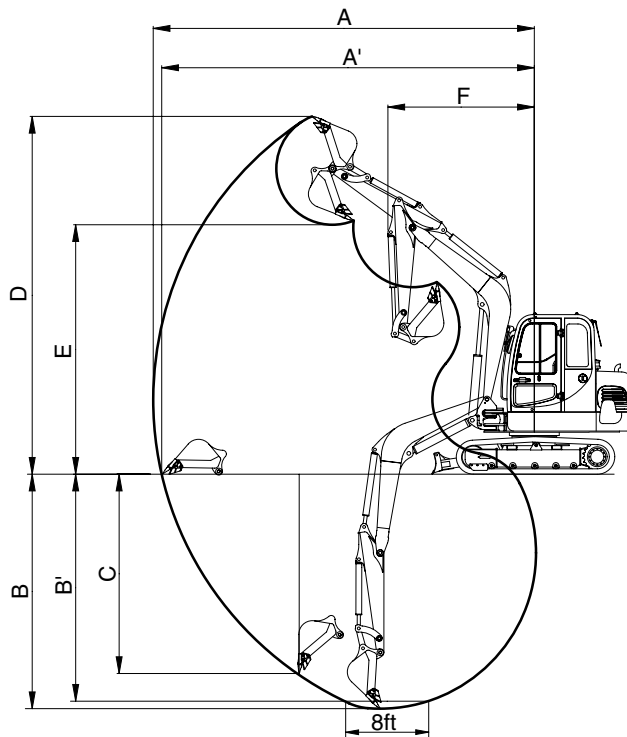


R557A2SP02

Description		Unit	Specification
Operating weight		kg(lb)	5700(12570)
Bucket capacity(SAE heaped), standard		m <sup>3</sup> (yd <sup>3</sup> )	0.18(0.24)
Overall length	A	mm(ft-in)	5900(19' 4")
Overall width, with 400mm shoe	B		1920( 6' 4")
Overall height	C		2550( 8' 4")
Superstructure width	D		1830( 6' 0")
Overall height of cab	E		2550( 8' 4")
Ground clearance of counterweight	F		690( 2' 3")
Engine cover height	G		1650( 5' 5")
Minimum ground clearance	H		380( 1' 3")
Rear-end distance	I		1640( 5' 5")
Rear-end swing radius	I'		1650( 5' 5")
Distance between tumblers	J		1990( 6' 6")
Undercarriage length	K		2530( 8' 4")
Undercarriage width	L		1900( 6' 3")
Track gauge	M		1500( 4'11")
Track shoe width, standard	N		400(16")
Height of blade	O		350( 1' 2")
Ground clearance of blade up	P		420( 1' 5")
Depth of blade down	Q		440( 1' 5")
Travel speed(Low/high)		km/hr(mph)	2.2/4.0(1.4/2.5)
Swing speed		rpm	9.3
Gradeability		Degree(%)	35(70)
Ground pressure(400mm shoe)		kgf/cm <sup>2</sup> (psi)	0.33(4.69)

### 3. WORKING RANGE

#### 1) 3.0m(9' 10") MONO BOOM WITH BOOM SWING POST



R5572SP03

Description		1.6m(5' 3") Arm
Max digging reach	A	6150mm (20' 2")
Max digging reach on ground	A'	6010mm (19' 9")
Max digging depth	B	3820mm (12' 6")
Max digging depth (8ft level)	B'	3420mm (11' 3")
Max vertical wall digging depth	C	3200mm (10' 6")
Max digging height	D	5780mm (18'12")
Max dumping height	E	4050mm (13' 3")
Min swing radius	F	2350mm ( 7' 9")
Boom swing radius(left/right)		80° /50°
Bucket digging force	SAE	37.7 kN
		3850 kgf
		8490 lbf
	ISO	42.4 kN
		4330 kgf
		9550 lbf
Arm crowd force	SAE	28.4 kN
		2900 kgf
		6390 lbf
	ISO	31.9 kN
		3260 kgf
		7190 lbf

[ ] : Power boost

## 4. WEIGHT











Item	kg	lb
Upperstructure assembly	2650	5840
Main frame weld assembly	680	1500
Engine assembly	280	620
Main pump assembly	30	70
Main control valve assembly	40	90
Swing motor assembly	70	160
Hydraulic oil tank assembly	80	180
Fuel tank assembly	60	130
Boom swing post	110	240
Counterweight	210	460
Cab assembly	280	620
Lower chassis assembly	2160	4750
Track frame weld assembly	720	1590
Swing bearing	100	220
Travel motor assembly	80	180
Turning joint	30	70
Track recoil spring	30	70
Idler & tension body	70	150
Carrier roller	5.4	12
Track roller	12	26
Sprocket	20	40
Track-chain assembly(400mm standard triple grouser shoe)	330	730
Dozer blade assembly	210	460
Front attachment assembly(3.0m boom, 1.6m arm, 0.18m <sup>3</sup> SAE heaped bucket)	740	1630
3.0m boom assembly	260	570
1.6m arm assembly	140	310
0.18m <sup>3</sup> SAE heaped bucket	170	370
Boom cylinder assembly	60	130
Arm cylinder assembly	50	110
Bucket cylinder assembly	30	70
Bucket control link assembly	40	90
Dozer cylinder assembly	50	110
Boom swing cylinder assembly	40	90

## 5. LIFTING CAPACITIES

1) 3.0m( 9'10") boom, 1.6m( 5' 3") arm equipped with 0.18m<sup>3</sup>(SAE heaped) bucket and 400mm(16") triple grouser shoe, the dozer blade up with 210kg(460lb) counterweight.

•  : Rating over-front











•  : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		2.0m(6.6ft)		3.0m(9.8ft)		4.0m(13.1ft)		5.0m(16.4ft)		Capacity		Reach
												m(ft)
5.0m (16.4ft)	kg lb									*950 *2090	*950 *2090	4.12 (13.5)
4.0m (13.1ft)	kg lb					*1020 *2250	*1020 *2250			*980 *2160	730 1610	5.07 (16.6)
3.0m (9.8ft)	kg lb					*1090 *2400	1070 2360			880 1940	600 1320	5.59 (18.3)
2.0m (6.6ft)	kg lb	*3060 *6750	*3060 *6750	*1690 *3730	1610 3350	*1330 *2930	1020 2250	1030 2270	710 1570	810 1790	550 1210	5.83 (19.1)
1.0m (3.3ft)	kg lb			2230 4920	1490 3280	1420 3130	970 2140	1000 2200	680 1500	790 1740	540 1190	5.84 (19.2)
Ground Line	kg lb	*2340 *5160	*2340 *5160	2160 4760	1430 3150	1380 3040	930 2050	990 2180	670 1480	840 1850	560 1230	5.62 (18.4)
-1.0m (-3.3ft)	kg lb	*3600 *7940	2760 6080	2140 4720	1410 3110	1360 3000	920 2030			960 2120	650 1430	5.13 (16.8)
-2.0m (-6.6ft)	kg lb	*3780 *8330	2800 6170	2160 4760	1430 3150					*1150 *2540	900 1980	4.22 (13.8)
-3.0m (-9.8ft)	kg lb	*2060 *4540	*2060 *4540									

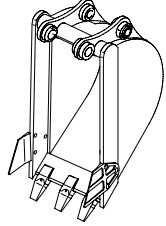
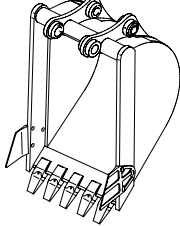
- Note
1. Lifting capacity are based on SAE J1097 and ISO 10567.
  2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
  3. The load point is a hook located on the back of the bucket.
  4. \*indicates load limited by hydraulic capacity.



2) 3.0m( 9'10") boom, 1.6m( 5' 3") arm equipped with 0.18m<sup>3</sup>(SAE heaped) bucket and 400mm(16") triple grouser shoe, the dozer blade down with 210kg(460lb) counterweight.

Load point height		Load radius								At max. reach		
		2.0m(6.6ft)		3.0m(9.8ft)		4.0m(13.1ft)		5.0m(16.4ft)		Capacity		Reach
												m(ft)
5.0m (16.4ft)	kg lb									*950 *2090	*950 *2090	4.12 (13.5)
4.0m (13.1ft)	kg lb					*1020 *2250	*1020 *2250			*980 *2160	780 1720	5.07 (16.6)
3.0m (9.8ft)	kg lb					*1090 *2400	*1090 *2400			*1020 *2250	640 1410	5.59 (18.3)
2.0m (6.6ft)	kg lb	*3060 *6750	*3060 *6750	*1690 *3730	*1690 *3730	*1330 *2930	1090 2400	*1180 *2600	750 1650	*1060 *2340	590 1300	5.83 (19.1)
1.0m (3.3ft)	kg lb			*2360 *5200	1600 3530	*1600 *3530	1030 2270	*1290 *2840	730 1610	*1100 *2430	570 1200	5.84 (19.2)
Ground Line	kg lb	*2340 *5160	*2340 *5160	*2700 *5950	1530 3320	*1800 *3970	1000 2200	*1360 *3000	710 1570	*1150 *2540	600 1320	5.62 (18.4)
-1.0m (-3.3ft)	kg lb	*3600 *7940	2990 6590	*2680 *5910	1510 3330	*1810 *3990	980 2160			*1190 *2620	680 1540	5.13 (16.8)
-2.0m (-6.6ft)	kg lb	*3780 *8330	3040 6700	*2310 *5090	1530 3370					*1150 *2540	950 2090	4.22 (13.8)
-3.0m (-9.8ft)	kg lb	*2060 *4540	*2160 *4540									

## 6. BUCKET SELECTION GUIDE

	
0.07m³ SAE heaped bucket	0.18m³ SAE heaped bucket

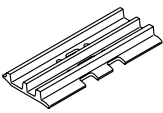
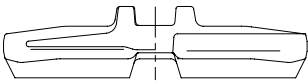
Capacity		Width		Weight	Recommendation
					3.0m ( 9'10") boom
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.6m ( 5' 3") arm
0.07m³ (0.09yd³)	0.06m³ (0.08yd³)	315mm (12.4")	360mm (14.2")	84kg (185lb)	Applicable for materials with density of 1600kgf/m³ (2700lb/yd³) or less
0.18m³ (0.24yd³)	0.15m³ (0.20yd³)	705mm (27.8")	770mm (30.3")	137kg (300lb)	

## 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		Steel triple grouser	Rubber track
				
R55-7A	Shoe width	mm(in)	400(16)	400(16)
	Operating weight	kg(lb)	5700(12570)	5700(12570)
	Ground pressure	kgf/cm <sup>2</sup> (psi)	0.33(4.69)	0.33(4.69)
	Overall width	mm(ft-in)	1900( 6' 3")	1900( 6' 3")

### 3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	1EA
Track rollers	5EA
Track shoes	40EA

## 8. SPECIFICATIONS FOR MAJOR COMPONENTS

### 1) ENGINE

Item	Specification
Model	Yanmar 4TNV98-EPHYB
Type	4-cycle diesel engine, low emission
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	98 × 110mm(3.85" × 4.33")
Piston displacement	3319cc(203cu in)
Compression ratio	18.5 : 1
Rated gross horse power(SAE J1995)	57Hp at 2400rpm(42.5kW at 2400rpm)
Maximum torque at 1550rpm	20.5kgf · m(148lbf · ft)
Engine oil quantity	11.6 l (3.1U.S. gal)
Dry weight	270kg(595lb)
High idling speed	2400+ 50rpm
Low idling speed	1050± 100rpm
Rated fuel consumption	175.6g/Hp · hr at 2400rpm
Starting motor	12V-3.0kW
Alternator	12V-80A
Battery	1 × 12V × 100Ah

### 2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 26.3cc/rev
Maximum pressure	220kgf/cm <sup>2</sup> (3130psi)
Rated oil flow	2 × 58 l /min (15.3U.S. gpm/ 12.8U.K. gpm)
Rated speed	2200rpm

### 3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	16.2/4.5cc/rev
Maximum pressure	220/30kgf/cm <sup>2</sup> (3130/430psi)
Rated oil flow	35.6/9.9 l /min(9.4/2.6U.S. gpm/7.8/2.2U.K. gpm)

### 4) MAIN CONTROL VALVE

Item	Specification
Type	Sectional, 10 spools+1 option
Operating method	Hydraulic pilot system+Mechanical control system
Main relief valve pressure	220kgf/cm <sup>2</sup> (3130psi)
Overload relief valve pressure	240kgf/cm <sup>2</sup> (3410psi)

### 5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	30.4cc/rev
Relief pressure	220kgf/cm <sup>2</sup> (3130psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	14kgf · m(101lbf · ft)
Brake release pressure	20~40kgf/cm <sup>2</sup> (284~570psi)
Reduction gear type	2 - stage planetary
Swing speed	9.3cc/rev

### 6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	220kgf/cm <sup>2</sup> (3130psi)
Reduction gear type	2-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	9kgf/cm <sup>2</sup> (128psi)
Braking torque	8.4kgf · m(61lbf · ft)

## 7) REMOTE CONTROL VALVE

Item		Specification
Type		Pressure reducing type
Operating pressure	Minimum	5kgf/cm <sup>2</sup> (71psi)
	Maximum	20kgf/cm <sup>2</sup> (284psi)
Single operation stroke	Lever	6.5/8.5mm(0.26/0.33in)

## 8) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	ø 110 × ø 65 × 715mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	ø 90 × ø 55 × 850mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	ø 80 × ø 50 × 660mm
	Cushion	-

※ 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.

## 9) SHOE

Item	Width	Ground pressure	Link quantity	Overall width
R55-7A	400mm(16")	0.33kgf/cm <sup>2</sup> (4.69psi)	40	1900mm( 6' 3")

## 10) BUCKET

Item		Capacity		Tooth quantity	Width	
		SAE heaped	CECE heaped		Without side cutter	With side cutter
R55-7A	STD	0.18m <sup>3</sup> (0.24yd <sup>3</sup> )	0.15m <sup>3</sup> (0.20yd <sup>3</sup> )	5	705mm(27.8")	770mm(30.3")
	OPT	0.07m <sup>3</sup> (0.09yd <sup>3</sup> )	0.06m <sup>3</sup> (0.08yd <sup>3</sup> )	3	315mm(12.4")	360mm(14.2")

## 9. RECOMMENDED OILS

Use only oils listed below or equivalent.

Do not mix different brand oil.

Service point	Kind of fluid	Capacity l (U.S. gal)	Ambient temperature °C( °F)						
			-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)
Engine oil pan	Engine oil	11.6(3.1)					SAE 30		
						SAE 10W			
							SAE 10W-30		
							SAE 15W-40		
Swing drive	Gear oil	1.5(0.4)							
Final drive		1.2×2 (0.3×2)					SAE 85W-140		
Hydraulic tank	Hydraulic oil	Tank: 70(18.5) System: 120(31.7)					ISO VG 32		
							ISO VG 46		
							ISO VG 68		
Fuel tank	Diesel fuel	120(31.7)				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 water 50 : 50	10(2.6)					Ethylene glycol base permanent type		

**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

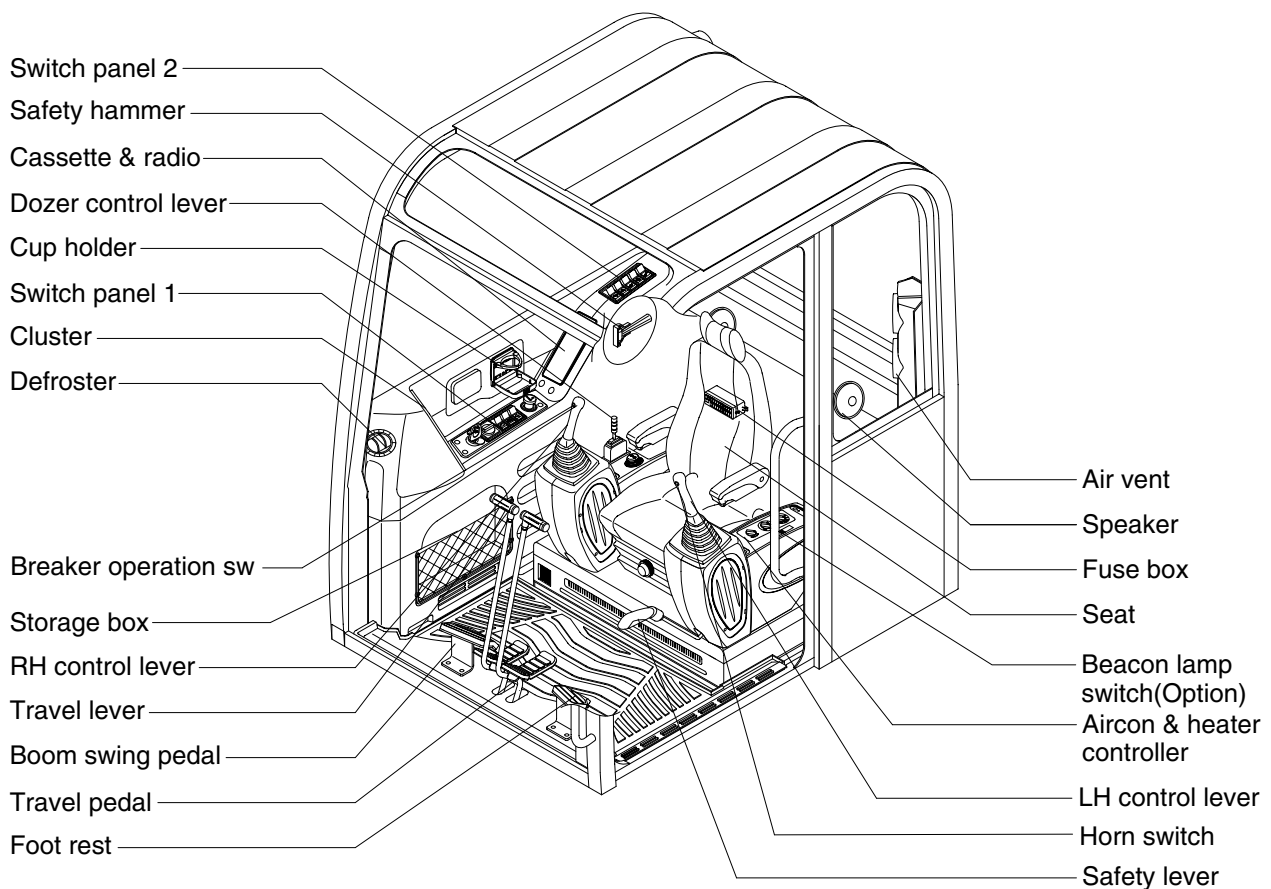
# CONTROL DEVICES

## 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.



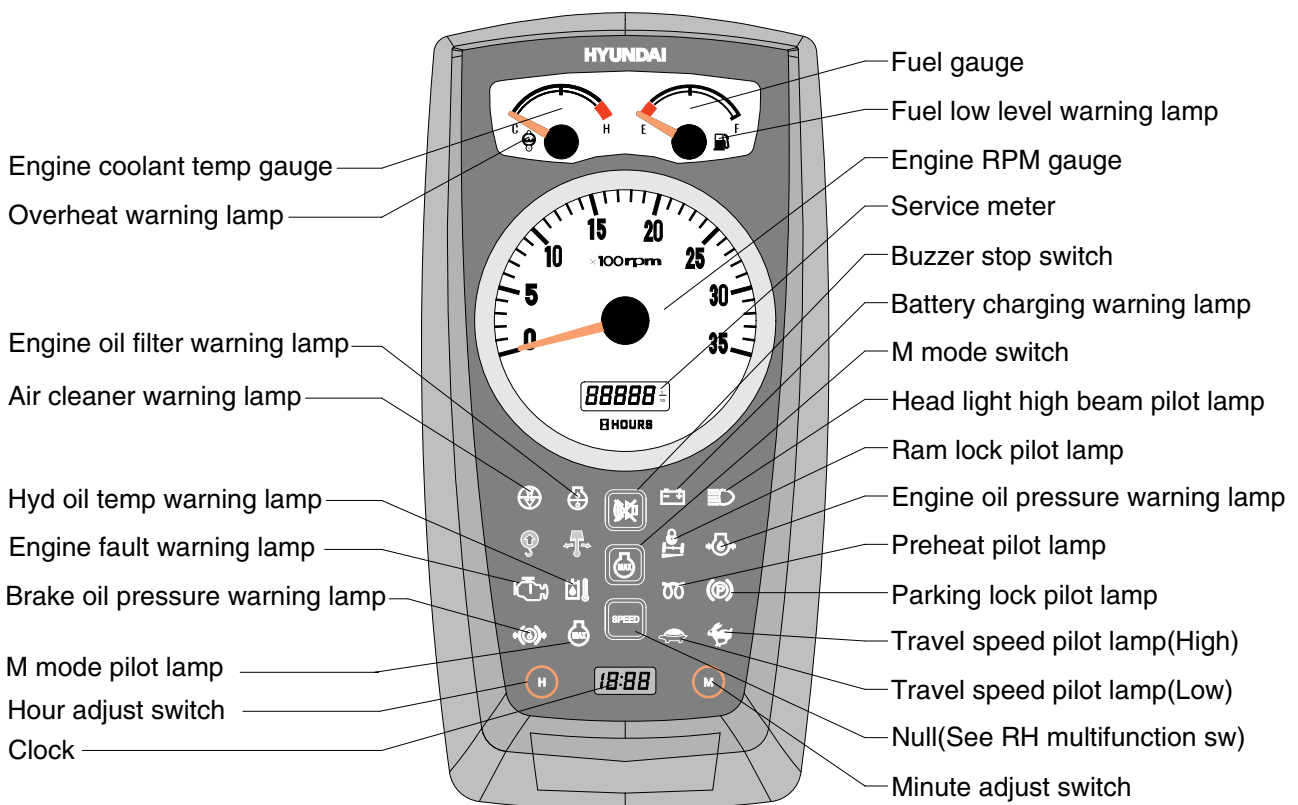
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## 2. CLUSTER

The cluster consists of gauges and lamps as shown below, to warn the operator in case of abnormal machine operation or conditions for the appropriate operation and inspection.

- Gauges : Indicate operating status of the machine.
  - Warning lamp : Indicate abnormality of the machine(Red).
  - Pilot lamp : Indicate operating status of the machine.
- ※ **The monitor 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 monitor provides a warning, immediately check the problem and perform the required action.**



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- ※ **The warning lamp lights ON and the buzzer sounds when the machine has a problem.**
- In this case, press the buzzer stop switch and buzzer stop, but the warning lamp lights until the problem is cleared.**

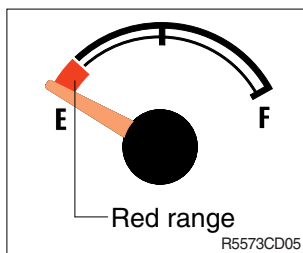
## 1) GAUGES AND DISPLAYS



### (1) Service meter



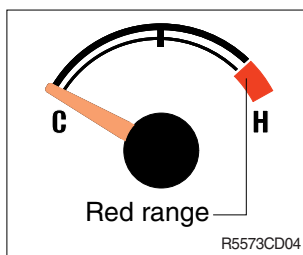
- ① This meter shows the total operation hours of the machine.
- ② Always ensure the operating condition of the meter during the machine operation.  
Inspect and service the machine based on hours as indicated in chapter 6, **maintenance**.


### (2) Fuel gauge



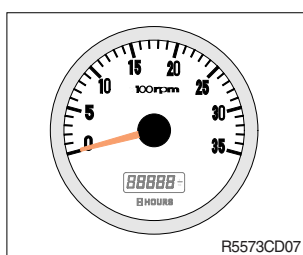
- ① This gauge indicates the amount of fuel in the fuel tank.
- ② Fill the fuel when the red range or warning lamp  ON.  
※ If the gauge indicate the red range or warning lamp  ON. Even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

### (3) Engine coolant temperature gauge



- ① This indicates the temperature of coolant.
  - Red range : Above 105°C (221°F)
- ② When the red range pointed or warning lamp  ON, engine do not abruptly stop but run it at medium speed to allow it to cool gradually, then stop it.  
Check the radiator and engine.  
※ If the engine is stopped without cooled down running, the temperature of engine parts will rise suddenly, this could cause severe engine trouble.

### (4) Engine rpm gauge



- ① This gauge displays the number of engine revolutions per minute.

### (5) Clock



- ① This displays the current time.
- ② Refer to the hour/minute adjust switch for adjusting time.

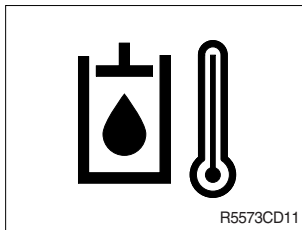
## 2) WARNING AND PILOT LAMPS

### (1) Fuel low level warning lamp



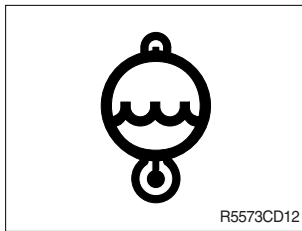
- ① This lamp blinks and the buzzer sounds when the level of fuel is below 13 l (3.4U.S. gal).
- ② Fill the fuel immediately when the lamp blinks.

### (2) Hydraulic oil temperature warning lamp



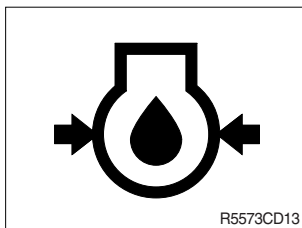
- ① This warning lamp operates and the buzzer sounds when the temperature of hydraulic oil is over 105°C (221°F) .
- ② Check the hydraulic oil level when the lamp blinks.
- ③ Check for debris between oil cooler and radiator.

### (3) Overheat warning lamp



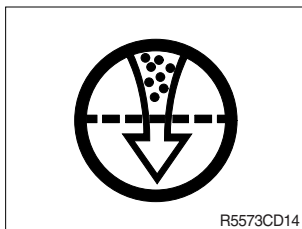
- ① This lamp blinks and the buzzer sounds when the temperature of coolant is over the normal temperature 110°C (230°F) .
- ② Check the cooling system when the lamp blinks.

### (4) Engine oil pressure warning lamp



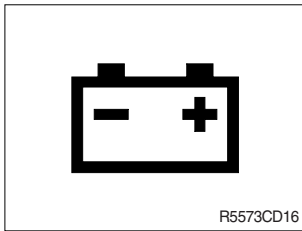
- ① This lamp blinks and the buzzer sounds after starting the engine because of the low oil pressure.
- ② If the lamp blinks during engine operation, shut OFF engine immediately. Check oil level.

### (5) Air cleaner warning lamp



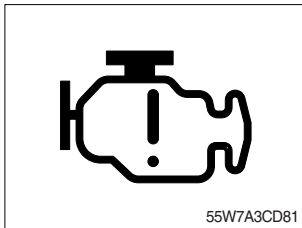
- ① This lamp blinks and the buzzer sounds when the filter of air cleaner is clogged.
- ② Check the filter and clean or replace it.

#### (6) Battery charging warning lamp



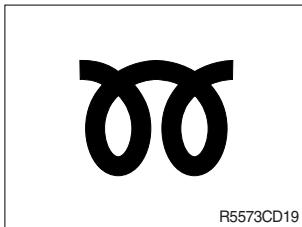
- ① This lamp blinks and the buzzer sounds when the starting switch is ON, it is turned OFF after starting the engine.
- ② Check the battery charging circuit when this lamp blinks during engine operation.

#### (7) Engine fault warning lamp



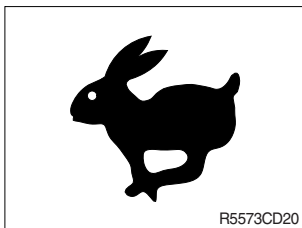
- ① This lamp is ON and the buzzer sounds when the ECM on the engine is abnormal.
  - ② Check the ECM of the engine.
- ※ **Please contact Hyundai service center in your area.**

#### (8) Preheat pilot lamp



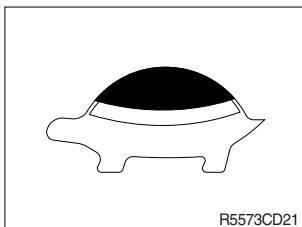
- ① When engine preheating switch is turned ON, pilot lamp comes ON.
- ② Refer to the preheating switch for details.

#### (9) Travel speed pilot lamp(High)



- ① When this lamp turned ON, the machine travel high speed.
- ② Refer to the travel speed select switch for details.

#### (10) Travel speed pilot lamp(Low)



- ① When this lamp turned ON, the machine travel low speed.
- ② Refer to the travel speed select switch for details.

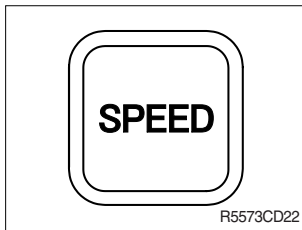
#### (11) M mode pilot lamp



- ① This lamp is ON when the M mode switch is pressed.

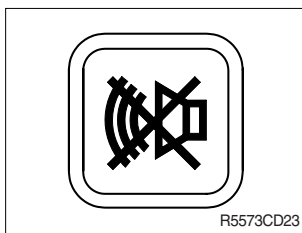
### 3) SWITCHES

#### (1) Travel speed control switch



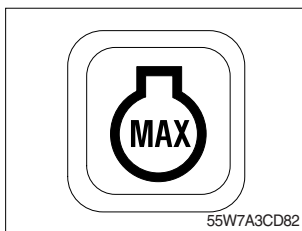
- ① This switch is to control the travel speed which is changed to high speed(Rabbit mark) by pressing the switch and low speed(Turtle mark) by pressing it again.

#### (2) Buzzer stop switch



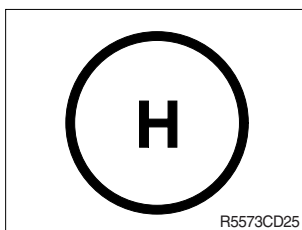
- ① When the starting switch is turned ON first, normally the alarm buzzer sounds for 6 seconds during lamp check operation.
- ② The red lamp lights ON and the buzzer sounds when the machine has a problem.  
In this case, press this switch and buzzer stops, but the red lamp lights until the problem is cleared.

#### (3) M mode switch



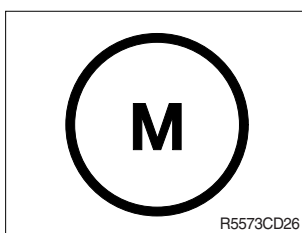
- ① This switch is used to maximum power.
- ② When this switch is pressed, the M mode pilot lamp is ON or OFF.

#### (4) Hour adjust switch



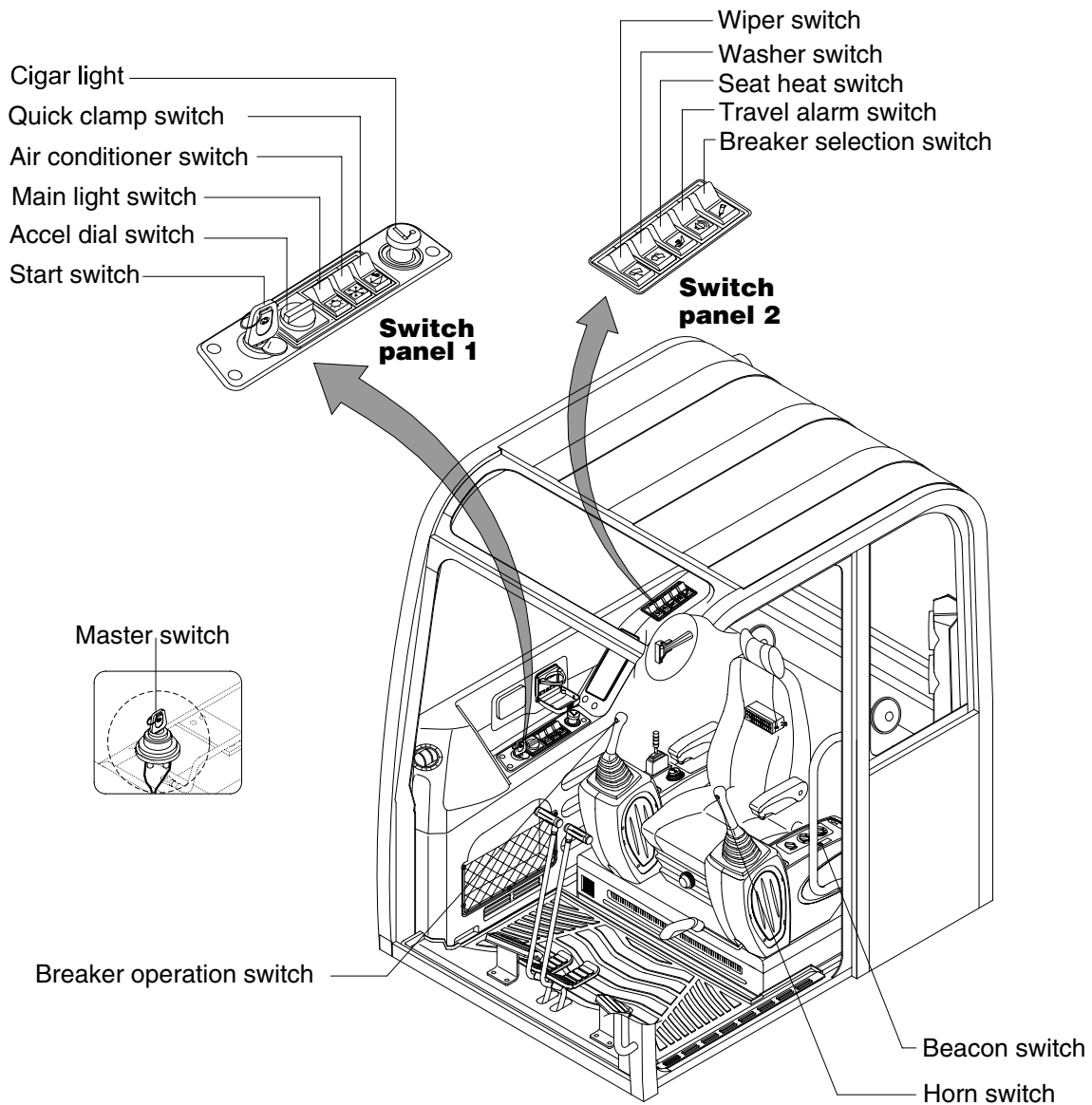
- ① This switch is used to adjust hour.
- ② The switch is pressed, hour is increased.

#### (5) Minute adjust switch



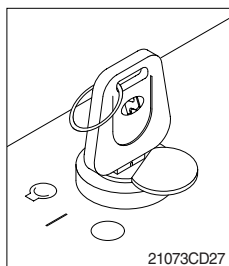
- ① This switch is used to adjust minute.
- ② The switch is pressed, minute is increased.

### 3. SWITCHES



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#### 1) STARTING SWITCH

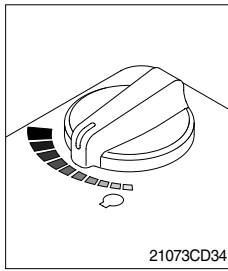


(1) There are three positions, OFF, ON and START.

- ○ (OFF) : None of electrical circuits activate.
- | (ON) : All the systems of machine operate.
- ⦿ (START) : Use when starting the engine. Release key immediately after starting.

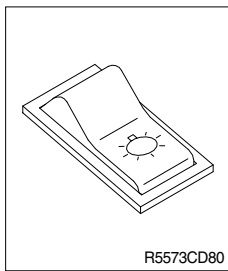
※ **Key must be in the ON position with engine running to maintain electrical and hydraulic function and prevent serious machine damage.**

## 2) ACCEL DIAL



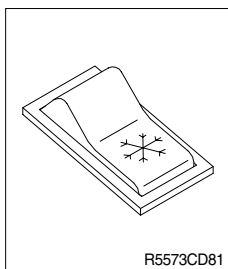
- (1) There are 10 dial setting.
- (2) Setting 1 is low idle and setting 10 is high idle.
  - By rotating the accel dial to right : Engine speed increased.
  - By rotating the accel dial to left : Engine speed decreased.

## 3) MAIN LIGHT SWITCH



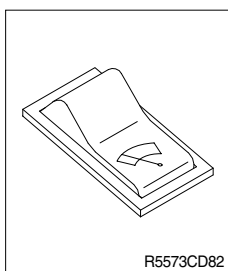
- (1) This switch use to operates the head light and work light by two step.
  - First step : Head light and cluster illumination lamp comes ON.
  - Second step : Work light comes ON. Also, the below indicator lamp comes ON.

## 4) AIRCON SWITCH



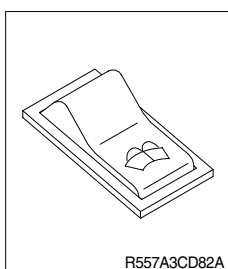
- (1) This switch use to operates the air conditioner.
- (2) Refer to the air conditioner and heater for detail operation.

## 5) WIPER SWITCH



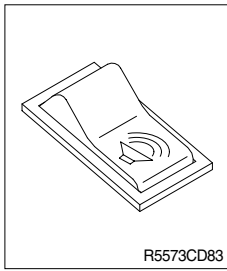
- (1) The switch use to operates the wiper.  
The wiper operates.

## 6) WASHER SWITCH



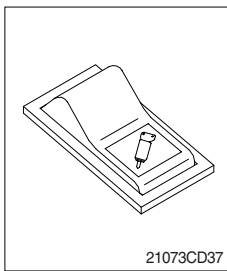
- (1) This switch use to operates the washer.
  - The washer liquid is sprayed and the wiper is operated only while pressing this switch. If release the switch, return to the first position.

## 7) TRAVEL ALARM SWITCH(Optional)



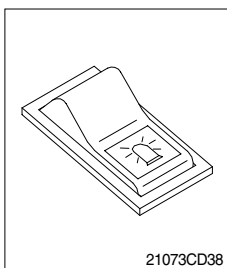
- (1) This switch is the signal to alarm surroundings when the machine travels to forward and backward.
- (2) On pressing this switch, the alarm operates only when the machine is traveling.

## 8) BREAKER SELECTION SWITCH(Optional)



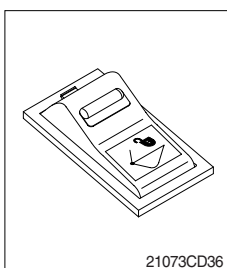
- (1) This switch is used to operate breaker.
- ※ The breaker operates only when this switch is pressed.

## 9) BEACON SWITCH(Optional)



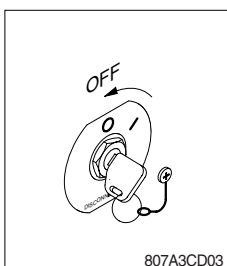
- (1) This switch turns ON the rotary light on the cab.
- (2) The below indicator lamp is turned ON when operation this switch.

## 10) QUICK CLAMP SWITCH(Optional)



- (1) This switch is used to engage or disengage the moving hook on quick clamp.
- ※ Refer to the page 8-6 for details.

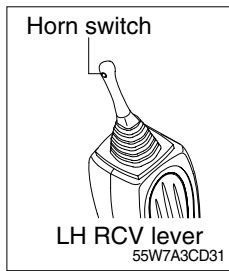
## 11) MASTER SWITCH



- (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. It could result in engine and electrical system damage.

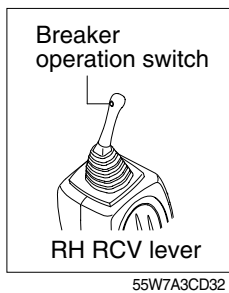


## 12) HORN SWITCH



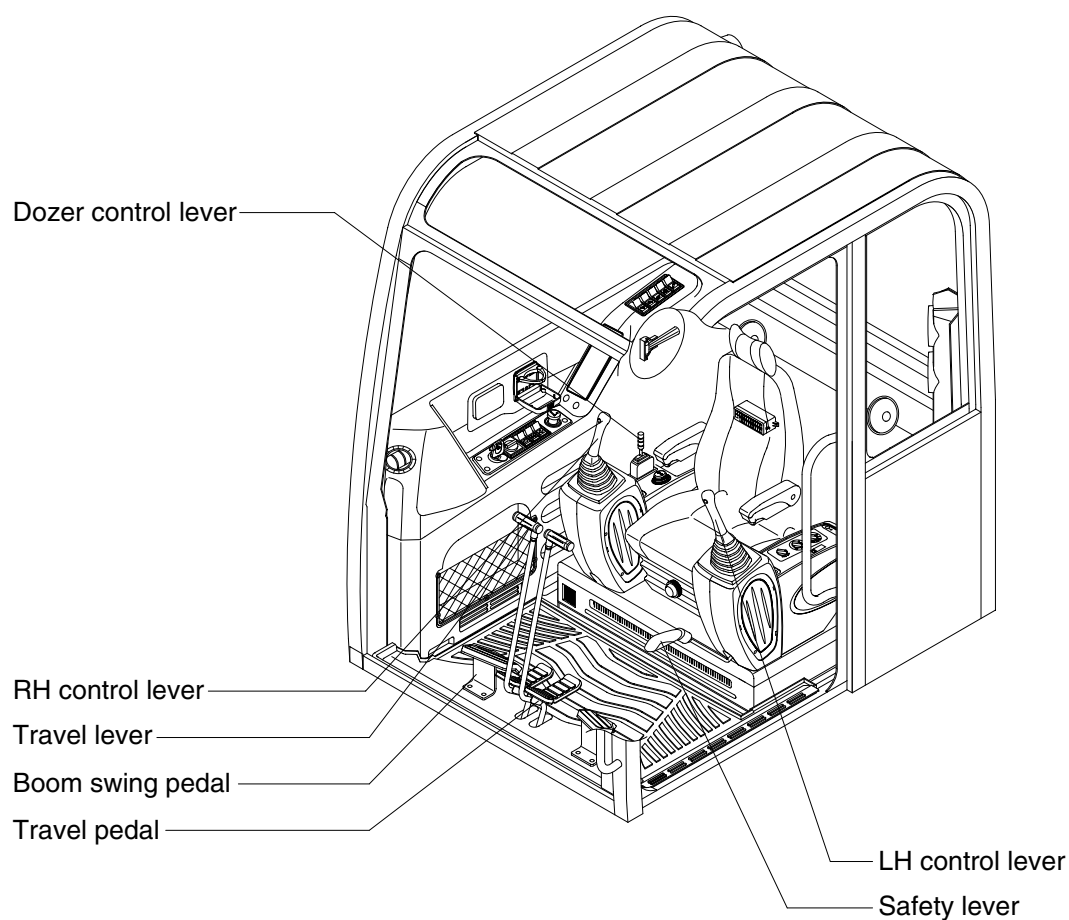
- (1) This switch is at the top of left side control lever.  
On pressing, the horn sounds.

## 13) BREAKER OPERATION SWITCH



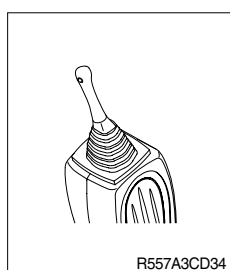
- (1) On pressing this switch, the breaker operates only when the breaker selection switch on the switch panel is selected.

## 4. LEVERS AND PEDALS



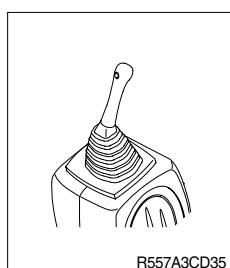
R557A3CD33A

### 1) LH CONTROL LEVER



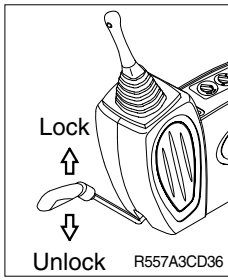
- (1) This joystick is used to control the swing and the arm.
- (2) Refer to **operation of working device** in chapter 4 for details.

### 2) RH CONTROL LEVER



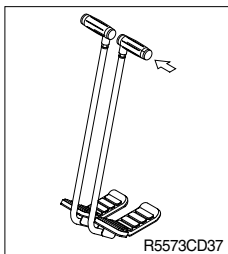
- (1) This joystick is used to control the boom and the bucket.
- (2) Refer to **operation of working device** in chapter 4 for details.

### 3) SAFETY LEVER



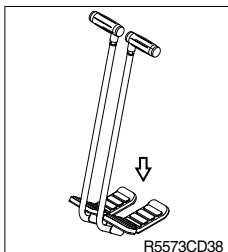
- (1) LH, RH control levers and dozer control lever are disabled from operation by locating the lever to lock position as shown.
    - ※ **Be sure to raise the lever to LOCK position when leaving from operator's seat.**
  - (2) By pushing lever to UNLOCK position, machine is operational.
    - ※ **Do not use the safety lever for handle when getting on or off the machine.**
- ▲ **The machine is able to travel even when the safety lever is in the LOCK position.**

### 4) TRAVEL LEVER



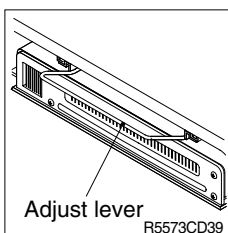
- (1) This lever is mounted on travel pedal and used for traveling by hand. The operation principle is same as the travel pedal.
- (2) Refer to **traveling of the machine** in chapter 4 for details.

### 5) TRAVEL PEDAL



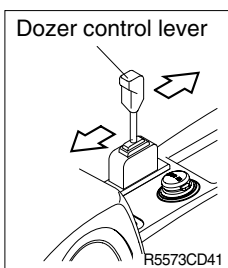
- (1) This pedal is used to move the machine forward or backward.
- (2) If left side pedal is pressed, left track will move.  
If right side pedal is pressed, right track will move.
- (3) Refer to **traveling of machine** in chapter 4 for details.

### 6) SEAT AND CONSOLE BOX ADJUST LEVER



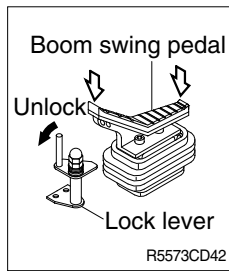
- (1) This lever is used to move the seat and console box to fit the contours of the operator's body.
- (2) Pull the lever to adjust forward or backward over 90mm(3.5").

### 7) DOZER CONTROL LEVER



- (1) This lever is used to operate the dozer blade.
- (2) If the lever is pushed forward, the dozer blade will be going down.  
If the lever is pulled back, the dozer blade will be going up.

## 8) BOOM SWING PEDAL

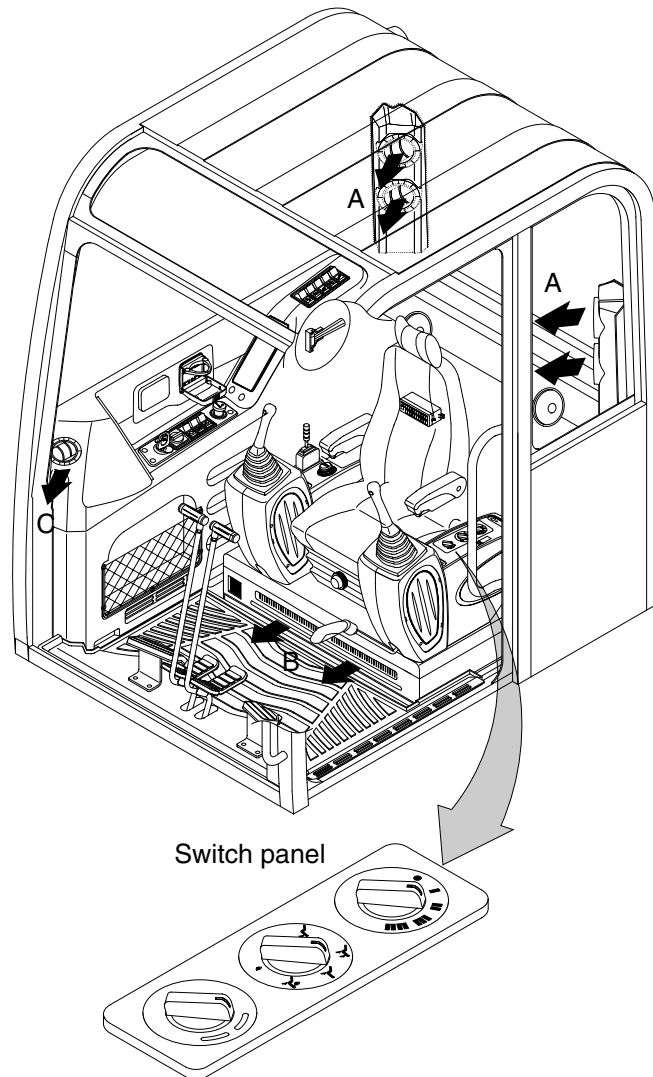


- (1) This pedal is used to swing the boom to the right and left direction.
  - (2) Move the lock lever to unlock position by foot.
  - (3) The pedal is pressed to front side, boom will move to the left direction.  
The pedal is pressed to rear side, boom will move to the right direction.
- ※ **Move the lock lever to LOCK position When leaving from operator's seat.**

## 5. AIR CONDITIONER AND HEATER

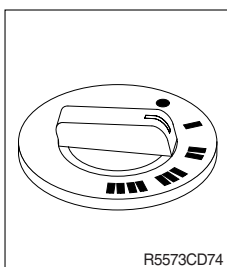
Air conditioner and heater are equipped for pleasant operation against outside temperature.

- Location of air flow ducts



R557A3CD45

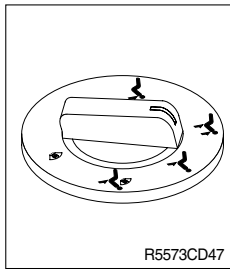
### 1) FAN SWITCH



It is possible to control the fan to four steps.

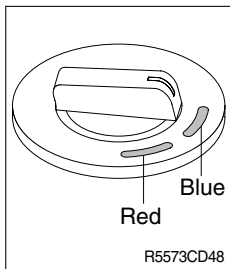
-  : Low
-  : Medium-Low
-  : Medium-High
-  : High

2) OUTLET CHANGE OVER SWITCH



Switch position		Mode				
Outlet	A		●	●		
	B	●		●	●	
	C				●	●

3) TEMPERATURE CONTROL SWITCH



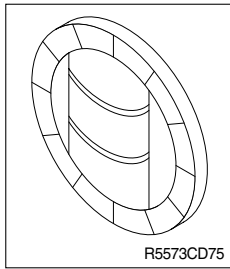
(1) Cooling(Air conditioner switch : ON)

- ① Turned ON the air conditioner switch on the switch panel.
- ② Turn the control switch into **blue range** to decrease output air temperature.

(2) Heating(Air conditioner switch : OFF)

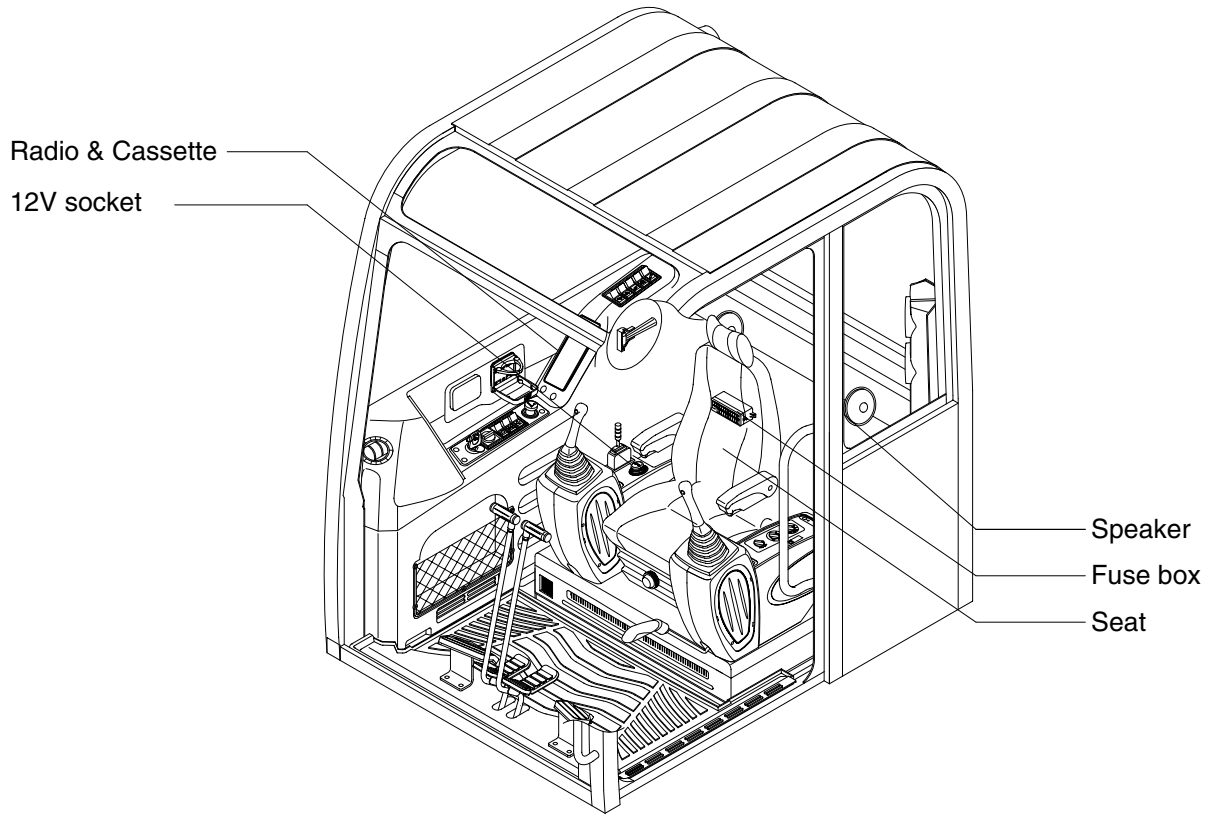
- ① Turned OFF the air conditioner switch on the switch panel.
- ② Turn the control switch into **red range** to increase temperature.

4) OUTLET CONTROL LOUVER



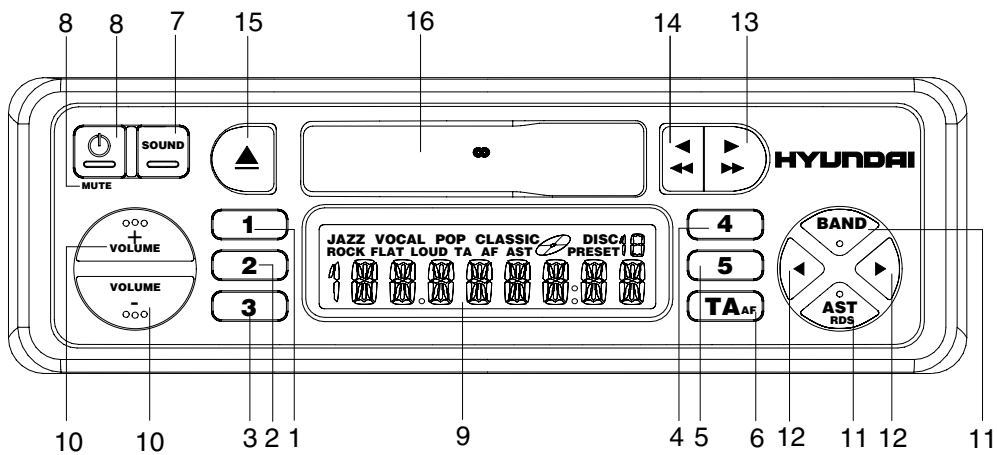
The direction of air can be controlled.  
It can be closed or opened.

## 6. OTHERS



R557A3CD50

### 1) RADIO AND CASSETTE



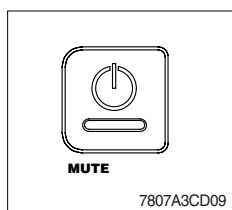
7807A3CD81

## ■ FRONT PANEL PRESENTATION

- |    |                    |   |    |                   |                                    |
|----|--------------------|---|----|-------------------|------------------------------------|
| 1  |                    | ..... Preset button 1   | 11 | <b>RDS</b> .....  | Long press : RDS on/off            |
| 2  |                    | ..... Preset button 2   |    | <b>BAND</b> ..... | Short press : To select band       |
| 3  |                    | ..... Preset button 3   |    | <b>AST</b> .....  | Short press : Autostore            |
| 4  |                    | ..... Preset button 4   | 12 | .....             | <b>Tuner mode</b>                  |
| 5  |                    | ..... Preset button 5   |    |                   | Short press : Auto search up/down  |
| 6  |                    | ..... Short press : TA on/off<br>Long press : AF on/off                             |    |                   | Long press : Manual search up/down |
| 7  | <b>SOUND</b> ..... | Select sound/audio styles   |    |                   | <b>Cassette mode</b> : No function |
| 8  |                    | ..... Short press : power on<br>Long press : power off                              | 13 |                   | ..... Fast forward                 |
|    | <b>MUTE</b> .....  | Short press : To mute or cancel mute.   | 14 |                   | ..... Fast rewind                  |
| 9  | .....              | Display   | 15 |                   | ..... Eject cassette               |
| 10 | .....              | Volume knob : Press up/down to<br>adjust the volume ; adjust selected<br>audio mode | 16 | .....             | Cassette opening                   |

## ■ AUDIO

### (1) Power and mute button



#### ① POWER ON/OFF

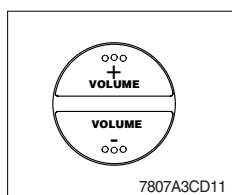
Press to switch on the set. Press for more than 2 seconds to switch off the set.

#### ② MUTE(Silence)

Short press key to mute or cancel the mute(silence).

※ The silence period may be interrupted by ALARM announcement or traffic announcement messages(If TA is switched on).

### (2) Volume button

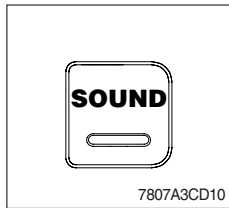


#### ① Press the volume button up/down to adjust the volume.

Please make sure you can still hear the traffic(horns, sirens..).



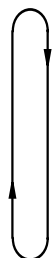
### (3) Sound button



#### ① SOUND

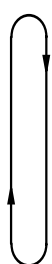
Whether you listen to Jazz, Vocal, Pop, Classic or Rock music, the SOUND button is the perfect setting for your choice.

- Press SOUND then the sound button to select BASS-Treb for your own sound style, or adjust the settings with the volume up/down buttons to select one of the pre define sound styles:

- 
- BASE -TRE : Your own settings of bass and treble.
  - FLAT : Original
  - JAZZ : Jazz music
  - VOCAL : Speech
  - POP : Pop music
  - CLASSIC : Classical music
  - ROCK : Rock music

#### ② AUDIO SETTING

- Press SOUND to select desired audio mode.
- Adjust the settings with the volume up/down buttons :

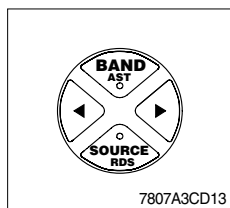
- 
- Sound style : BASS-TRE, FLAT, JAZZ, VOCAL, POP, CLASSIC, ROCK
  - BASS : Low notes
  - TREBLE : High notes
  - BALANCE : Left-right
  - FADER : Rear-front
  - LOUD : OFF, LOW, MID, HIGH

- Press the volume button to adjust the selected audio mode.  
After 5 seconds the display goes back to the last mode of operation.

Adjustment of Bass and Treble settings is only possible when BASS-TRE is selected as the sound style.

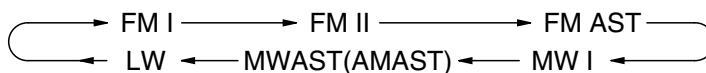
## ■ RADIO

### (1) Wave band / Automatic search button



#### ① WAVEBAND

- Press BAND to select the desired band:



#### ② AUTOMATIC SEARCH

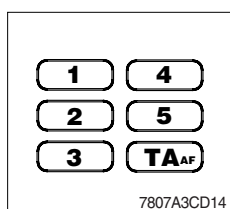
Use search tuning to automatically search for a station.

- Press ◀ to tune a station of a lower frequency or ▶ to a higher frequency.
- To search for another station, press the key again.

#### ③ MANUAL TUNING(If you know the frequency of the required station)

- To switch to manual tuning :**  
Long press the search button ◀ or ▶ for more than 2 seconds will switch the tuning to manual tuning.
- Then press ◀ to tune to a station of a lower frequency or ▶ to a higher frequency.
- When keys are released, a time-out start to count. After 5 seconds time-out, display 'Auto' for one second and return to automatic search.

### (2) Preset button



#### Preset stations

#### ① Manually storing stations in a preset

Five stations per band can be stored and recalled using the preset keys(1 to 5).

Tune in to the desired station.

- Press the desired preset key(1 to 5) for more than 2 seconds to store the current tuned station.

**When storing an FM station, the current program station name and the AF mode are stored on the preset(Some stations use alternating program service name).**

#### ② Recalling a preset

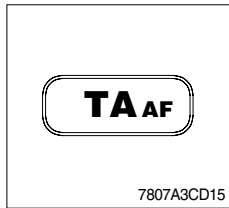
Press the desired preset key(1 to 5) to recall the stored station.

#### ③ Automatically storing stations(AUTO-STORE)

You can automatically store 5 strongest FM stations on the FM AST band or 5 strongest MW(AM) stations on the MW(AM) AST band. When you use Auto store, the new stations replace any stations previously stored in the FM AST band or the MW(AM) AST band.

- Press AST to activate autostore.
- The set gives a beep and then mutes.
- When it has finished, you hear a beep followed by the station stored on preset 1.
- Sometimes it may not be possible to find 5 stations.

## ■ RADIO DATA SYSTEM(RDS) ON FM



More and more stations broadcasts RDS informations in order to offer you many advantages including:

### (1) Program service name(PS)

Allows the radio to display the name of the station instead of its frequency.

### (2) Automatic returning(AF)

The set remains tuned to the current station by continually searching the best alternative frequency for best reception.

You can switch AF off.

#### - Activate/Deactivate AF

This set continuously search for other alternative frequencies for the tuned radio station and automatically selects the best frequency for reception. Long press **TA AF** for more than 2 second to activate/deactivate AF.

### (3) Alarm messages(PHY ALARM)

This set automatically receives emergency messages made by the broadcaster.

- During the messages the display shows 'ALARM' and the station-name alternately.

### (4) Traffic announcements(TA)

You can activate the TA modes to give priority so as to hear traffic announcements related to these subjects(even if you play a cassettes/CD or mute the set).

#### - Activate/Deactivate TA

- Short press BAND to select an FM band.
- Press **TA AF** to activate/deactivate TA.

#### - If you activate TA mode

- You will hear the traffic announcements when broadcast by station(even if you play a cassette/CD or mute the set).
- If the tuned station does not enable the reception of traffic announcements, the display shows 'NO TA'. The radio automatically searches and appropriate station.

#### - Interrupting traffic announcement mode

If you do not wish to continue listening to a particular traffic announcement

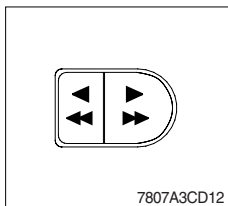
- Short press **TA AF** key to interrupt traffic announcement without switching off the mode
- The set will return to the previous operating mode.

#### ※ You can switch off RDS features if not required.

- Long press RDS key to switch off RDS.
- All RDS related features e.g., TA, etc...will be deactivated when RDS is switch off.

## ■ CASSETTE PLAYER

### (1) Winding/Rewinding button



- ※ Only use good quality cassettes.
- ※ To avoid possible tape damage always take out the cassette after use. Protect your cassettes. Put them back in their boxes immediately after use.
- ※ Never expose cassettes to heat or direct sunlight.

#### ① Play back

Slide the cassette, with the open side to the right into the cassette opening. Playback starts.

The direction of playback is shown by indicator ► .

#### ② Stopping playback( ▲ )

- To stop playback, Press the ▲ button fully home.
- The unit will switch over to radio reception.
- The cassette is partially ejected.

#### ③ Reverse(before the end of the tape)

Press the ◀◀ and ▶▶ buttons at the same time halfway in.

#### ④ Fast rewind / Fast forward( ◀◀ or ▶▶ )

The direction of fast winding depends on the direction of play indicated on the display.

Display during playback	Action	Key to press
►	Fast forward	▶▶
►	Fast rewind	◀◀
◀	Fast forward	◀◀
◀	Fast rewind	▶▶

During fast forward or rewind the radio resumes. If you continue fast winding until the end of the tape, play back restarts automatically.

#### ⑤ To stop fast winding

To stop fast winding before the end of the tape, press the key which is not pressed(◀◀ or ▶▶). Playback is then resumed.

#### ⑥ End of the tape

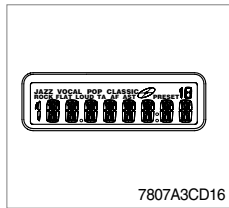
At the end of the tape, playback continues in the revers direction.

#### ⑦ Maintenance


After extended use of the cassette player, dust, contamination or grime can accumulate on the playback head.

This results in diminishing high-note reproduction. This can be remedied using a cleaning cassette(one or twice a month) and playing it through like an ordinary cassette.


## ■ RADIO SETTING




### (1) AMERICA

Press  , No. 1 and No. 4 buttons at the same time. Set up completes displaying " AMERICA".

### (2) SOUTH AMERICA

Press  , No. 2 and No. 5 buttons at the same time. Set up completes displaying " SOUTH".

### (3) ASIA

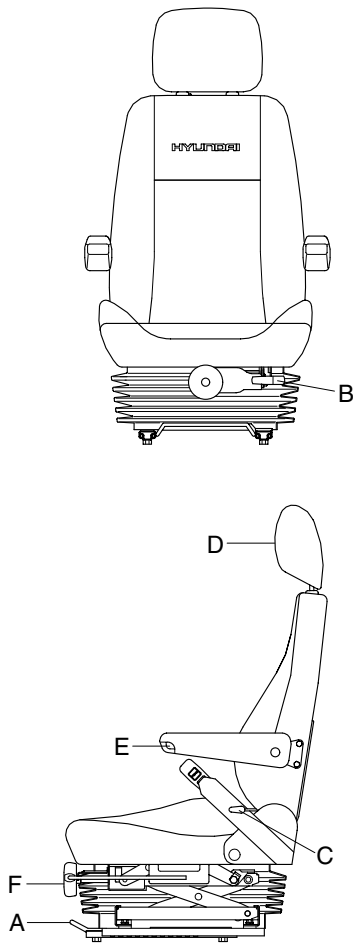
Press  , No. 1 and No. 5 buttons at the same time. Set up completes displaying " ASIA".

### (4) EUROPE

Press power, No. 2 and No. 4 buttons at the same time. Set up completes displaying " EUROPE".

## 2) SEAT

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) Forward/Backward adjustment(A)

- ① Pull lever A to adjust seat forward or backward.
- ② The seat can be moved forward and backward over 170mm(6.7") in 9 steps.

### (2) Upward/Downward adjustment(B)

- ① Pull or push lever B to adjust seat upward or downward.
- ② Forward or backward side adjustment only can be made, tilting to one side, by moving lever B respectively.

### (3) Reclining adjustment(C)

Pull lever C to adjust seat back rest.

### (4) Arm rest adjustment(E)

This can be adjusted by rotating the dial or knob E to right and left.

### (5) Head rest adjustment (D)

This is adjustable vertically and inclinedly to fit operator's requirements.

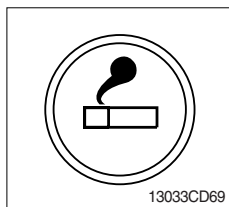
### (6) Cushion adjustment (F)

Adjust the handle to the operator's weight.

⚠ Always check the condition of the seat belt and mounting hardware before operating the machine.

⚠ Replace the seat belt at least once every three years, regardless of appearance.

## 3) CIGAR LIGHTER



(1) This can be used when the engine starting switch is ON.

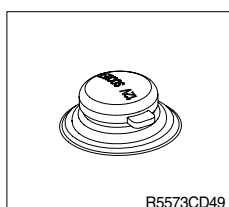
(2) The lighter can be used when it springs out in a short while after being pressed down.

※ **Service socket**

**Use cigar lighter socket when you need emergency power.**

**Do not use the lighter exceeding 12V, 120W.**

## 4) 12V SOCKET(Optional)



(1) Utilize the power of 12V as your need and do not exceed power of 12V, 120W.

## 5) FUSE BOX

WORK LAMP	20A	START KEY	30A
FUEL FILLER P/P	20A	CASSETTE ROOM LAMP	10A
CIGAR LIGHT	20A	CLUSTER	10A
SAFETY SOL	10A	ENGINE CONTROLLER	30A
SOLENOID	20A	CASSETTE RADIO	10A
ALT START	20A	CLUSTER	10A
TRAVEL	10A	WIPER	20A
ROTARY LAMP	20A	AIR-CON HEATER	20A
PRE-HEAT	20A	AIRCON FAN	20A
FEED P/P	10A	HEAD LAMP	20A
FUSE HOLDER		SPARE	10A
		SPARE	20A

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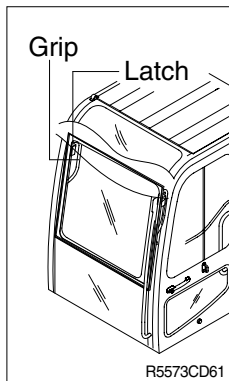
(1) The fuses protect the electrical parts and wiring from burning out.

(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.**

## 6) UPPER WINDSHIELD



R5573CD61

(1) Perform the following procedure in order to open the upper windshield.

- ① Release both latches in order to release the upper windshield.
- ② Hold both grips that are located at both side the windshield frame push the windshield upward.
- ③ Hold both grips that are provided on the windshield frame and back into the storage position until auto lock latch is engaged.

(2) Perform the following procedure in order to close the upper windshield.

Reverse step ① through step ③ 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


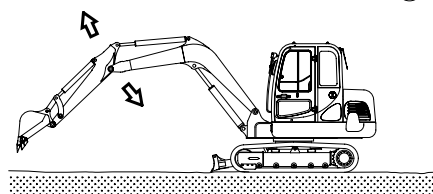
- (1) Check daily for the level and leakage of coolant, engine oil, hydraulic oil and fuel.
- (2) Check regularly the lubrication and fill grease daily all lubrication points.
- (3) Tighten bolts.
- (4) Warm up the machine fully before operation.
- (5) Check the gauges occasionally during the operation.
- (6) Check if the machine is operating normally during operation.

### 4) Replace followings after initial 50 hours of operation

Checking items	Service
Engine oil	Replace
Engine oil filter element	
Hydraulic oil return filter element	
Line filter element	
Fuel filter	

Avoid excessive operation for initial 100 hours

50°C

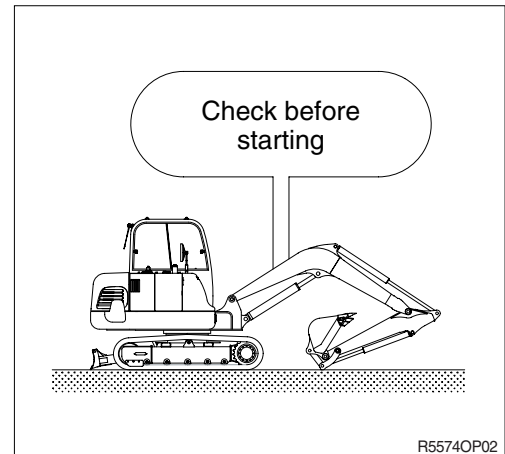



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## 2. CHECK BEFORE STARTING THE ENGINE

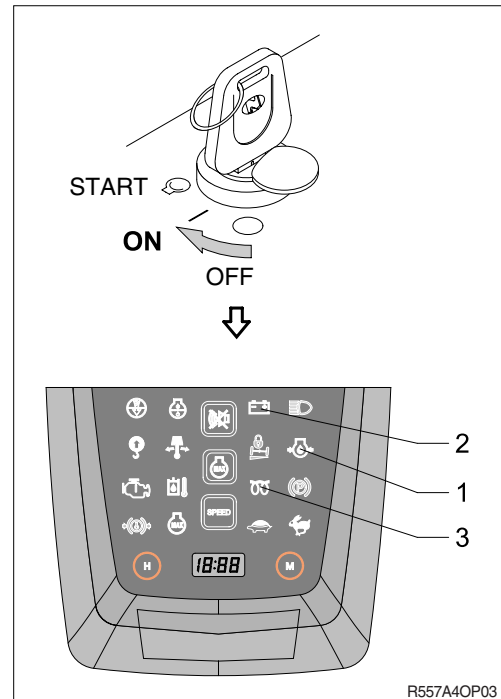
- 1) Look around the machine and under the machine to check for loosen nut or bolts, collection of dirt, or leakage of oil, fuel or coolant and check the condition of the work equipment and hydraulic system. Check also loosen wiring, and collection of dust at places which reach high temperature.  
※ **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.



### 3. STARTING AND STOP THE ENGINE

#### 1) CHECK INDICATOR LIGHTS

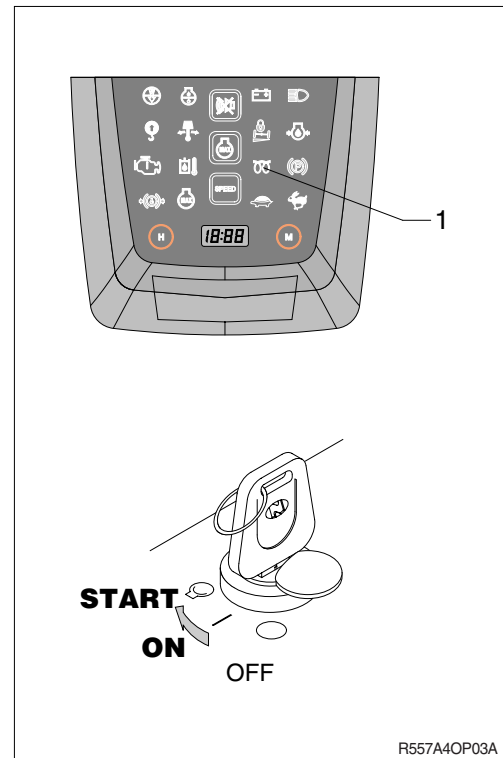
- (1) Check if all the operating lever is on the neutral position.
- (2) Turn the starting switch to the ON position, and check following.
  - ① If all the lamps light ON and buzzer sounding for 6 seconds.
  - ② Only below lamps will light ON and all the other lights will turn OFF after 2 seconds.
    - Battery charging warning lamp(2)
    - Engine oil pressure warning lamp(1)
  - ③ The preheat pilot lamp(3) will light ON when the coolant temperature is below 10°C .



## 2) STARTING ENGINE

- ※ 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 2-12.
- ※ Fill anti-freeze solution to the coolant as required.

- (1) Check if all levers are on the neutral position.
- (2) Turn the starting switch to ON position.
- (3) Check if the preheat pilot lamp(1) is turned ON.
  - ※ **When the preheat pilot lamp is turned ON, the preheating function is actuated within 15 seconds.**
  - ※ **After the preheat pilot lamp is turned OFF, engine start within 10 seconds.**
- (4) Start engine by turning the starting switch to the START position.
- (5) Release the starting switch immediately after starting engine to avoid possible damage to the starting motor.
  - ※ **If the engine is started before the preheat pilot lamp goes OFF, it keeps the lamp ON within 15 seconds even after the engine is started.**
  - ※ **Be aware that battery can be easily discharged after long time with head light, work lamp and air-conditioner turned on together under the condition of the low engine rpm.**

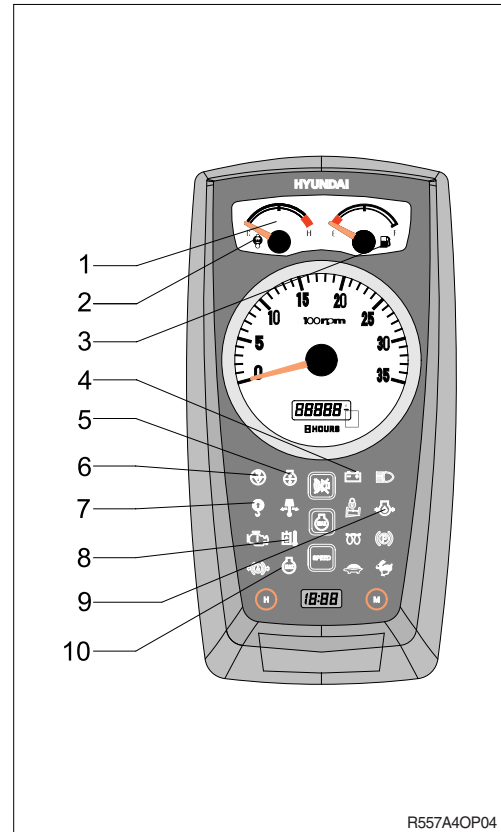


### 3) INSPECTION AFTER ENGINE START

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 OFF(2~10)?
- (4) Is the indicator of engine coolant temperature gauge(1) in the normal zone?
- (5) Is the engine sound and the color of exhaust gas normal?
- (6) Are the sound and vibration normal?

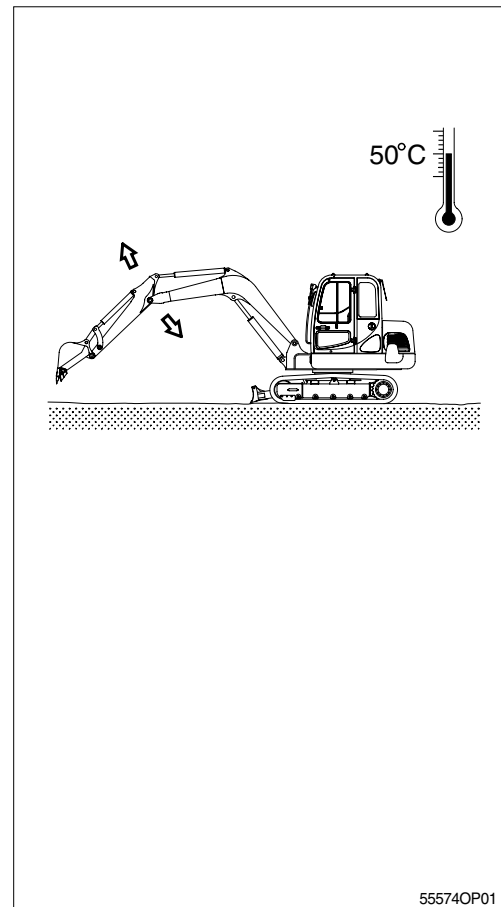
- ※ **Do not increase engine speed quickly after starting, it can damage engine or turbocharger.**
- ※ **If there are problems in the control panel, stop the engine immediately and correct problem as required.**



### 4) 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.

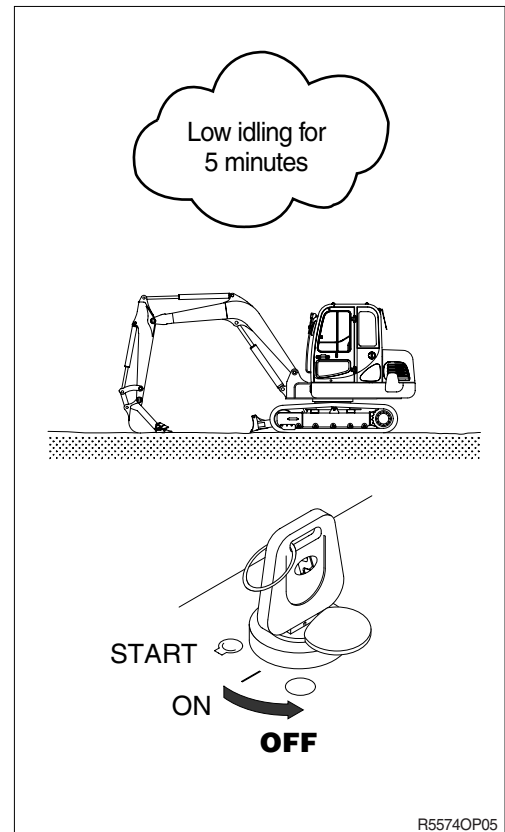
- (1) Run the engine at low idling for 5 minutes.
  - (2) Speed up the idling and run the engine at mid-range speed.
  - (3) Operate bucket lever for 5 minutes.
    - ※ **Do not operate anything except bucket lever.**
  - (4) Run the engine at the high speed and operate the bucket lever and arm lever 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 warming-up operation during winter.**



## 5) 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 idling 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 LOCK safety lever.
- (5) Lock the cab door.

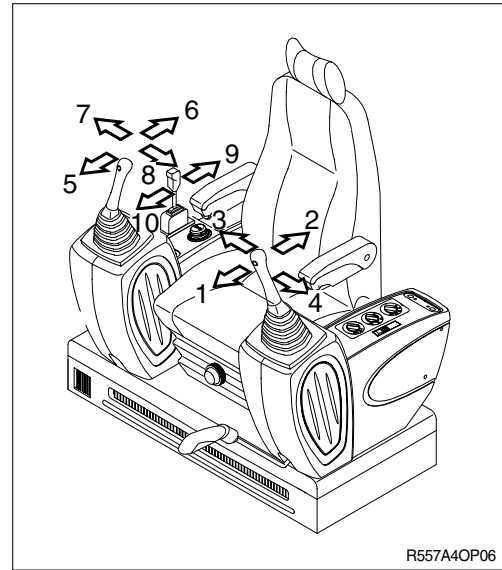


## 4. OPERATION OF WORKING DEVICE

※ **Confirm the operation of control lever and working device.**

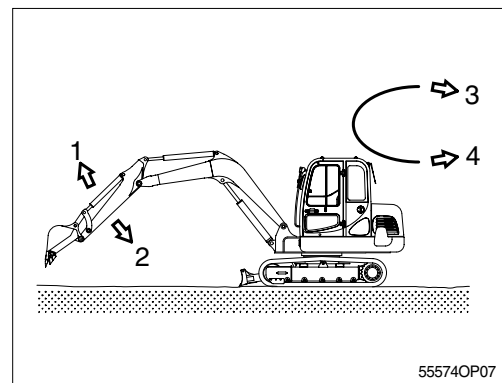
- 1) Left control lever controls arm and swing.
- 2) Right control lever controls boom and bucket.
- 3) When you release the control lever, control lever returns to neutral position automatically.

※ **When operating swing, consider the swing distance by inertia.**



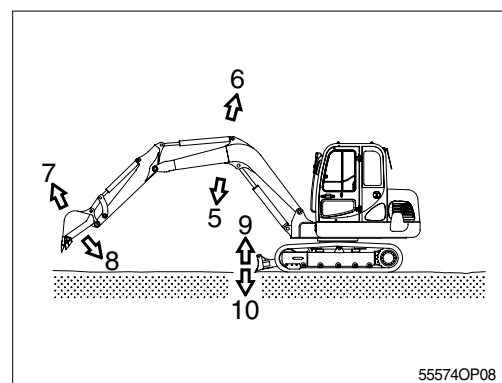
※ **Left control lever**

- 1 Arm roll-out
- 2 Arm roll-in
- 3 Swing right
- 4 Swing left



※ **Right control lever**

- 5 Boom lower
- 6 Boom raise
- 7 Bucket roll-out
- 8 Bucket roll-in



※ **Dozer control lever**

- 9 Dozer blade up
- 10 Dozer blade down

## 5. 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.

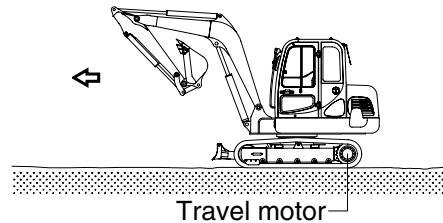
- ▲ **Be careful as the traveling direction will be reversed when the whole machine is swung 180 degree.**

#### (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.**

Traveling position

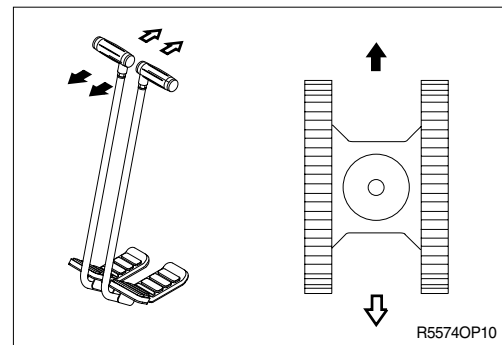


R5574OP09

#### (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.

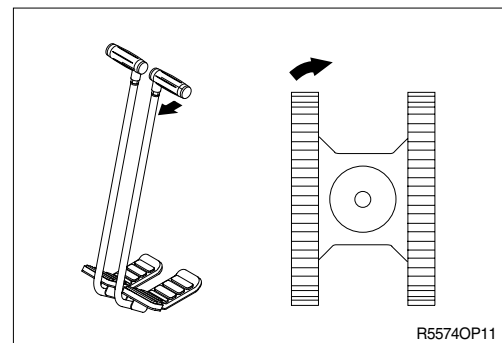
- ※ **The speed can be controlled by the operation stroke of lever or pedal and change of direction will be controlled by difference of the left and right stroke.**



R5574OP10

#### (4) Pivot turning

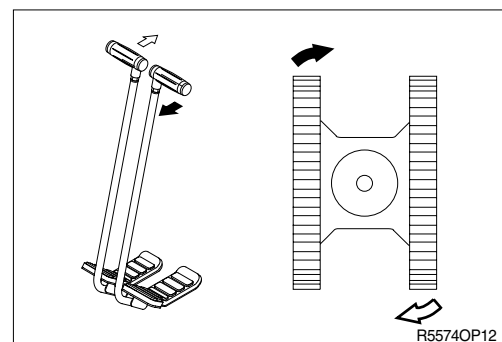
Operating only one side of lever or pedal make the change of direction possible by moving only one track.



R5574OP11

#### (5) Counter rotation

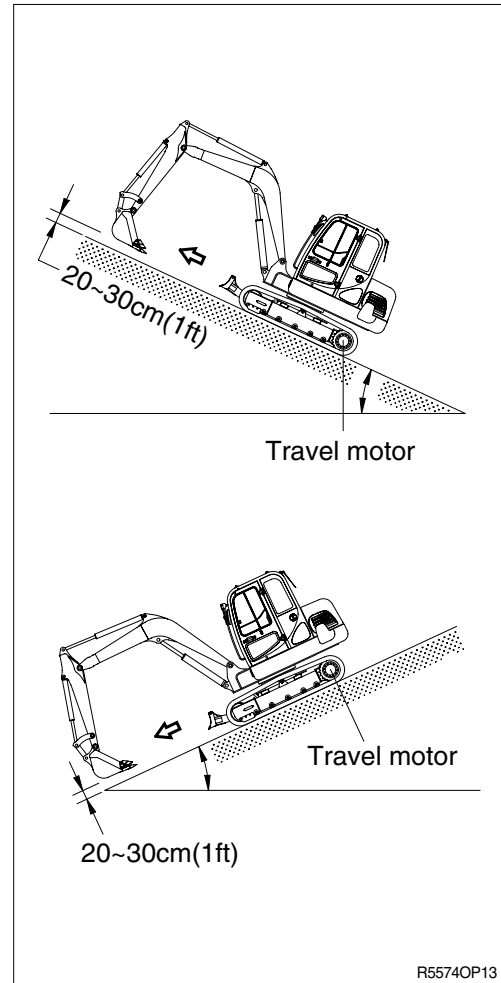
It is to change the direction at the original place by moving the right and left track. Both side of lever or pedal are operated to the other way at the same time.



R5574OP12

## 2) TRAVELING ON A SLOPE

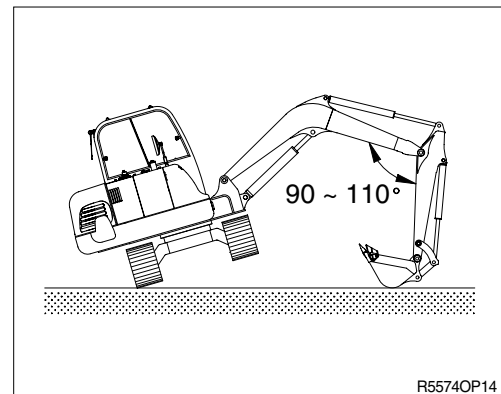
- (1) Make sure that the travel lever is properly maneuvered by confirming the travel motor is in the right location.
  - (2) Lower the bucket 20 to 30cm(1ft) to the ground so that it can be used as a brake in an emergency.
  - (3) If the machine starts to slide or loses stability, lower the bucket immediately 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.



## 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.





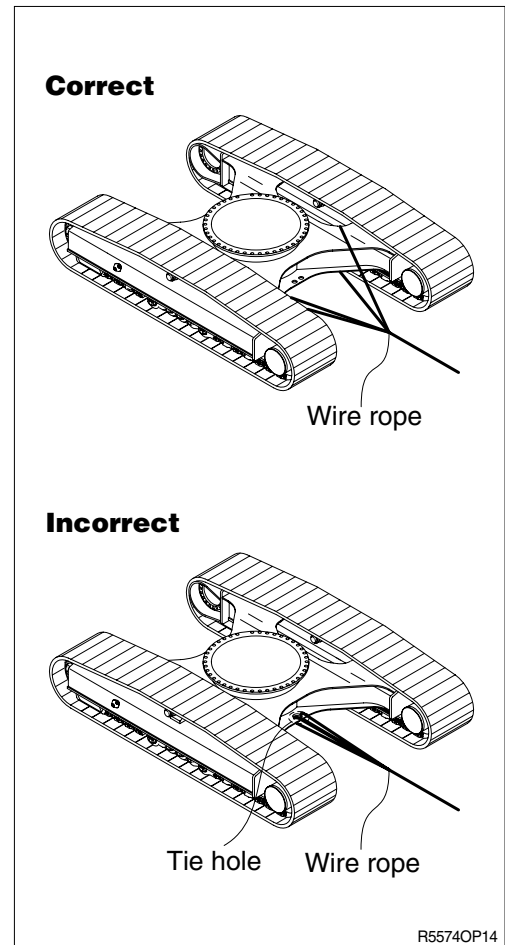
#### 4) TOWING THE MACHINE

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.**

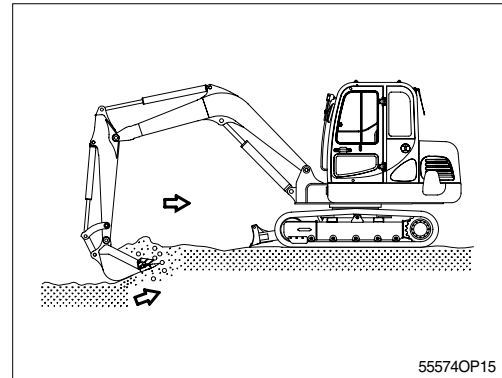
⚠ **Make sure no personnel are standing close to the tow rope.**



## 6. EFFICIENT WORKING METHOD

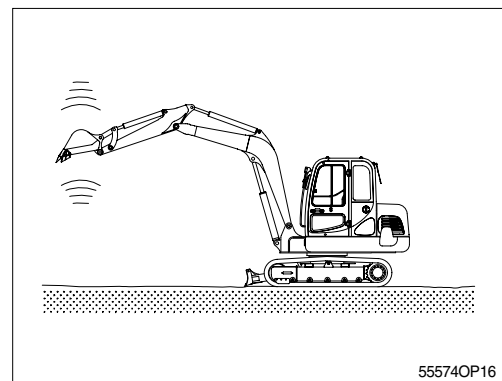
1) Do the digging work by arm.

Use the pulling force of arm for digging and use together with the digging force of the bucket if necessary.

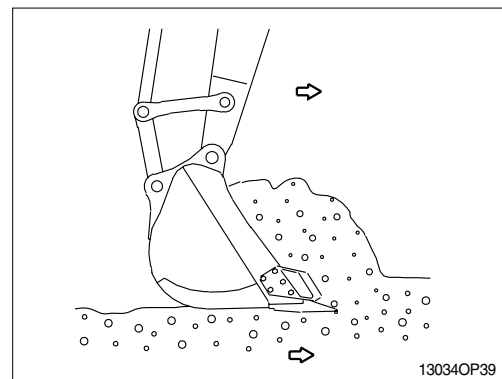


2) When lowering and raising the boom operate softly for the beginning and the end.

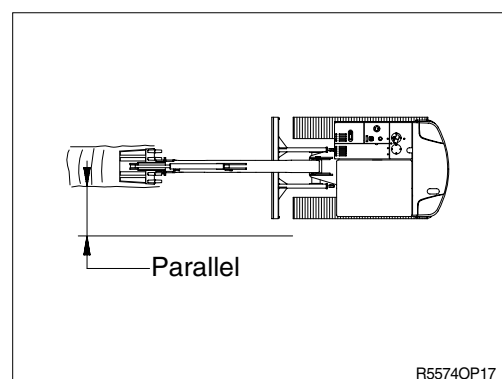
In particularly, sudden stops while lowering the boom may cause damage to the machine.



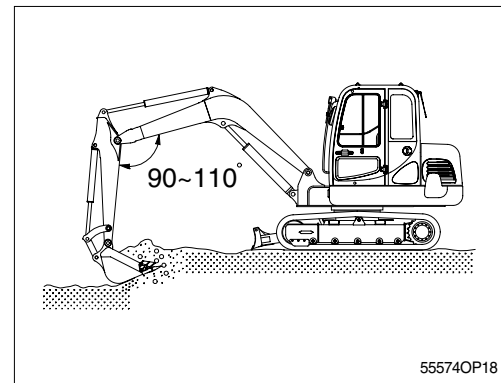
3) The digging resistance and wearing of tooth can be reduced by putting the end of bucket tooth to the digging direction.



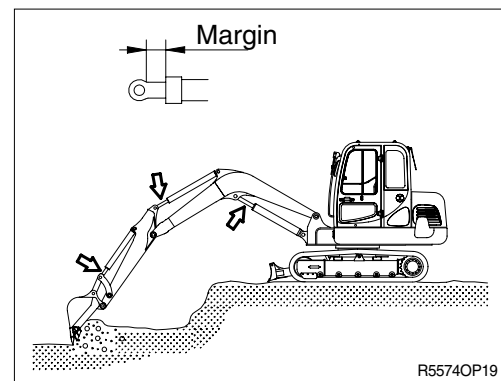
4) Set the tracks parallel to the line of the ditch to be excavated when digging ditch. Do not swing while digging.



- 5) Dig slowly with keeping the angle of boom and arm, 90-110 degree when maximum digging force is required.

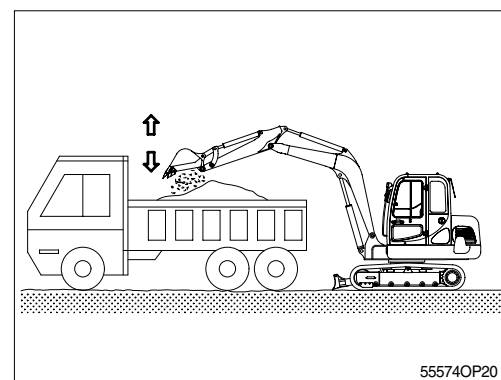


- 6) Operate leaving a small safety margin of cylinder stroke to prevent damage of cylinder when working with the machine.

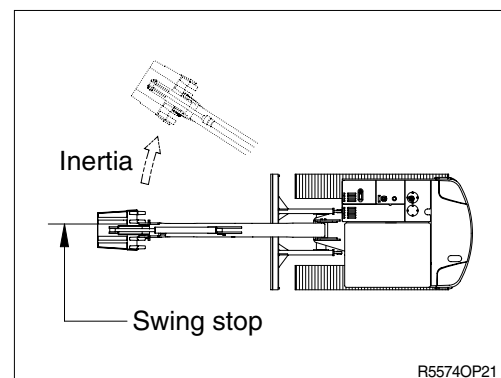


- 7) Keep the bucket to the dumping position and the arm horizontal when dumping the soil from the bucket.  
Operate bucket lever 2 or 3 times when hard to dump.

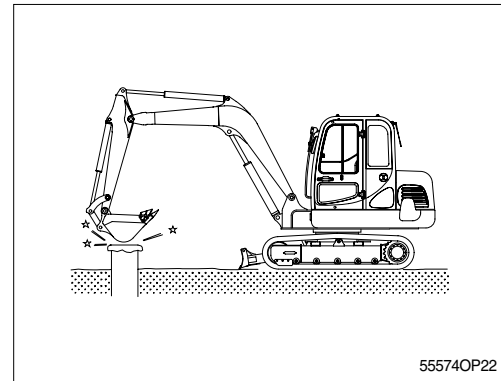
※ **Do not use the impact of bucket tooth when dumping.**



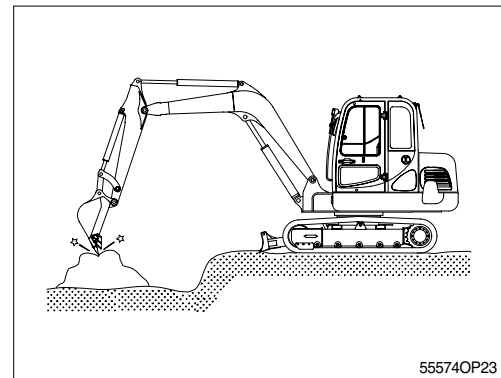
- 8) Operate stop of swing considering the swing slip distance is created by inertia after neutralizing the swing lever.



- 9) Do not use the dropping force of the work equipment for digging.  
The machine can be damaged by the impact.



- 10) Do not use the bucket to crack hard objects like concrete or rocks.  
This may break a tooth or pin, or bend boom.



# 11) NEVER CARRY OUT EXCESSIVE OPERATIONS

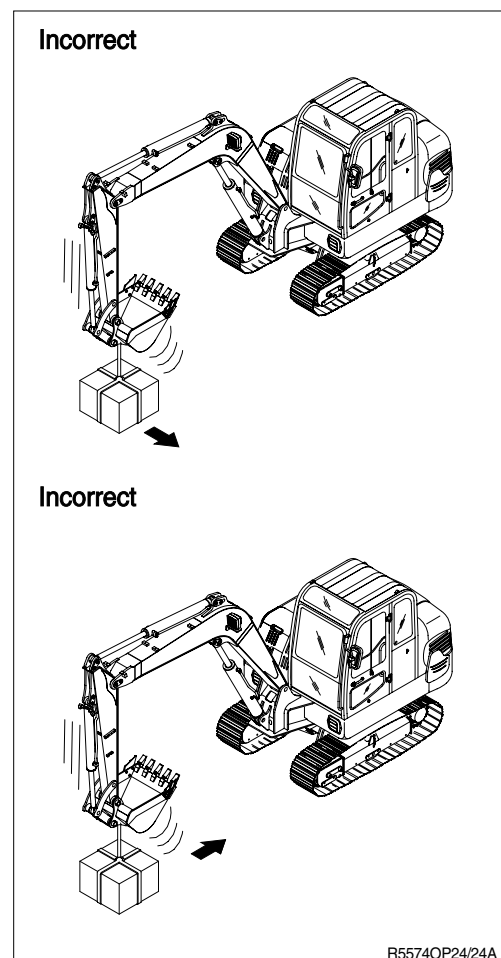
Operation exceeding machine performance may result in accident or failure.

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 Hyundai 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.

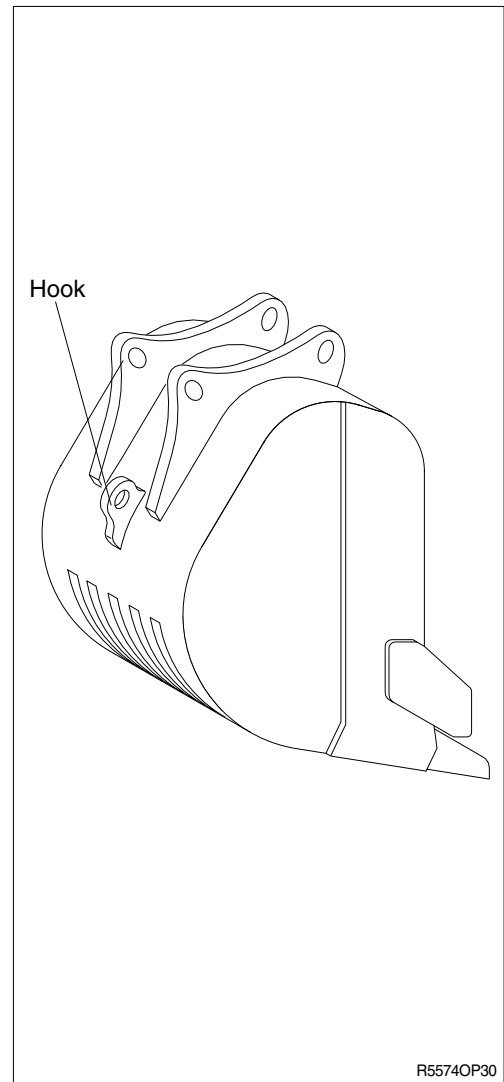
Due to the possible danger of the load falling or of collision with the load, no persons shall be allowed in the working area.

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.

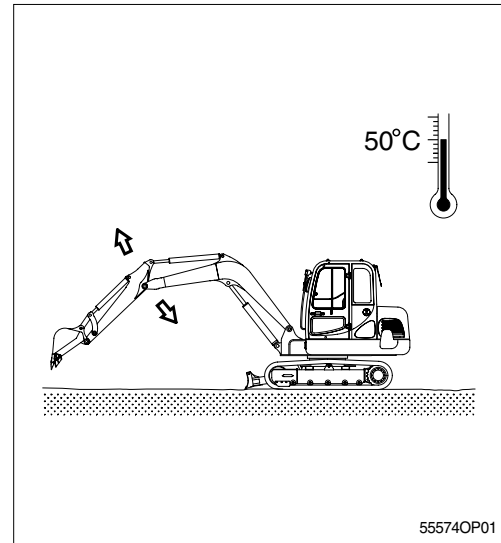
Never leave the operator's seat while lifting a load.



## 7. 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.

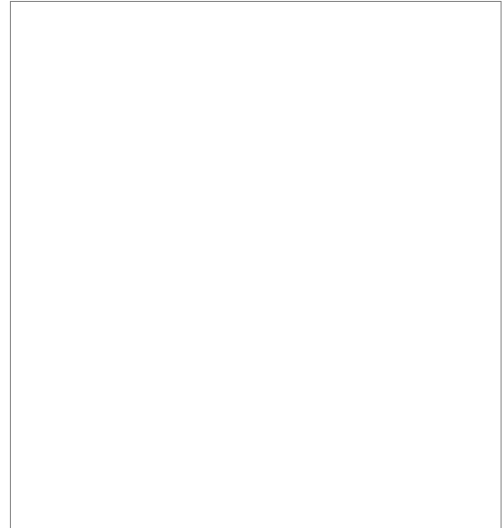


### 2) OPERATION IN SANDY OR DUSTY WORK SITES

- (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 6 times of cleaning.**
- (2) Inspect radiator 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 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.

### 3) SEA SHORE OPERATION

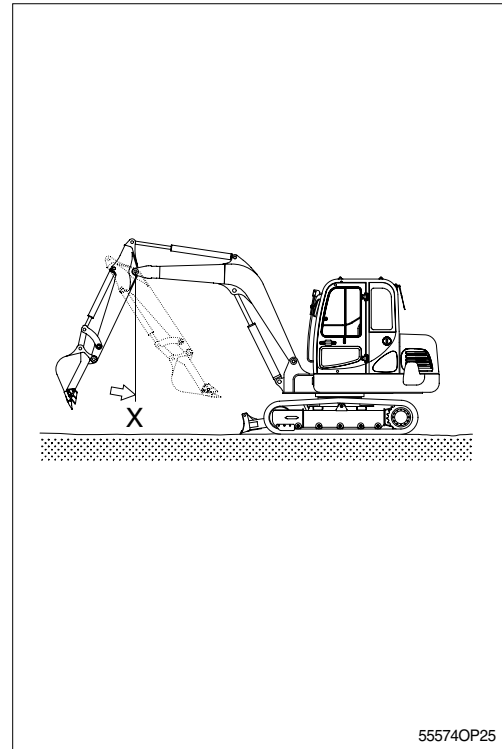
- (1) Prevent ingress of salt by securely tightening plugs, cocks and bolts of each part.
- (2) Wash machine after operation to remove salt residue.  
Pay special attention to electrical parts and hydraulic cylinders to prevent corrosion.
- (3) Inspection and lubrication must be carried out more frequently.  
Supply sufficient grease to replace all old grease in bearings which have been submerged in water for a long time.



## 8. 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.





## 9. ATTACHMENT LOWERING(When engine is stopped)

- 1) On machines equipped with an accumulator, for a short time(within 2 minutes) after the engine is stopped, the attachment will lower under its own weight when the attachment control lever is shifted to LOWER. That is happen only starting switch ON position and safety lever UNLOCK position. After the engine is stopped, set the safety lever to the LOCK position.

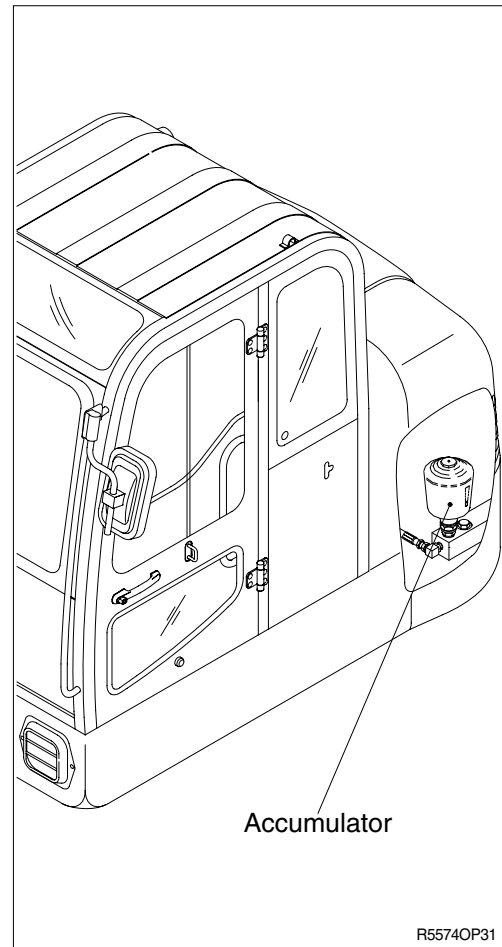
**⚠ Be sure no one is under or near the attachment before lowering the boom.**

- 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 Hyundai distributor.



## 10. 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) CLEANING THE MACHINE

Clean the machine. Check and adjust tracks.  
Grease each lubrication part.

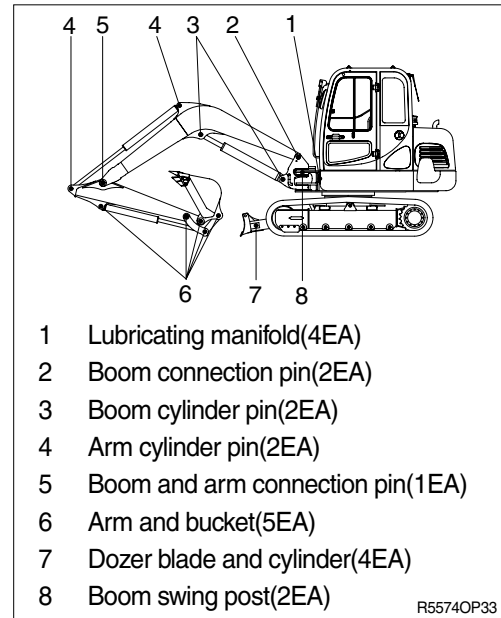
### 2) LUBRICATION POSITION OF EACH PART

Change all oil.

※ Be particularly careful when you reuse the machine.

As oil can be diluted during storage.

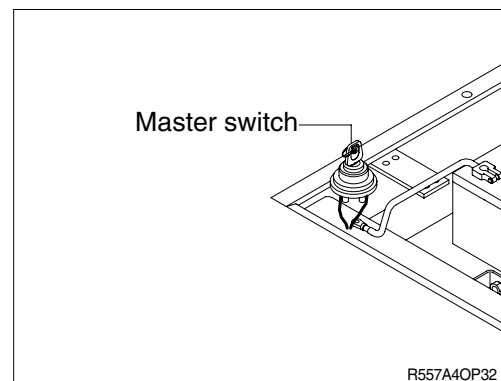
Apply an anticorrosive lubricant on the exposed part of piston rod of cylinder and in places where the machine rusts easily.



### 3) MASTER SWITCH

Turn OFF the master switch mounted in the battery box and store the machine.

4) Be sure to mix anticorrosive antifreezing solution in the radiator.

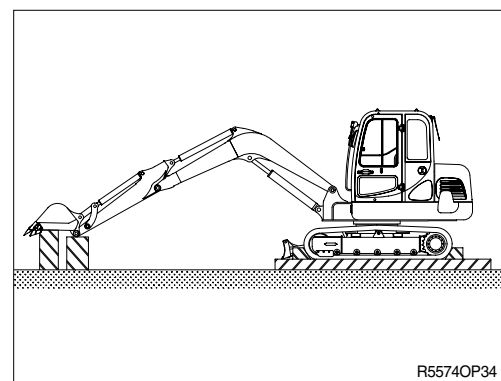


### 5) PREVENTION OF DUST AND MOISTURE

Keep machine dry. Store the machine setting wood on the ground.

※ Cover exposed part of piston rod of cylinder.

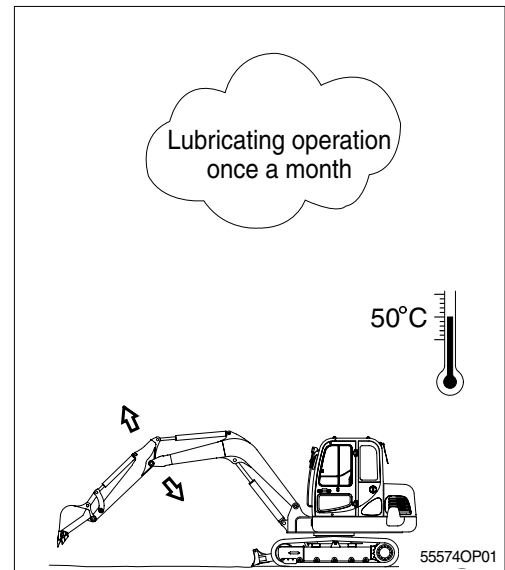
※ Lower the bucket to the ground and set a support under track.



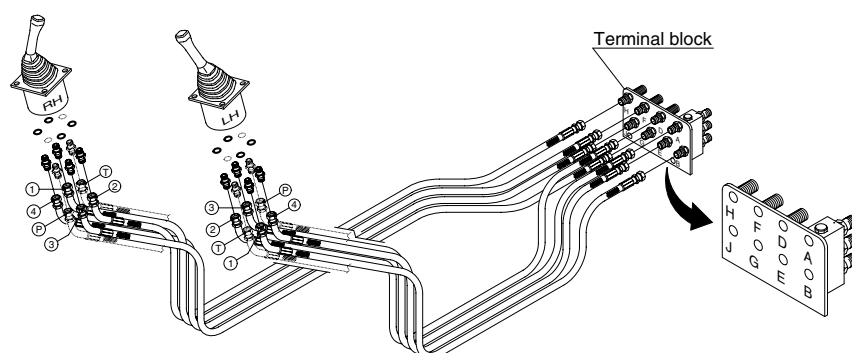
## 6) DURING STORAGE

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.



## 11. RCV LEVER OPERATING PATTERN

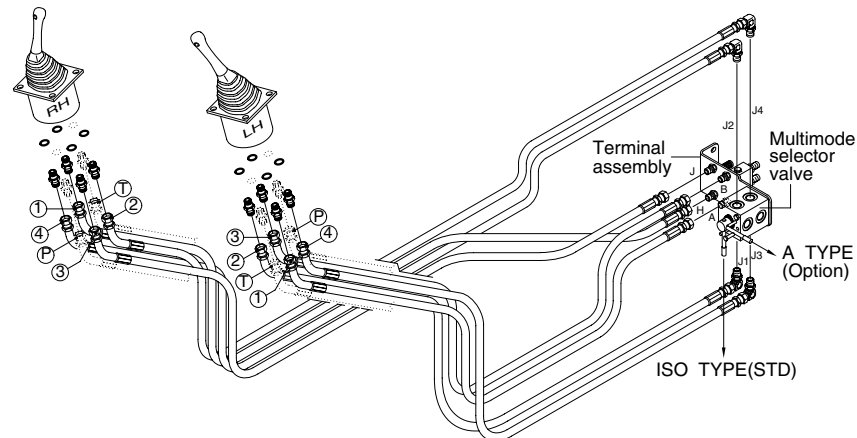


※ Whenever a change is made to the machine control pattern also exchange the pattern label in the cab to match the new pattern.

R55740P40N

Pattern	Operation		Control function	Hose connection(Port)			
	Left	Right		RCV lever	Change of MCV port		
					From	To	
ISO Type			Left	1 Arm out	2	D	-
Hyundai				2 Arm in	4	E	-
				3 Swing right	3	B	-
				4 Swing left	1	A	-
			Right	5 Boom lower	4	G	-
				6 Boom raise	2	F	-
				7 Bucket out	1	H	-
				8 Bucket in	3	J	-
			A Type			Left	1 Boom lower
B Type			2 Boom raise	4	E		F
			3 Swing right	3	B		-
			4 Swing left	1	A		-
			Right	5 Arm out	4	G	D
				6 Arm in	2	F	E
				7 Bucket out	1	H	-
				8 Bucket in	3	J	-
			B Type			Left	1 Boom lower
C Type			2 Boom raise	4	E		F
			3 Bucket in	3	B		J
			4 Bucket out	1	A		H
			Right	5 Arm out	4	G	D
				6 Arm in	2	F	E
				7 Swing right	1	H	B
				8 Swing left	3	J	A
			C Type			Left	1 Swing right
Right	2 Swing left	4	E	A			
	3 Arm in	3	B	E			
	4 Arm out	1	A	D			
	Same as ISO type						

## RCV LEVER OPERATING PATTERN(option, A type)

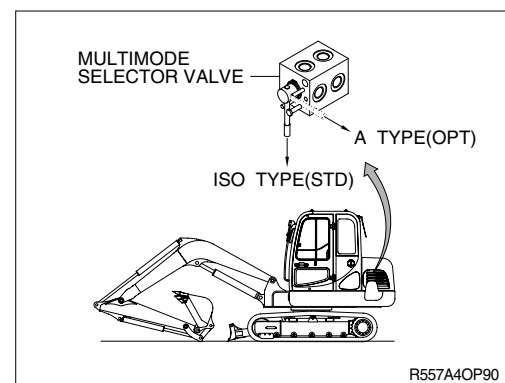


55W7A4OP91

Pattern	Operation		Control function	Hose connection(Port)	
	Left	Right		RCV lever	MCV port
A Type			Left	① Boom lower	② J1
				② Boom raise	④ J3
				③ Swing right	③ B
				④ Swing left	① A
			Right	⑤ Arm out	④ J2
				⑥ Arm in	② J4
				⑦ Bucket out	① H
				⑧ Bucket in	③ J

1) The machine control pattern can easily be changed from the "ISO" type to the "A" type by changing the position of the lever.

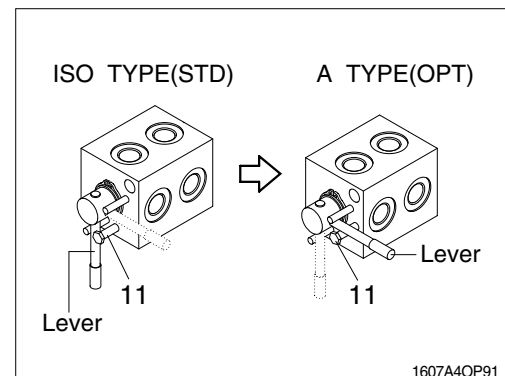
**▲ Before starting the machine, check the lever position of multimode selector valve and actual operating of attachment.**



R557A4OP90

### 2) Change of operating pattern(ISO → A type)

- (1) Loosen bolt(11).
- (2) Move lever from the "ISO" type to "A" type position.
- (3) After setting the lever, tighten bolt to secure lever.



1607A4OP91

## 12. HANDLING THE RUBBER TRACKS

### 1) USING THE RUBBER TRACKS PROPERLY

Rubber tracks have some advantages over steel tracks.

However, you cannot take full advantage of them if you use them in the same manner as steel ones. Use care in operating with rubber tracks in accord with the conditions of the work site and the type of work.

#### Comparison table of rubber and steel tracks

	Rubber	Steel
Low vibration	Excellent	Ordinary
Smooth travel	Excellent	Good
Silent travel	Excellent	Ordinary
Less damage to paved roads	Excellent	Ordinary
Simple handling	Excellent	Ordinary
Susceptibility to damage (strength)	Ordinary	Excellent
Drawbar full	Excellent	Excellent

Rubber tracks have many advantages inherent in the unique properties of the material. On the other hand, however, they are low in strength. It is essential that you fully understand the properties of rubber tracks, and observe the precautions for operating and handling them to prolong their life and get the most out of them. Be sure to read this section for using the rubber tracks before using them.

### 2) WARRANTY FOR RUBBER TRACKS

The rubber tracks are not warranted for free repair or replacement if they are damaged because of misuse by the customer, including the failure to comply with the prohibitions and the instructions for safe operation; (for example, the failure to check the tension of the rubber tracks or service the rubber tracks properly, or "using the rubber tracks on surfaces and terrains which could physically damage them".)

### 3) PROHIBITIONS FOR USING THE RUBBER TRACKS

- (1) Do not operate or turn on surfaces of terrains that have sharp stones, a hard, uneven rock base, or that expose the tracks to steel rods, scrap iron, or edges of iron plates. Failure to observe these prohibitions may damage the rubber tracks.
- (2) Do not operate the machine on a stony surface like a riverbed. Doing this may damage the rubber tracks by catching gravel in the tracks or may cause the tracks to come off. Forcibly pushing obstacles will also shorten the life of the rubber tracks.
- (3) Prevent the rubber tracks from getting exposed to oil, fuel or chemical solvents. If they are exposed, immediately wipe them. Also, do not travel on roads which have oily surfaces.
- (4) When storing the rubber tracks for a long time period (more than three months), avoid placing them in a place subject to direct exposure to sunlight or rain.

- (5) Do not operate the machine when the tracks will be exposed to heat, (i.e., near an open-air fire, on a steel plate that has been exposed to the blazing sun, or on a hot asphalt road.)
- (6) Never run on one rubber track while the other is held above the ground with the implement. Doing this may damage the rubber track or cause it to come off.

#### **4) PRECAUTIONS FOR USING THE RUBBER TRACKS**

Observe the following precautions when operating the machine :

- (1) Never spin-turn on concrete or asphalt roads.
- (2) Do not change course suddenly. Doing this will cause the rubber track to wear early or be damaged.
- (3) Do not turn the machine across a large level gap while traveling . Remember that running over a level gap at a right angle will prevent the track from coming off.
- (4) Slowly lower the machine after it has been lifted above the ground with the implement.
- (5) It is not recommended that the machine be used to handle any materials that become oily after being crushed (e.g., soybeans, corn, rapeseed oil seeds, etc.). After unavoidably using the machine to handle such materials, clean the tracks with water.
- (6) It is not recommended that the machine be used to handle materials such as salt, ammonium sulfate, potassium chloride, potassium sulfate, or superphosphate of lime. Handling these materials may affect the core metal adversely. After using the machine to handle such materials, clean the tracks with water.
- (7) Do not operate the machine at the seashore. Doing this may affect the core metal adversely due to the salt content.
- (8) If a rubber track is cracked, it could be easily damaged when exposed to salt, sugar, wheat, or soybeans. Be sure to repair any cracks in the rubber track to prevent rubber chips from getting into the materials being handled.
- (9) Do not allow the rubber track to rub against a concrete wall.
- (10) The rubber tracks are prone to slip on snow or on a frozen road. Be careful of skidding when traveling or operating on a slope in cold weather.
- (11) Operating the machine in extremely cold weather will deteriorate the rubber tracks, shortening their life.
- (12) Use the rubber tracks between -25°C to +55°C (-13°F to +131°F) because of the physical characteristics of rubber.
- (13) Be careful not to damage the rubber tracks with the bucket while operating the machine.

## 5) BE CAREFUL NOT TO COME OFF THE RUBBER TRACKS

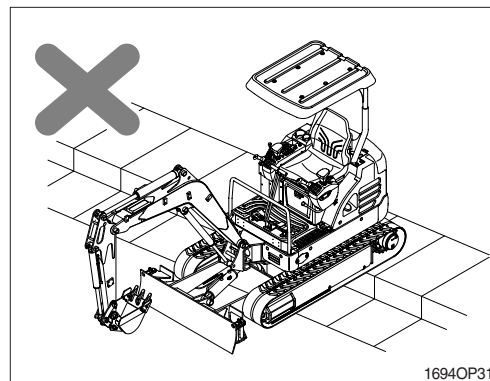
Keep the tracks in appropriate tension to prevent them from coming off.

If the tension is too low, the rubber tracks may come off under the following conditions.

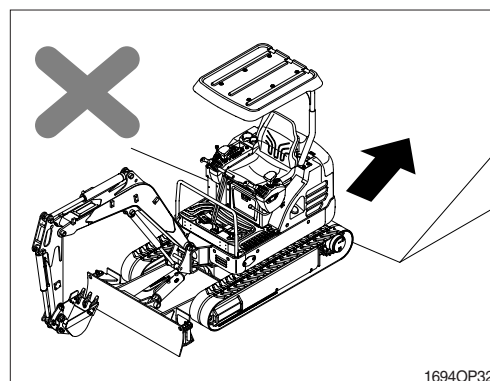
Even if the tension is adequate, take care when operating the tracks under these conditions.

Some illustrations in this section can be different from your machine.

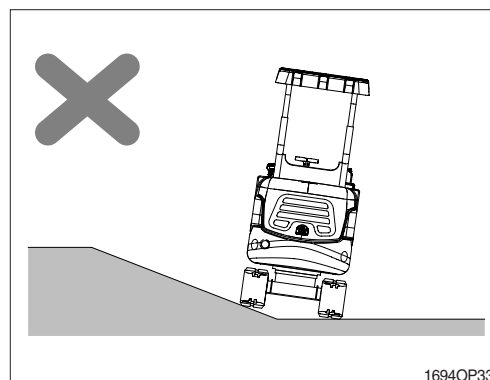
- (1) Do not steer the machine at an angle other than 90 degrees across a large level gap created by a curbstone or a rock [approximately more than 20 cm (8")]. Run over a level gap at a right angle only to prevent the tracks from coming off.



- (2) Do not steer the machine across a boundary between the flat ground and a slope, while moving backwards. If such travel is not avoidable, slow down the speed.

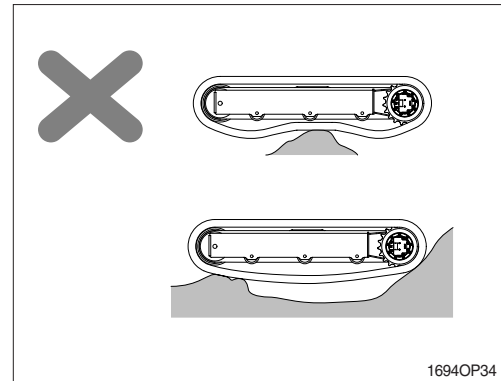


- (3) Do not travel with the track on one side on a slope or on convex ground (causing a machine angle of more than 10 degrees), and with the track on the other side on flat ground, to prevent the rubber track from being damaged. Be sure to travel with the tracks on both sides on the same level surface.



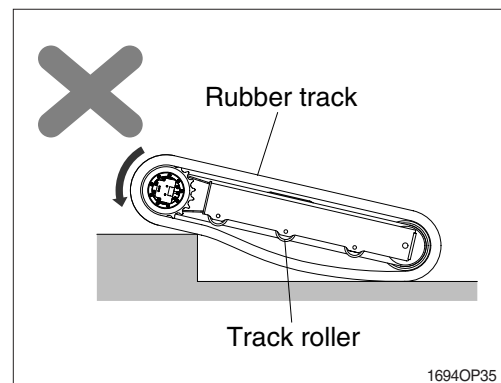


- (4) The three cases illustrated above are those which could cause the rubber tracks to loosen. In addition, do not subject machine to such ground conditions as are illustrated in the figure at the right.

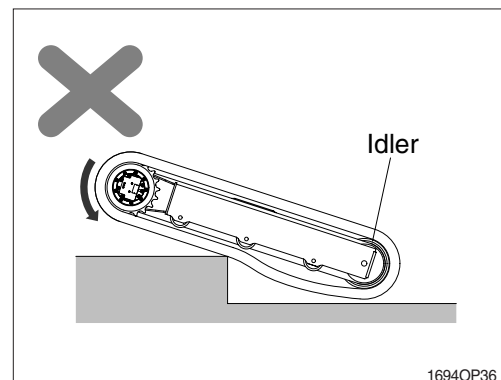


### HOW THE RUBBER TRACKS COME OFF

- (5) When running over a level gap, a clearance is created between the tracks and the track rollers. At this point, the tracks tend to come off.

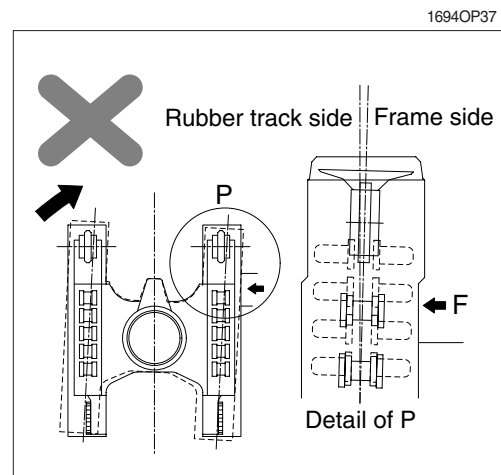


- (6) If the machine is traveling in reverse, clearance may also be created between the track rollers and the rubber tracks, and between the idlers and the rubber tracks, causing the rubber tracks to come off.

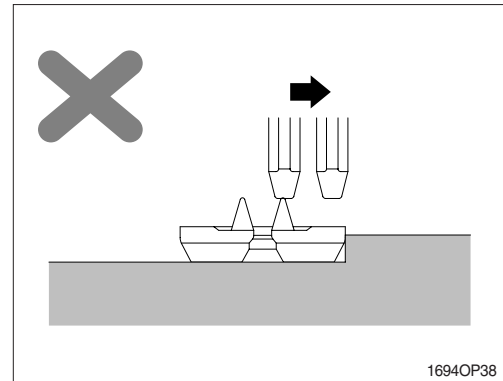


- (7) Other situations to be avoided.

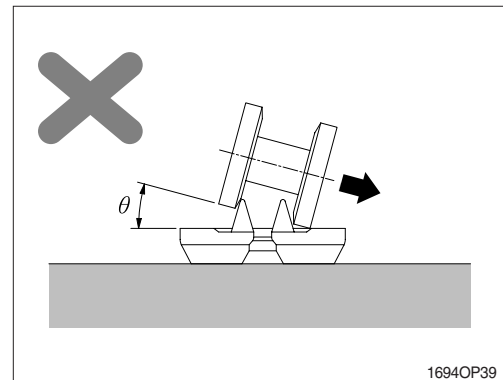
- ① When the machine changes the travel direction while the rubber tracks are blocked sideways by an obstacle or the like.
- ② When the idler and the track rollers are misaligned from the core metal, due to rubber track misalignment.



- ③ Traveling in reverse under the condition illustrated will cause the rubber tracks to come off.



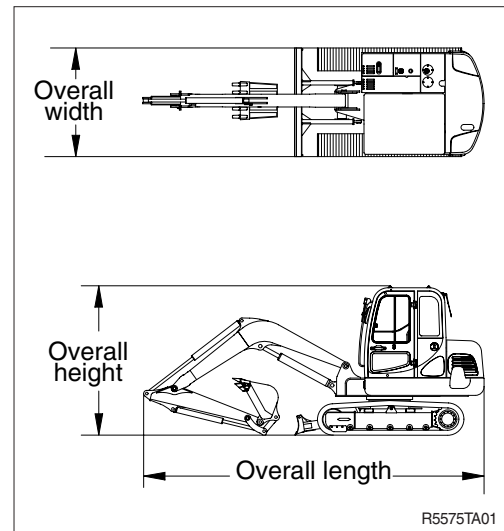
- ④ Changing the travel direction of the machine under the condition illustrated will cause the rubber tracks to come off.



# TRANSPORTATION

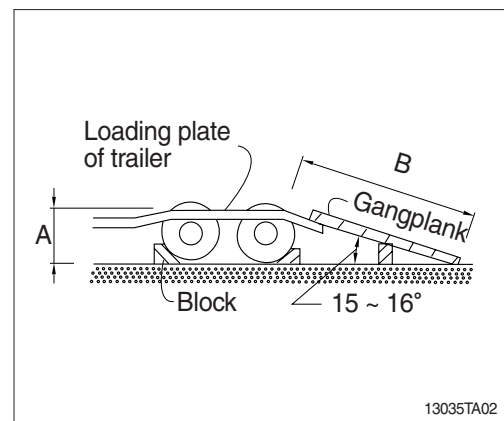
## 1. PREPARATION FOR TRANSPORTATION

- 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

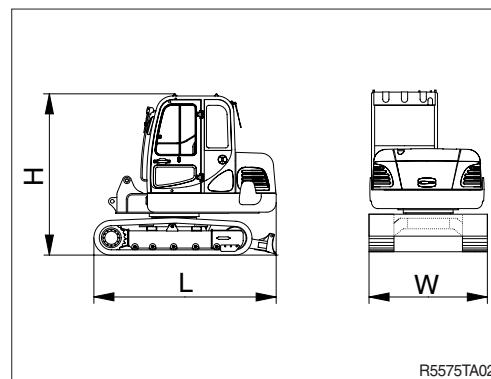


## 2. DIMENSION AND WEIGHT

### 1) Base machine

Mark	Description	Unit	Specification
L	Length	mm(ft-in)	2900( 9' 6")
H	Height	mm(ft-in)	2550( 8' 4")
Wd	Width	mm(ft-in)	1920( 6' 4")
Wt	Weight	kg(lb)	4810(10640)

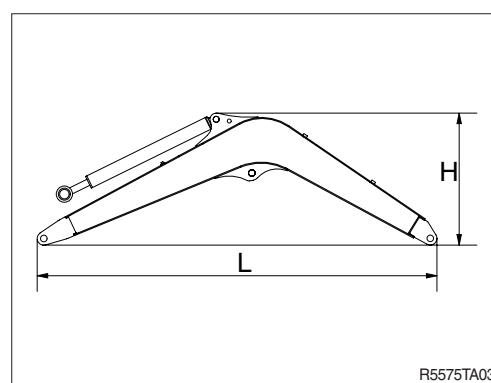
※ With 400mm(16") triple grouser shoes and 210kg (460lb) counterweight.



### 2) Boom assembly

Mark	Description	Unit	Specification
L	Length	mm(ft-in)	3120(10' 3")
H	Height	mm(ft-in)	1140( 3' 9")
W	Width	mm(ft-in)	250( 0'10")
Wt	Weight	kg(lb)	310(680)

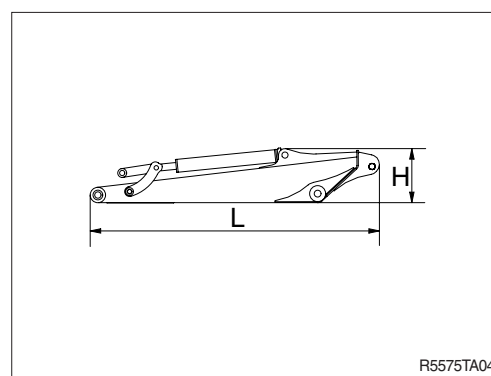
※ 3.0m(9'10") boom with arm cylinder(Included piping and pins).



### 3) Arm assembly

Mark	Description	Unit	Specification
L	Length	mm(ft-in)	2130( 6'12")
H	Height	mm(ft-in)	450( 1' 6")
W	Width	mm(ft-in)	170( 0' 7")
Wt	Weight	kg(lb)	210(460)

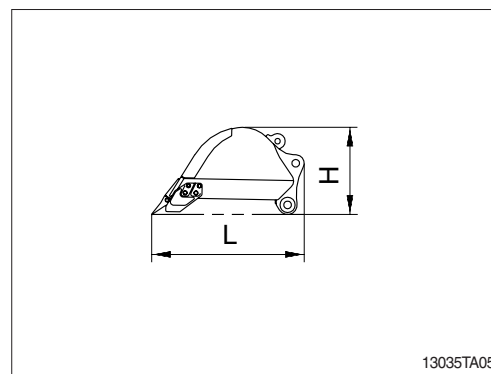
※ 1.6m(5' 3") arm with bucket cylinder(Included linkage and pins).



### 4) Bucket assembly

Mark	Description	Unit	Specification
L	Length	mm(ft-in)	1020( 3' 4")
H	Height	mm(ft-in)	570( 1'10")
W	Width	mm(ft-in)	740( 2' 5")
Wt	Weight	kg(lb)	170(380)

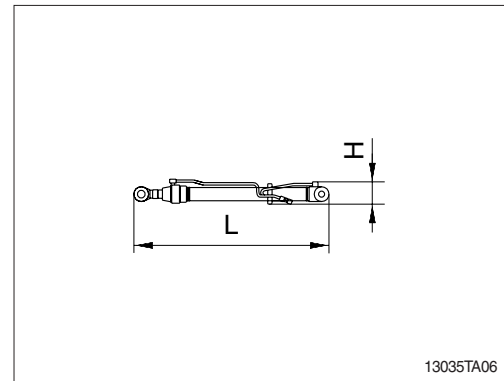
※ 0.18m<sup>3</sup>(0.24yd<sup>3</sup>) SAE heaped bucket(Included tooth and side cutters).



### 5) Boom cylinder

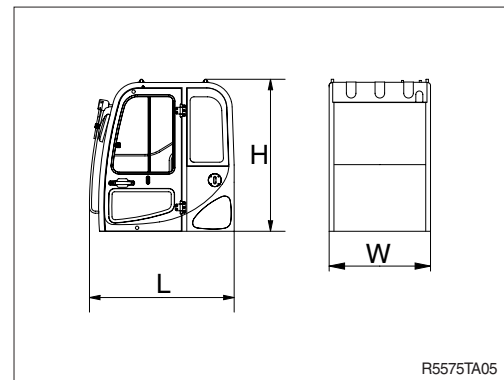
Mark	Description	Unit	Specification
L	Length	mm(ft-in)	1210( 3'12")
H	Height	mm(ft-in)	150( 0' 6")
W	Width	mm(ft-in)	280( 0'11")
Wt	Weight	kg(lb)	55(120)

※ Included piping.



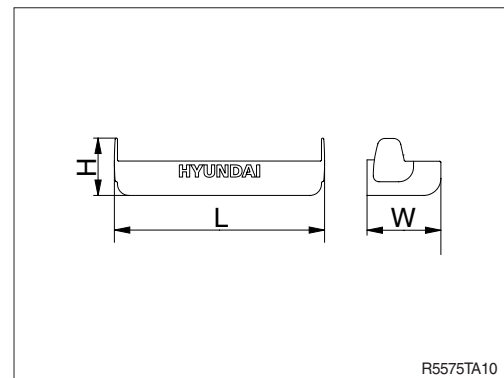
### 6) Cab assembly

Mark	Description	Unit	Specification
L	Length	mm(ft-in)	1510( 4'12")
H	Height	mm(ft-in)	1560( 5' 2")
W	Width	mm(ft-in)	1060( 3' 6")
Wt	Weight	kg(lb)	280(620)



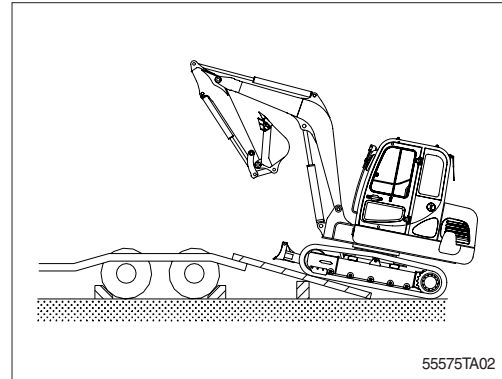
### 7) Counterweight

Mark	Description	Unit	Specification
L	Length	mm(ft-in)	1830( 6' 0")
H	Height	mm(ft-in)	500( 1' 8")
W	Width	mm(ft-in)	600( 1'12")
Wt	Weight	kg(lb)	210(460)

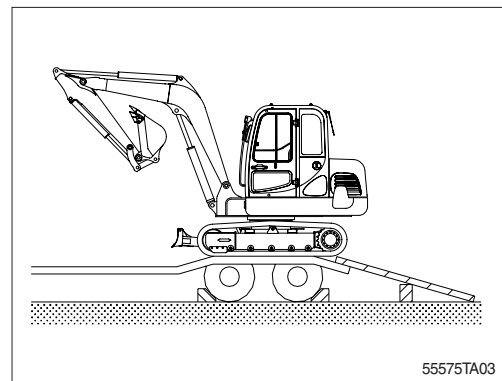


### 3. LOADING THE MACHINE

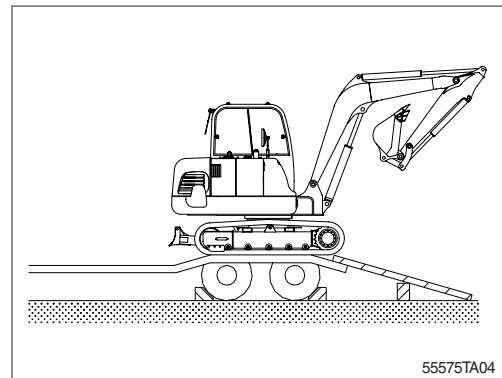
- 1) Load and unload the machine on a flat ground.
- 2) Use the gangplank with sufficient length, width, thickness and gradient.
- 3) Place the swing lock lever to the LOCK position before fixing the machine at the bed of trailer and confirm if the machine parallels the bed of trailer. Keep the travel motor in the rear when loading and in the front when unloading.



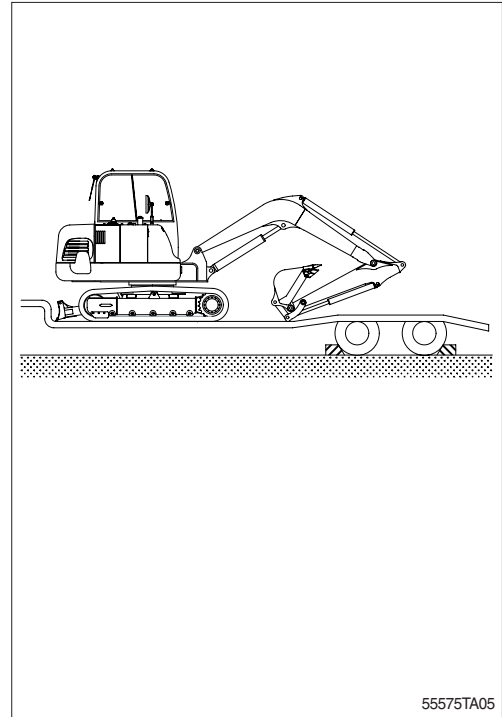
- 4) Do the following after loading the machine to the trailer.
  - (1) Stop loading when the machine is located horizontally with the rear wheel of trailer.



- (2) Swing the machine 180 degree.



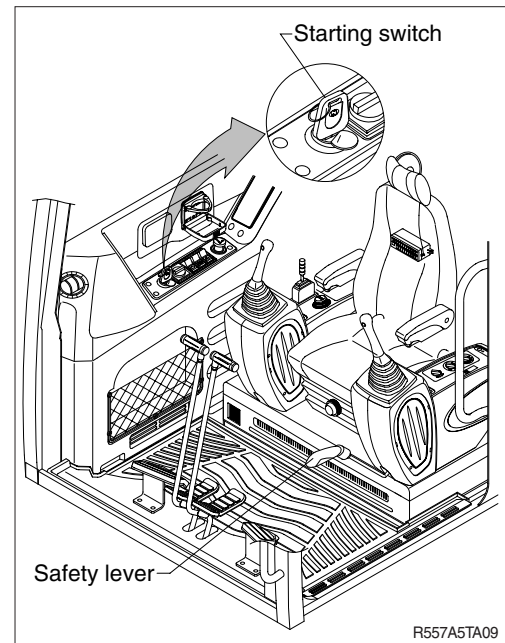
- (3) Lower the working equipment gently after the location is determined.
- ※ Place rectangular timber under the bucket cylinder to prevent the damage of it during transportation.
- ▲ Be sure to keep the travel speed switch on the LOW(turtle mark) while loading and unloading the machine.
  - ▲ Avoid 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.



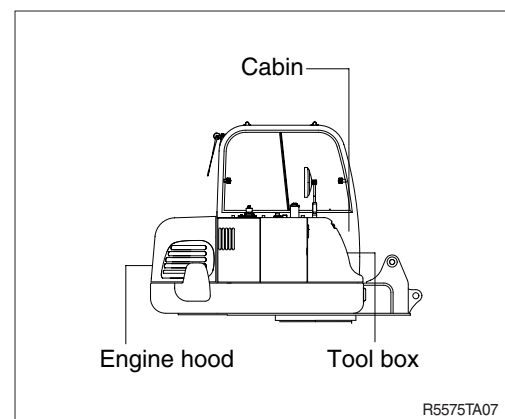
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## 4. FIXING THE MACHINE

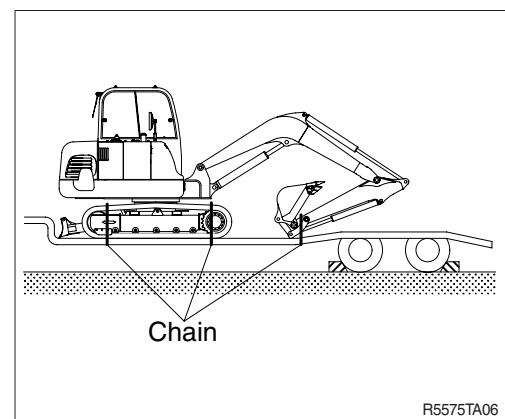
- 1) Lower down the working device on the loading plate of trailer.
- 2) Keep the safety lever on the LOCK position.
- 3) Turn OFF all the switches and remove the key.



- 5) Secure all locks.



- 6) Place timber underneath of the track and fix firmly with wire rope to prevent the machine from moving forward, backward, right or left.

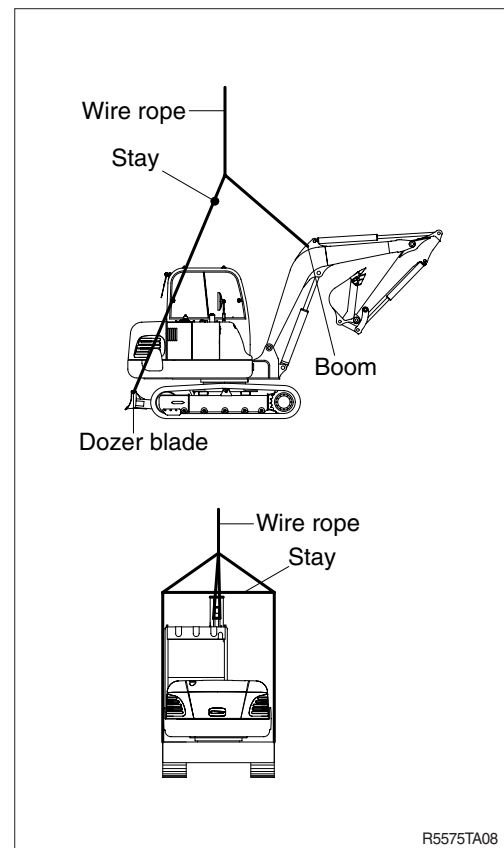




## 5. LOADING AND UNLOADING BY CRANE

- 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.

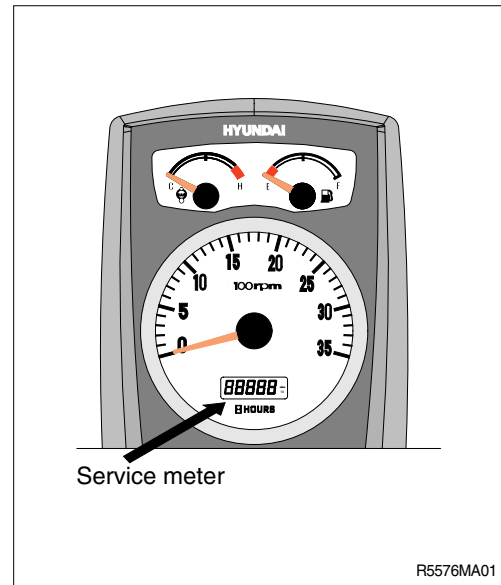
- ⚠ **Make sure wire rope is proper size.**
- ⚠ **Place the safety lever to LOCK position to prevent the machine moving when hoisting the machine.**
- ⚠ **The wrong hoisting method or installation of wire rope can cause damage to the machine.**
- ⚠ **Do not load abruptly.**
- ⚠ **Keep area clear of personnel.**



## 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 cluster.
- (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 100hours, carry out all the maintenance 「Each 100hours, 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) Ask to your local dealer or Hyundai for the maintenance advice if unknown.
- (5) 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.

### 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.

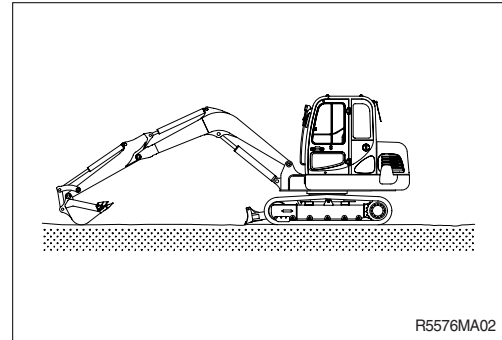
- (2) Use genuine parts.
  - (3) Use the recommended oil.
  - (4) Remove the dust or water around the inlet of oil tank before supplying oil.
  - (5) Drain oil when the temperature of oil is warm.
  - (6) Do not repair anything while operating the engine.  
Stop the engine when you fill the oil.
  - (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 Hyundai 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.

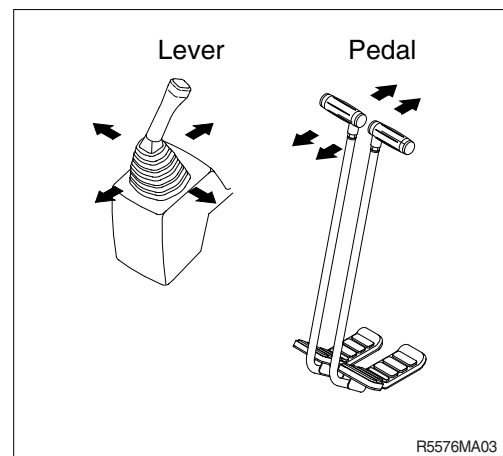
Be sure to relieve the pressure in the system before repairing hydraulic system.

- (1) Place machine in parking position, and stop the engine.

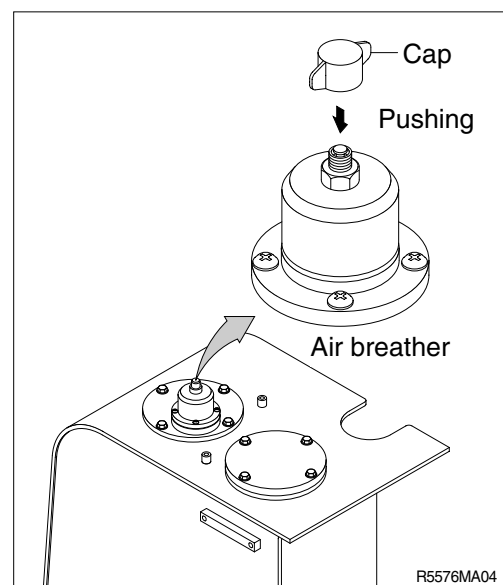


- (2) Set the safety lever completely in the release position, operate the control levers and pedals fully to the front, rear, left and right, to release the pressure in the hydraulic circuit.

※ 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.

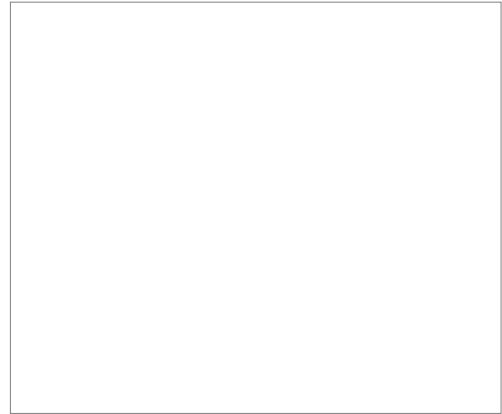


- (3) Loosen the cap and relieve the pressure in the tank by pushing the top of the air breather.



## 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.

Periodical replacement of safety parts			Interval
Engine		Fuel hose(tank-engine)	Every 2 years
		Heater hose (heater-engine)	
Hydraulic system	Main circuit	Pump suction hose	Every 2 years
		Pump delivery hose	
		Swing hose	
	Working device	Boom cylinder line hose	Every 2 years
		Arm cylinder line hose	
		Bucket cylinder line hose	

※ 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	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 6 × 1.0	0.9 ~ 1.3	6.5 ~ 9.4	1.1 ~ 1.7	8.0 ~ 12.3
M 8 × 1.25	2.0 ~ 3.0	14.5 ~ 21.7	2.7 ~ 4.1	19.5 ~ 29.7
M10 × 1.5	4.0 ~ 6.0	28.9 ~ 43.4	5.5 ~ 8.3	39.8 ~ 60.0
M12 × 1.75	7.4 ~ 11.2	53.5 ~ 81.0	9.8 ~ 15.8	70.9 ~ 114
M14 × 2.0	12.2 ~ 16.6	88.2 ~ 120	16.7 ~ 22.5	121 ~ 163
M16 × 2.0	18.6 ~ 25.2	135 ~ 182	25.2 ~ 34.2	182 ~ 247
M18 × 2.0	25.8 ~ 35.0	187 ~ 253	35.1 ~ 47.5	254 ~ 344
M20 × 2.5	36.2 ~ 49.0	262 ~ 354	49.2 ~ 66.6	356 ~ 482
M22 × 2.5	48.3 ~ 63.3	349 ~ 458	65.8 ~ 98.0	476 ~ 709
M24 × 3.0	62.5 ~ 84.5	452 ~ 611	85.0 ~ 115	615 ~ 832
M30 × 3.0	124 ~ 168	898 ~ 1214	169 ~ 229	1223 ~ 1656
M36 × 4.0	174 ~ 236	1261 ~ 1704	250 ~ 310	1808 ~ 2242

#### (2) Fine thread

Bolt size	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 8 × 1.0	2.2 ~ 3.4	15.9 ~ 24.6	3.0 ~ 4.4	21.7 ~ 31.8
M10 × 1.2	4.5 ~ 6.7	32.5 ~ 48.5	5.9 ~ 8.9	42.7 ~ 64.4
M12 × 1.25	7.8 ~ 11.6	56.4 ~ 83.9	10.6 ~ 16.0	76.7 ~ 116
M14 × 1.5	13.3 ~ 18.1	96.2 ~ 131	17.9 ~ 24.1	130 ~ 174
M16 × 1.5	19.9 ~ 26.9	144 ~ 195	26.6 ~ 36.0	192 ~ 260
M18 × 1.5	28.6 ~ 43.6	207 ~ 315	38.4 ~ 52.0	278 ~ 376
M20 × 1.5	40.0 ~ 54.0	289 ~ 391	53.4 ~ 72.2	386 ~ 522
M22 × 1.5	52.7 ~ 71.3	381 ~ 516	70.7 ~ 95.7	511 ~ 692
M24 × 2.0	67.9 ~ 91.9	491 ~ 665	90.9 ~ 123	658 ~ 890
M30 × 2.0	137 ~ 185	990 ~ 1339	182 ~ 248	1314 ~ 1796
M36 × 3.0	192 ~ 260	1390 ~ 1880	262 ~ 354	1894 ~ 2562

**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	130.2
1"	41	21	151.9
1-1/4"	50	35	253.2

**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	130.2
1-7/16-12	41	21	151.9
1-11/16-12	50	35	253.2

**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	130.2
1"	41	21	151.9
1-1/4"	50	35	253.2



#### 4) TIGHTENING TORQUE OF MAJOR COMPONENT

No.	Descriptions		Bolt size	Torque	
				kgf · m	lbf · ft
1	Engine	Engine mounting bolt(Engine-Bracket)	M10 × 1.5	7.0±1.0	50.6±7.2
2		Engine mounting bolt(Bracket-Frame)	M16 × 2.0	8.0±1.0	57.9±7.2
3		Radiator mounting bolt, nut	M10 × 1.5	6.9±1.4	50±10.0
4		Coupling mounting bolt	M10 × 1.5	6.0±1.0	43.4±7.2
5	Hydraulic system	Main pump mounting bolt	M12 × 1.75	12.8±3.0	92±22.0
6		Main control valve mounting bolt	M 8 × 1.25	2.5±0.5	18±3.6
7		Fuel tank mounting bolt	M16 × 2.0	25±2.5	181±18.1
8		Hydraulic oil tank mounting bolt	M16 × 2.0	25±2.5	181±18.1
9		Turning joint mounting bolt, nut	M12 × 1.75	12.8±3.0	92±22.0
10	Power train system	Swing motor mounting bolt	M16 × 2.0	29.7±4.5	215±33.0
11		Swing bearing upper mounting bolt	M16 × 2.0	29.7±4.5	215±33.0
12		Swing bearing lower mounting bolt	M16 × 2.0	29.7±4.5	215±33.0
13		Travel motor mounting bolt	M14 × 2.0	20±2.0	145±14.0
14		Sprocket mounting bolt	M14 × 2.0	19.6±2.9	142±21.0
15	Under carriage	Carrier roller mounting bolt, nut	M18 × 2.0	41±5.0	297±36.0
16		Track roller mounting bolt	M18 × 2.0	41±5.0	297±36.0
17		Track tension cylinder mounting bolt	M12 × 1.75	12.8±3.0	92±22.0
18		Track shoe mounting bolt, nut	1/2-20UNF	19±1.0	137±7.2
19		Track guard mounting bolt	M16 × 2.0	29.6±3.2	214±23.0
20	Others	Counter weight mounting bolt	M20 × 2.5	57.8±6.4	418±46.3
21		Cab mounting bolt, nut	M12 × 1.75	12.8±3.0	92±22.0
22		Operator's seat mounting bolt	M 8 × 1.25	1.17±0.1	8.5±0.7

### 3. FUEL, COOLANT AND LUBRICANTS

#### 1) NEW MACHINE

New machine used and filled with following lubricants.

Description	Specification
Engine oil	SAE 15W-40(API CI-4)
Hydraulic oil	ISO VG 46(SAE 10W)
Swing and travel reduction gear	SAE 85W-140(API GL-5)
Grease	Lithium base grease NLGI No. 2
Fuel	ASTM D975-No. 2(Low sulfur fuel or ultra low sulfur fuel)
Coolant	Mixture of 50% ethylene glycol base antifreeze and 50% 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

- Low sulfur fuel : sulfur content  $\leq 500\text{ppm}$
- Ultra low sulfur fuel : sulfur content  $\leq 15\text{ppm}$

## 2) RECOMMENDED OILS

Use only oils listed below or equivalent.

Do not mix different brand oil.

Service point	Kind of fluid	Capacity l (U.S. gal)	Ambient temperature °C( °F)						
			-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)
Engine oil pan	Engine oil	11.6(3.1)							
						SAE 30			
			SAE 10W						
			SAE 10W-30						
				SAE 15W-40					
Swing drive	Gear oil	1.5(0.4)							
Final drive		1.2×2 (0.3×2)				SAE 85W-140			
Hydraulic tank	Hydraulic oil	Tank: 70(18.5) System: 120(31.7)	ISO VG 32						
				ISO VG 46					
					ISO VG 68				
Fuel tank	Diesel fuel	120(31.7)	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 water 50 : 50	10(2.6)							
				Ethylene glycol base permanent type					

## 4. MAINTENANCE CHECK LIST

### 1) DAILY SERVICE BEFORE STARTING

Check items	Service	Page
Visual check		
Fuel tank	Check, Refill	6-25
Hydraulic oil level	Check, Add	6-27
Engine oil level	Check, Add	6-18
Coolant level	Check, Add	6-20
Control panel & pilot lamp	Check, Clean	6-36
Prefilter	Check, Drain	6-25
Fan belt tension	Check, Adjust	6-23

### 2) EVERY 50 HOURS SERVICE

Check items	Service	Page
Fuel tank	Drain	6-25
Track tension	Check, Adjust	6-32
Swing bearing	Lubricate	6-30
Swing reduction gear oil	Check, Add	6-29, 30
Lubricate pin and bushing	Lubricate	6-35
<ul style="list-style-type: none"> <li>• Boom cylinder head and rod</li> <li>• Boom connecting</li> <li>• Arm cylinder head and rod</li> <li>• Boom + Arm connecting</li> <li>• Bucket cylinder head and rod</li> <li>• Arm + Bucket connecting</li> <li>• Arm + Link, Bucket control</li> <li>• Bucket control rod</li> <li>• Boom swing post + Upper frame connecting</li> <li>• Boom swing cylinder head and rod</li> <li>• Dozer blade + Lower frame connecting</li> <li>• Dozer blade cylinder head and rod</li> </ul>		

### 3) INITIAL 50 HOURS SERVICE

Check items	Service	Page
Engine oil	Change	6-18, 19
Engine oil filter	Replace	6-18, 19
Fuel filter	Replace	6-26
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		

Service the above items only for the new machine, and thereafter keep the normal service interval.

### 4) EVERY 100 HOURS SERVICE

Check items	Service	Page
★ Element in hydraulic tank breather	Replace	6-29

★ Replace filter for continuous hydraulic breaker operation only.

### 5) INITIAL 250 HOURS SERVICE

Check items	Service	Page
Pilot line filter	Replace	6-29
Hydraulic return filter	Replace	6-28
Swing reduction gear oil	Change	6-30

## 6) EVERY 250 HOURS SERVICE

Check items	Service	Page
Battery electrolyte	Check	6-36
☆ Swing reduction gear oil	Change	6-29, 30
Element in hydraulic tank breather	Replace	6-29
Bolts & Nuts	Check, Tight	6-8
<ul style="list-style-type: none"> <li>• Sprocket mounting bolts</li> <li>• Travel motor mounting bolts</li> <li>• Swing motor mounting bolts</li> <li>• Swing bearing mounting bolts</li> <li>• Engine mounting bolts</li> <li>• Counterweight mounting bolts</li> <li>• Turning joint locating bolts</li> <li>• Track shoe mounting bolts and nuts</li> <li>• Hydraulic pump mounting bolts</li> </ul>		

☆ Change oil after initial 250 hours of operation.

## 7) EVERY 500 HOURS SERVICE

Check items	Service	Page
★ Engine oil	Change	6-18, 19
★ Engine oil filter	Replace	6-18, 19
Radiator and cooler fin	Check, Clean	6-23
☆ Air cleaner element	Inspect, Clean	6-24
Fuel filter & fuel prefilter	Replace	6-26
◆ Travel reduction gear oil	Change	6-31
◎ Hydraulic return filter	Replace	6-28
◎ Pilot line filter	Replace	6-29

★ If you use high sulfur containing fuel above than 0.5% or use low grade of engine oil reduce change interval.

☆ Clean the primary element only after 500 hours operation or when the air cleaner warning lamp blinks.  
Replace primary element and safety element after 4 times cleanings of primary element.

◆ Change oil after initial 500 hours of operation.

◎ Replace 2 filter for continuous hydraulic breaker operation only.

### 8) EVERY 1000 HOURS SERVICE

Check items	Service	Page
Travel motor reduction gear oil	Change	6-31
Swing reduction gear oil	Change	6-29, 30
Hydraulic return filter	Replace	6-28
Pilot line filter	Replace	6-29

### 9) EVERY 2000 HOURS SERVICE

Check items	Service	Page
Hydraulic tank		
★ · Oil	Change	6-27
· Suction strainer	Check, Clean	6-28
Coolant	Change	6-20, 21, 22, 23

★Change oil every 600 hours of continuous hydraulic breaker operation.

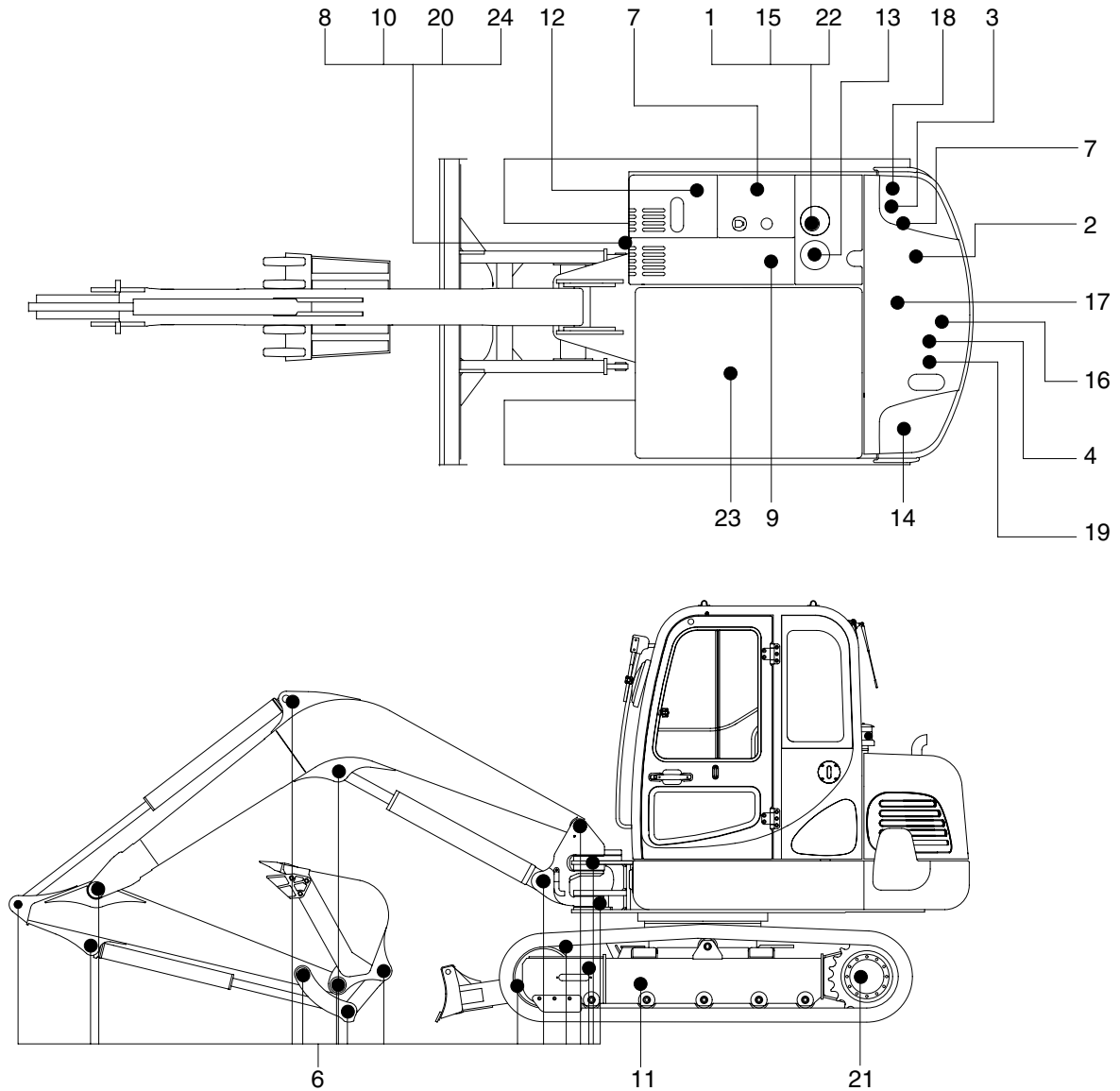
## 9) WHEN REQUIRED

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	6-25
· Prefilter	Drain or Replace	6-25
· Fuel filter	Replace	6-26
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
Engine air system		
· Air cleaner	Replace	6-24
Hydraulic system		
· Hydraulic oil	Add or Change	6-27
· Return filter	Replace	6-28
· Pilot line filter	Replace	6-29
· Element of breather	Replace	6-29
· Suction strainer	Clean	6-28
Under carriage		
· Track tension	Check, Adjust	6-32
Bucket		
· Tooth	Replace	6-34
· Side cutter	Replace	6-33
· Linkage	Adjust	6-33
· Bucket assy	Replace	6-33
Air conditioner and heater		
· Circulation filter	Clean	6-39



## 5. MAINTENANCE CHART



R5576MA05A

### 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.
4. For other details, refer to the service manual.

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	70(18.5)	1
	2	Engine oil level	Check, Add	EO	9.2(2.4)	1
	3	Radiator coolant	Check, Add	C	10(2.6)	1
	4	Water separator	Check, Drain	-	-	1
	5	Fan belt tension and damage	Check, Adjust	-	-	1
50 Hours or weekly	6	Attachment pins	Check, Add	PGL	-	16
	7	Fuel tank strainer and drain	Check, Clean	-	-	1
	8	Swing bearing	Lubricate	PGL	-	1
	9	Swing drive gear case(Gear oil)	Check, Add	GO	1.5(0.4)	1
	10	Swing drive gear case(Grease)	Check, Add	PGL	0.2(0.05)	1
	11	Track tension	Check, Adjust	PGL	-	2
	20	Swing gear and pinion	Check, Add	PGL	-	1
250 Hours	24	Boom swing cylinder	Lubricate	PGL	-	1
	12	Battery(Electrolyte)	Check, Add	-	-	1
500 Hours	15	Air breather element	Replace	-	-	1
	2	Engine oil	Change	EO	11.6(3.1)	1
	16	Engine oil filter	Replace	-	-	1
	17	Air cleaner element(Outside)	Clean	-	-	1
	18	Radiator and cooler fin	Check, Clean	-	-	2
1000 Hours	19	Fuel filter & fuel prefilter element	Replace	-	-	1
	9	Swing drive gear case	Change	GO	1.5(0.4)	1
	13	Hydraulic oil return filter	Replace	-	-	1
	14	Line filter element	Replace	-	-	1
2000 Hours	21	Final drive gear case	Change	GO	1.2(0.3)	2
	1	Hydraulic oil	Change	HO	70(18.5)	1
	3	Radiator coolant	Change	C	10(2.6)	1
As required	22	Hydraulic oil suction strainer	Check, Clean	-	-	1
	17	Air cleaner element(Inside/Outside)	Check, Clean	-	-	2
	23	Air conditioner filters	Check, Clean	-	-	1

※ **Oil symbol**

Please refer to the recommended lubricants for specification.

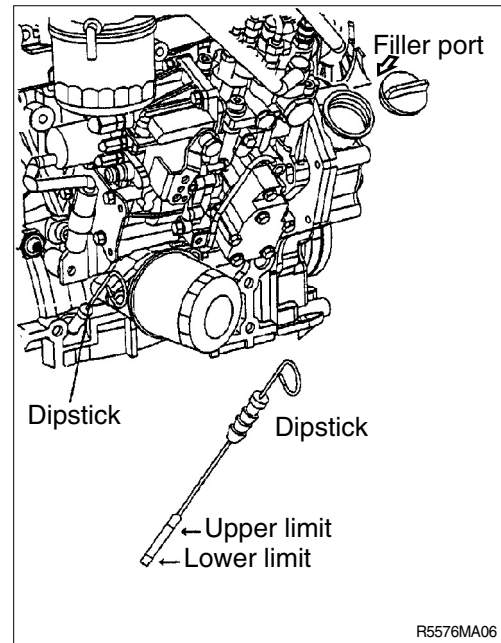
DF : Diesel fuel                      GO : Gear oil  
HO : Hydraulic oil                  C : Coolant  
PGL : Grease                          EO : Engine oil

## 6. SERVICE INSTRUCTION

### 1) CHECK ENGINE OIL LEVEL

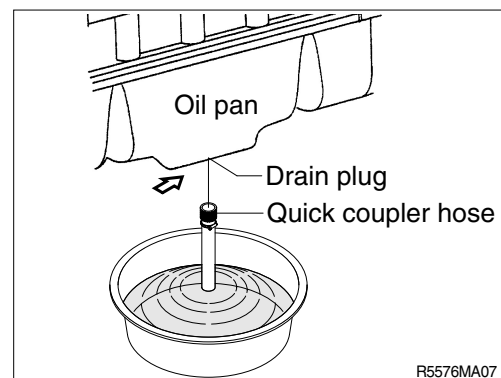
Check the oil level with the machine on a flat ground before starting engine.

- (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.**

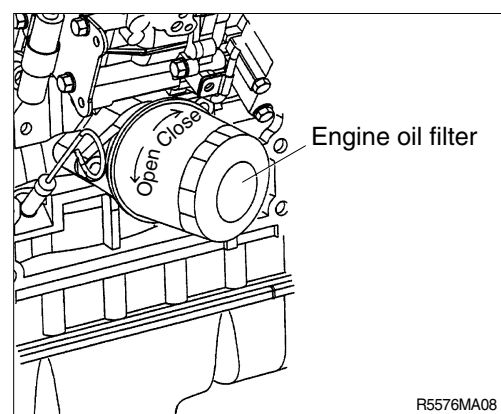


### 2) REPLACEMENT OF ENGINE OIL AND OIL FILTER

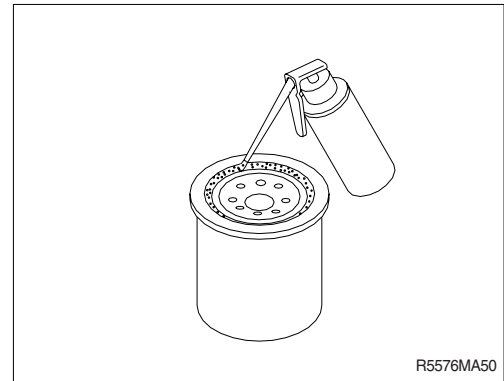
- (1) Warm up the engine.
  - (2) Remove the cover of drain plug and connect the quick coupler hose.
- ※ **A drain pan with a capacity of 20 liters(5 U.S. gallons) will be adequate.**
  - ⚠ **Use API CI-4 or better grade oil.**



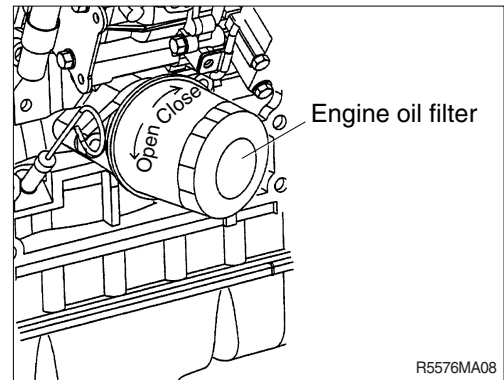
- (3) Clean around the filter head, remove the filter with a filter wrench and clean the gasket surface.



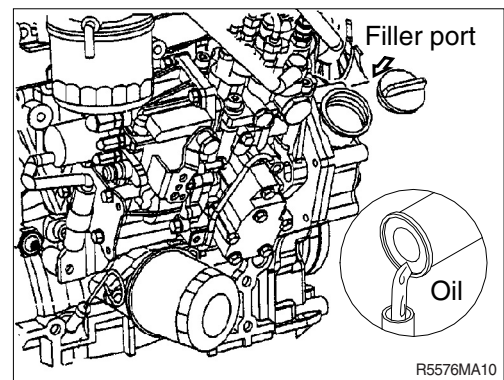
- (4) Apply a light film of lubricating oil to the gasket sealing surface before installing the filters.



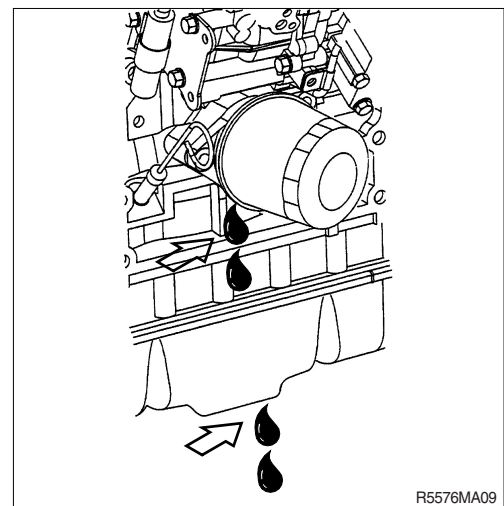
- (5) Install the filter to the filter head.  
Remove the quick coupler hose.
- ※ **Mechanical over-tightening may distort the threads or damage the filter element seal.**
- Install the filter as specified by the filter manufacturer.



- (6) Fill the engine with clean oil to the proper level.
- Quantity : 11.6 l (3.1U.S.gallons)



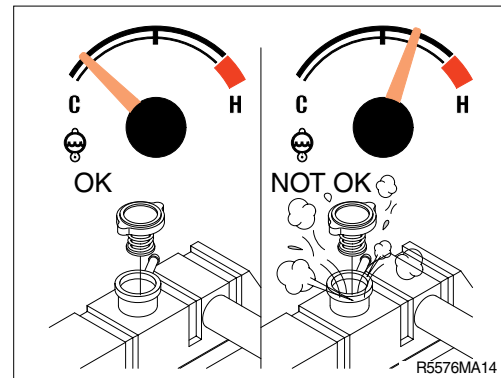
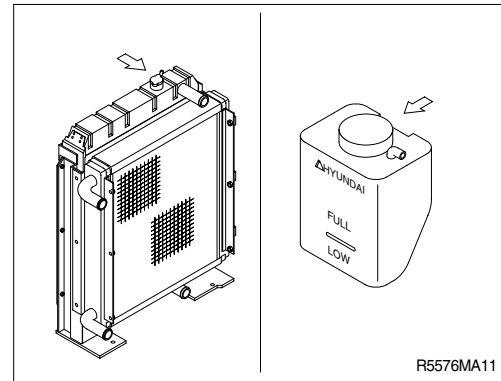
- (7) Operate the engine at low idle and inspect for leaks at the filters and the drain plug.  
Shut the engine off and check the oil level with the dipstick. Allow 15minutes for oil to drain down before checking.



### 3) CHECK COOLANT

- (1) Check if the level of coolant in reservoir tank is between FULL and LOW.
- (2) Add the mixture of antifreeze and water after removing the cap of the reservoir tank if coolant is not sufficient.
- (3) Be sure to add the coolant by opening the cap of radiator when coolant level is below LOW.
- (4) Replace gasket of radiator cap when it is damaged.

**▲ Hot coolant can spray out if radiator cap is removed while engine is hot. Remove the cap after the engine has cooled down.**

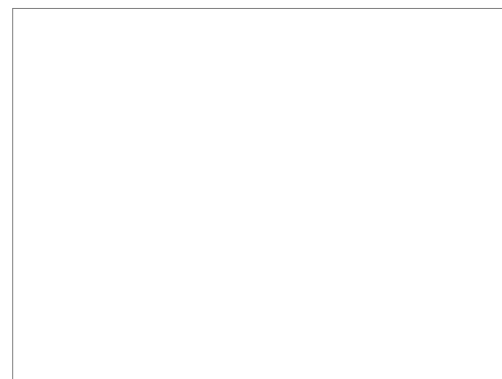
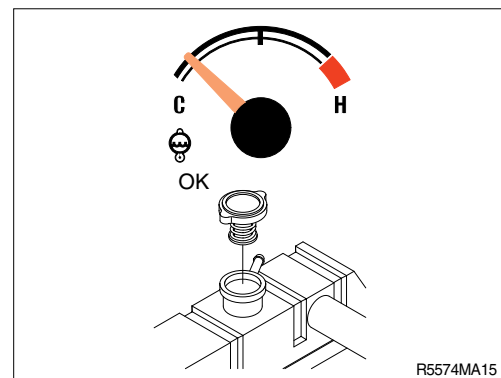


### 4) FLUSHING AND REFILLING OF RADIATOR

- (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.**

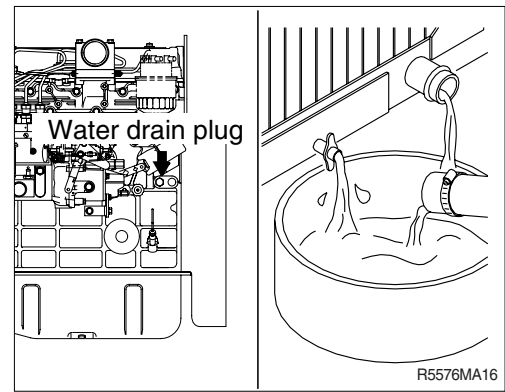
※ **Protect the environment : Handling and disposal of used antifreeze can be subject to federal, state, and local law regulation.**  
**Use authorized waste disposal facilities, including civic amenity sites and garages providing authorized facilities for the receipt of used antifreeze.**  
**If in 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.

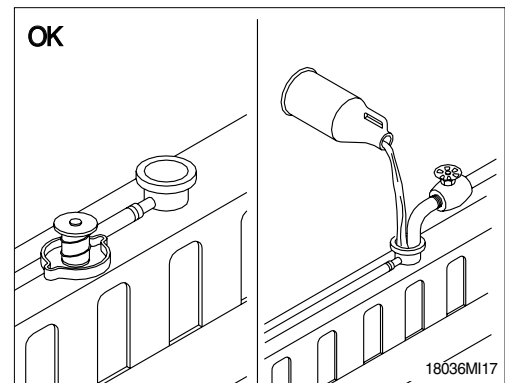
Failure to do so can cause personal injury from heated coolant spray.

Drain the cooling system by opening the drain valve on the radiator and removing the plug in the bottom of the water inlet. A drain pan with a capacity of 20 liters(5U.S.gallons) will be adequate in most applications.

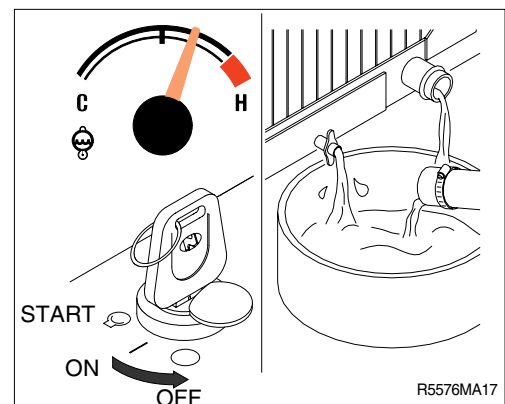


## (2) Flushing of cooling system

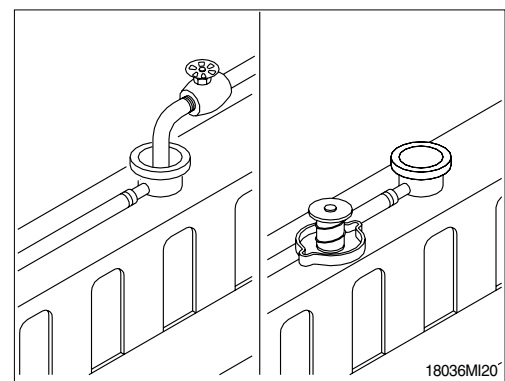
- ① Fill the system with a mixture of sodium carbonate and water(or a commercially available equivalent).
  - ※ Use 0.5kg(1.0pound) of sodium carbonate for every 23 liters(6.0U.S. gallons) of water.
  - ※ Do not install the radiator cap. The engine is to be operated without the cap for this process.



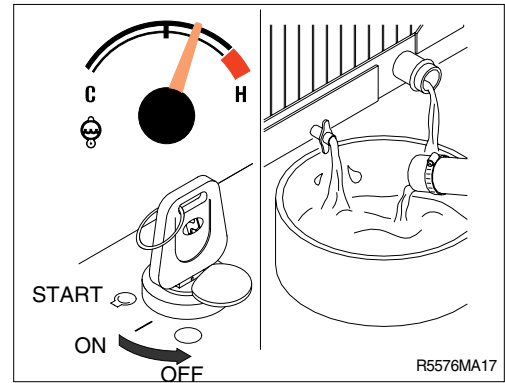
- ② Operate the engine for 5 minutes with the coolant temperature above 80°C(176°F) .  
Shut the engine off, and drain the cooling system.



- ③ Fill the cooling system with clean water.
  - ※ Be sure to vent the engine and aftercooler for complete filling.
  - ※ Do not install the radiator cap or the new coolant filter.

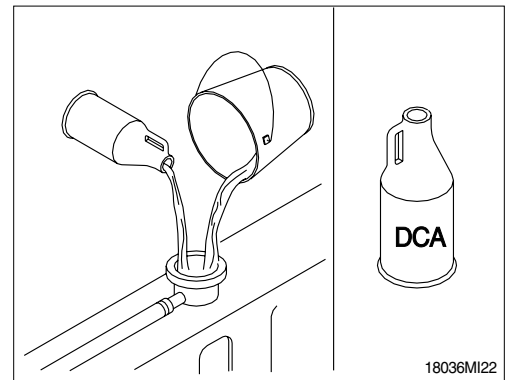


- ④ Operate the engine for 5 minutes with the coolant temperature above 80°C(176°F) . Shut the engine off, and drain the cooling system.
- ※ If the water being drained is still dirty, the system must be flushed again until the water is clean.

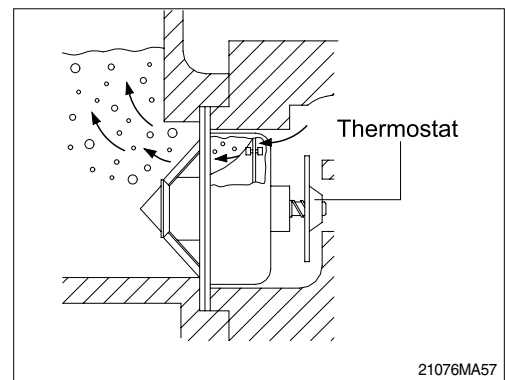


### (3) Cooling system filling

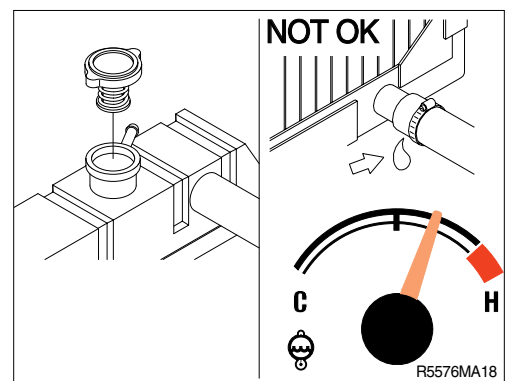
- ① Use a mixture of 50 percent water and 50 percent ethylene glycol antifreeze to fill the cooling system.
- Coolant capacity(engine only) : 10 l (2.6U.S. gallons)



- ※ The system must be filled slowly to prevent air locks.
- During filling, air must be vented from the engine coolant passage.



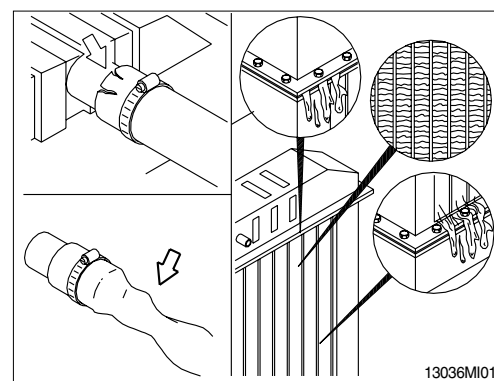
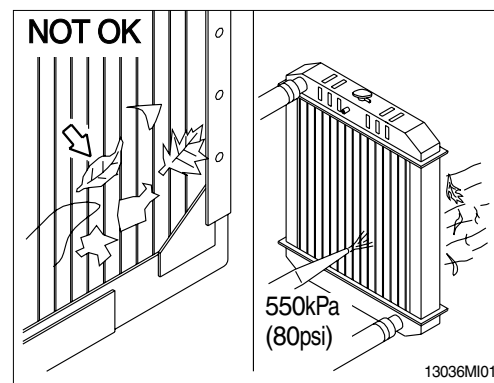
- ③ Install the pressure cap. Operate the engine until it reaches a temperature 80°C(176°F), and check for coolant leaks.
- Check the coolant level again to make sure the system is full of coolant.



## 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.

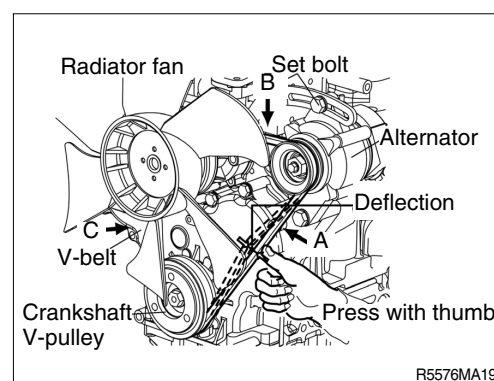
- (1) Visually inspect the radiator for clogged radiator fins.
- (2) Use 550kPa(80psi) air pressure to blow the dirt and debris from the fins.  
Blow the air in the opposite direction of the fan air flow.
- (3) Visually inspect the radiator for bent or broken fins.  
※ If the radiator must be replaced 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 and gasket leaks.



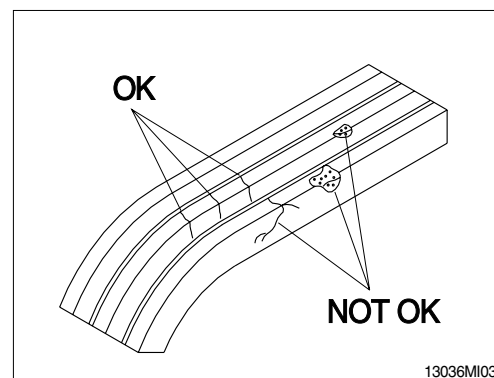
## 6) FAN BELT TENSION

- (1) Measure the belt deflection at the longest span of the belt.  
· Deflection

	A	B	C
Used belt	10~14	7~10	9~13
New belt	8~12	5~8	7~11



- (2) Inspect the drive for damage.





## 7) 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.

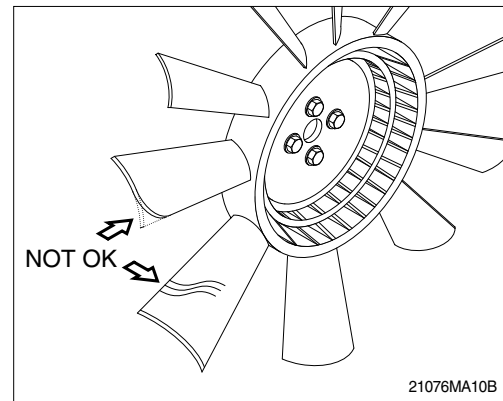
※ Rotate the crankshaft by using the engine barring gear.

※ 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.



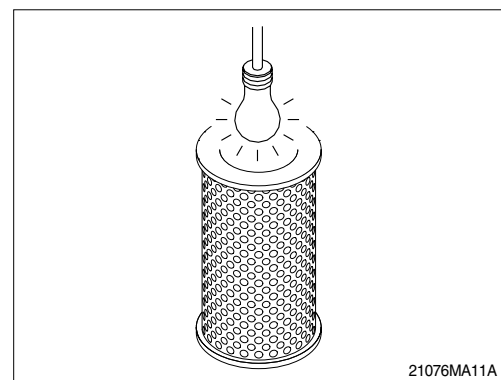
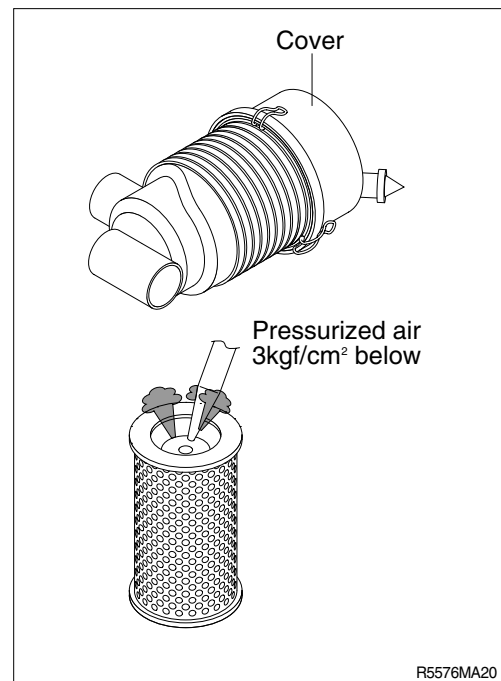
## 8) CLEANING OF AIR CLEANER

### (1) Primary element

- ① Open cover 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 3kgf/cm<sup>2</sup>, 40psi) 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 close cover.
- ※ Replace the primary element after 4 times cleanings.

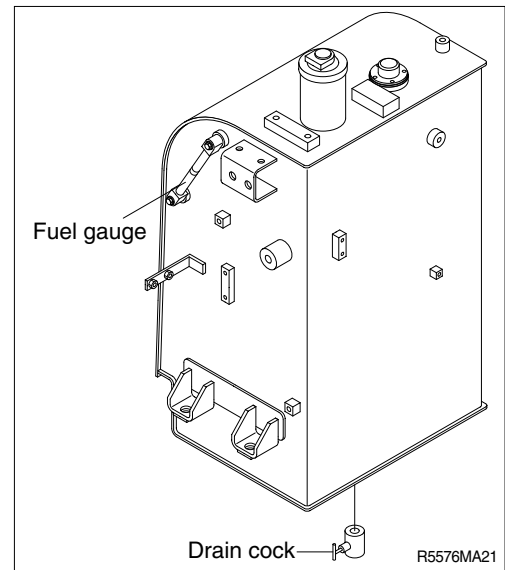
### (2) Safety element

- ※ 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.



## 9) 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.**

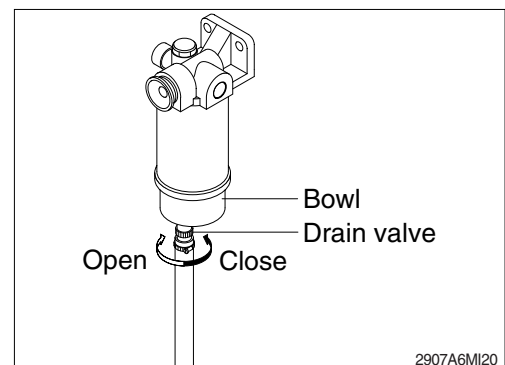


## 10) PREFILTER

- ※ **Inspect or drain the collection bowl of water daily and replace the element every 500hours.**

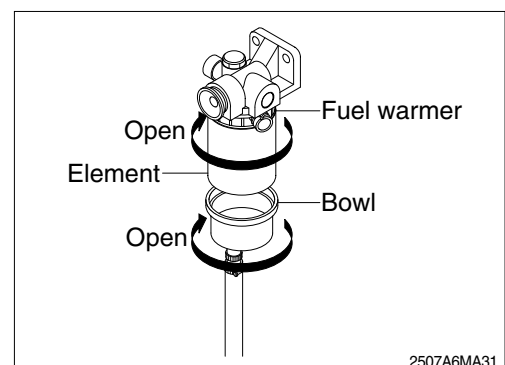
### (1) Drain water

- ① Open bowl drain valve to evacuate water.
- ② Close drain valve.

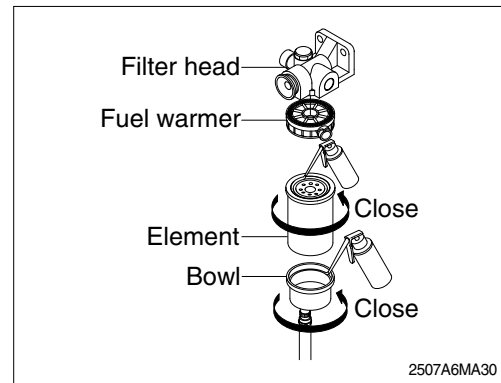


### (2) Replace element

- ① Drain the unit of fuel. Follow "Drain water" instructions above.
- ② Remove element, fuel warmer and bowl from filter head.
  - ※ The bowl is reusable, do not damage or discard.
- ③ Separate element from bowl. Clean bowl and seal gland.

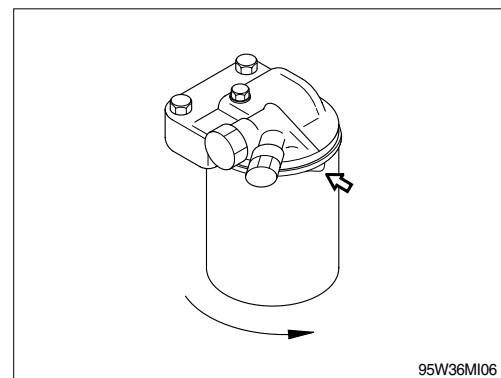
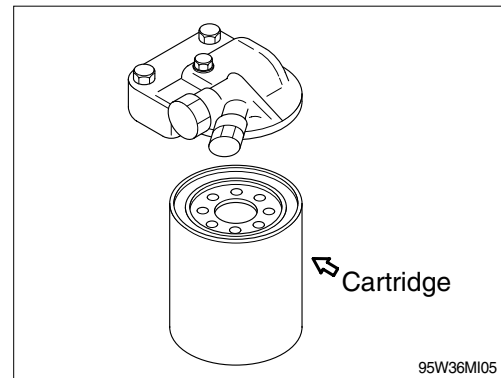


- ④ Lubricate new bowl seal with clean fuel or motor oil and place in bowl gland.
- ⑤ Attach bowl to new element firmly by hand.
- ⑥ Lubricate new element seal and place in element top gland.
- ⑦ Attach the element, fuel warmer and bowl to the head.



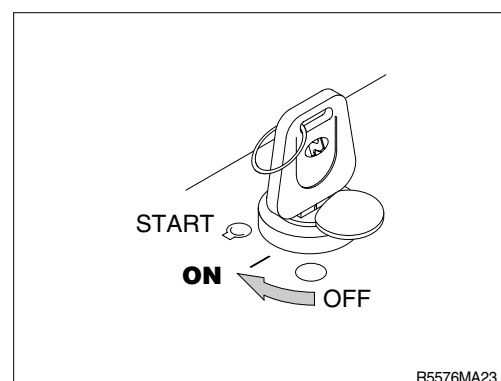
## 11) REPLACEMENT OF FUEL FILTER

- (1) Clean around the filter head, remove the filter with a filter wrench and clean the gasket surface.
- (2) Apply a small amount of fuel to the O-ring of new cartridge.
- (3) Install new cartridge by hand.
  - ※ **Do not add fuel to the new cartridge. Invisible particles of dirt which might get inside the injection pump can damage its finely finished parts.**
- (4) Relieve the air after mounting.
  - ※ **Check for fuel leakage after the engine starts.**
  - ※ **If air is in the fuel system, the engine will not start. Start engine after bleeding the air according to the method of bleeding air.**



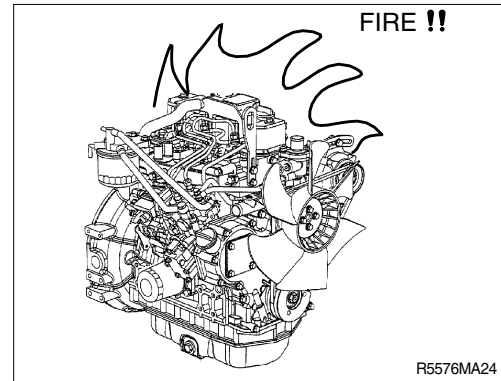
## 12) BLEEDING THE FUEL SYSTEM

- (1) Turn the start switch to the ON position and hold it in the position for 10~15 seconds to operate the fuel feed pump.



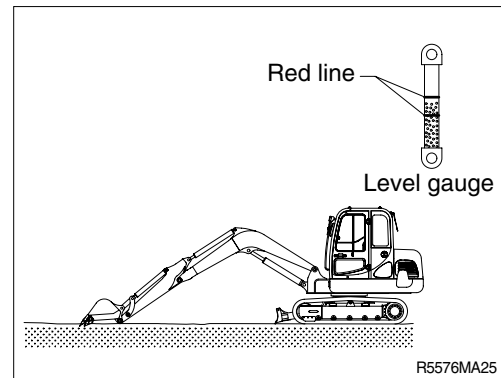
### 13) LEAKAGE OF FUEL

- ▲ Be careful and clean the fuel hose, injection pump, fuel filter and other connections as the leakage from these part can cause fire.



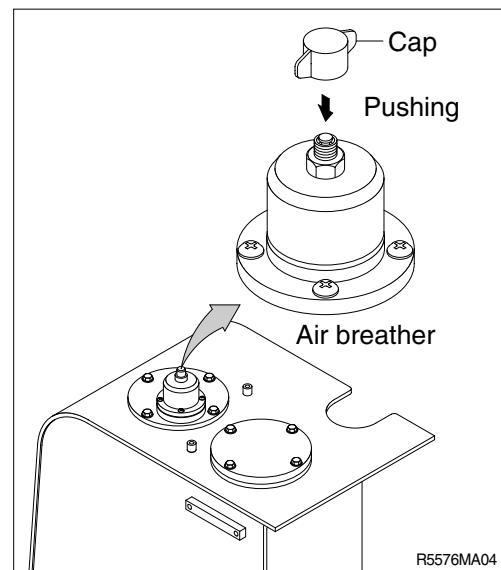
### 14) HYDRAULIC OIL CHECK

- (1) Stop the engine after retract the arm and bucket cylinders, then lower the boom and set the bucket on the ground at a flat location as in the illustration.
- (2) Check the oil level at the level gauge of hydraulic oil tank.
- (3) The oil level is normal if between the red lines.



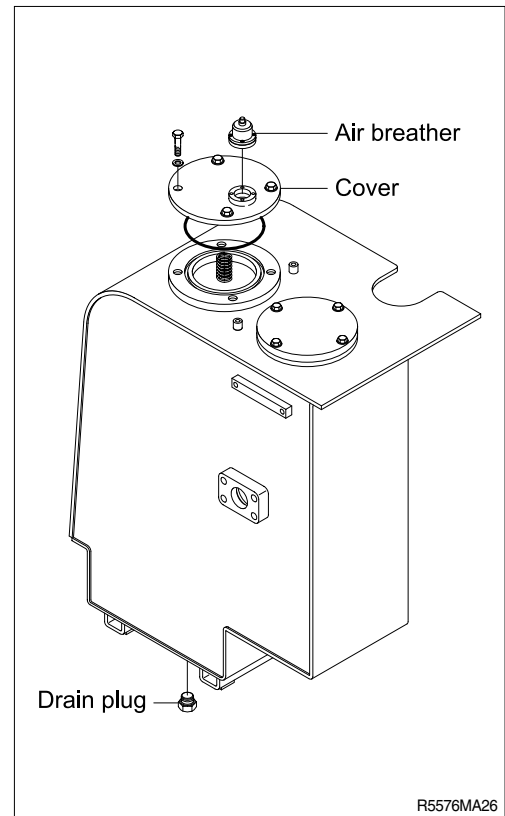
### 15) FILLING HYDRAULIC OIL

- (1) Stop the engine to the position of level check.
- (2) Loosen the cap 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.
  - Tightening torque :  $1.44 \pm 0.3 \text{ kgf} \cdot \text{m}$   
( $10.4 \pm 2.1 \text{ lbf} \cdot \text{ft}$ )
- (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.



## 16) CHANGE HYDRAULIC OIL

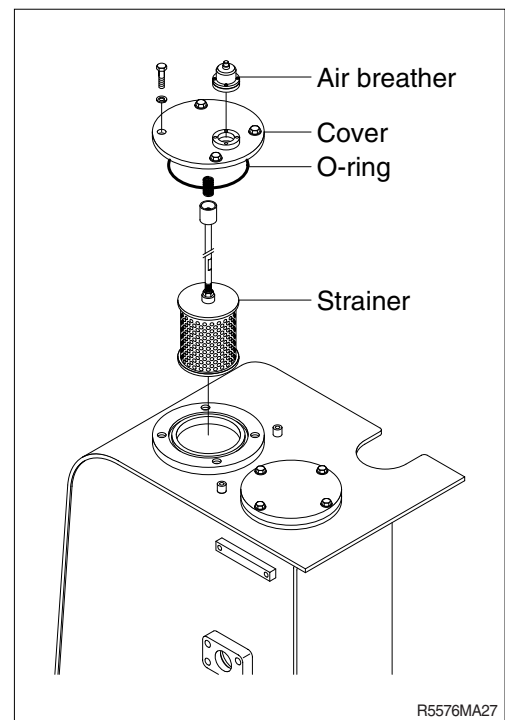
- (1) Lower the bucket on the ground pulling the arm and bucket cylinder to the maximum.
- (2) Loosen the cap and relieve the pressure in the tank by pushing the top of the air breather.
- (3) Remove the cover.
  - Tightening torque :  $6.9 \pm 1.4 \text{ kgf} \cdot \text{m}$   
( $50 \pm 10 \text{ lbf} \cdot \text{ft}$ )
- (4) Prepare a suitable container.
- (5) To drain the oil loosen the drain plug 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.



## 17) CLEAN SUCTION STRAINER

Clean suction strainer as follows paying attention to the cause to be kept during oil filling.

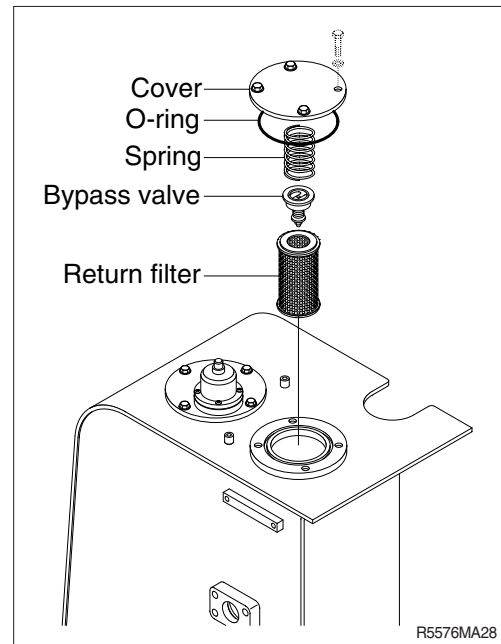
- (1) Remove the cover on the top of the oil tank.
    - Tightening torque :  $6.9 \pm 1.4 \text{ kgf} \cdot \text{m}$   
( $50 \pm 10 \text{ lbf} \cdot \text{ft}$ )
  - (2) Pull out the strainer in the tank.
  - (3) Wash the foreign material on the suction strainer with gasoline or cleaning oil.
  - (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.**



## 18) REPLACEMENT OF RETURN FILTER

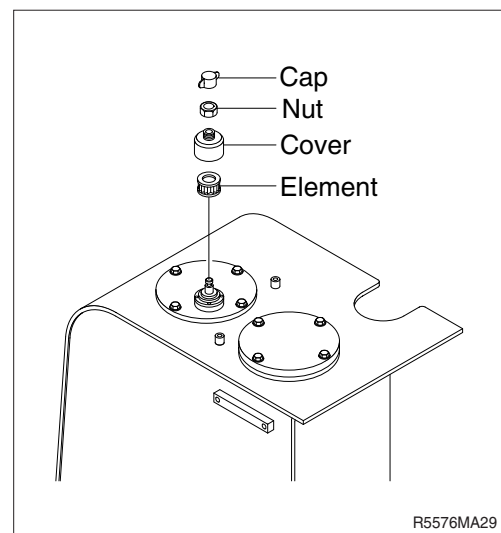
Replace as follows paying attention to the cause to be kept during the replacement.

- (1) Remove the cover.
  - Tightening torque :  $6.9 \pm 1.4 \text{ kgf} \cdot \text{m}$   
( $50 \pm 10 \text{ lbf} \cdot \text{ft}$ )
- (2) Remove the spring, by-pass valve, and return filter in the tank.
- (3) Replace the element with new one.



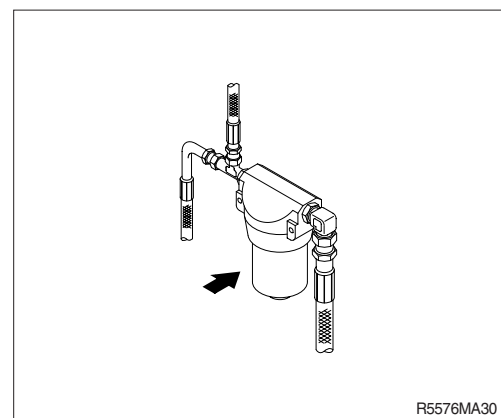
## 19) REPLACEMENT OF ELEMENT IN HYDRAULIC TANK BREATHER

- (1) Loosen the cap and relieve the pressure in the tank by pushing the top of the air breather.
- (2) Loosen the lock nut and remove the cover.
- (3) Pull out the filter element.
- (4) Replace the filter element new one.
- (5) Apply oil on the O-ring and reassemble by reverse order of disassembly.
  - Tightening torque :  $0.2 \sim 0.3 \text{ kgf} \cdot \text{m}$   
( $1.4 \sim 2.1 \text{ lbf} \cdot \text{ft}$ )



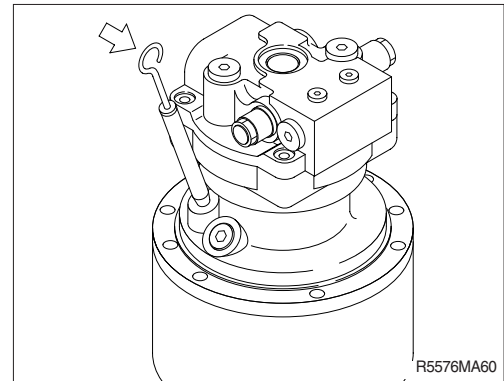
## 20) REPLACE OF PILOT LINE FILTER

- (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.**



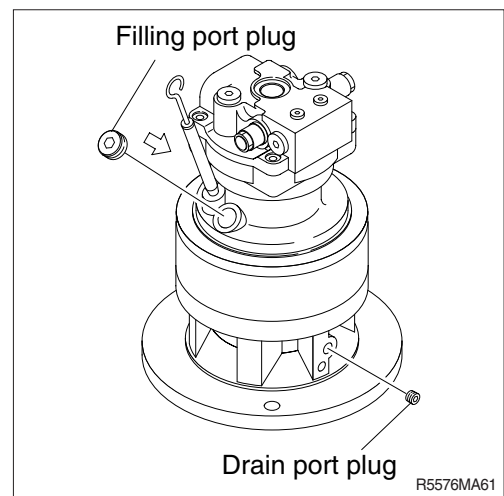
## 21) CHECK THE SWING REDUCTION GEAR OIL

- (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.



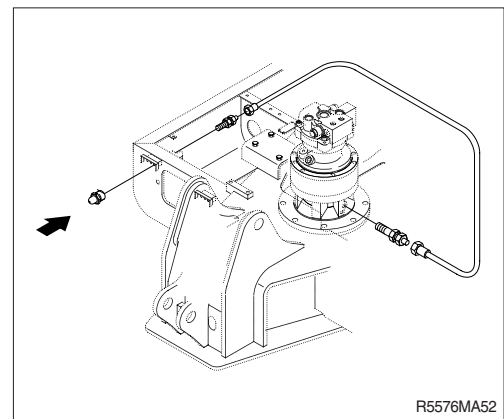
## 22) CHANGE SWING REDUCTION GEAR OIL

- (1) Raise the temperature of oil by swinging the machine before replace the oil and park the machine on the flat ground.
  - (2) Loosen the plug of the drain port.
  - (3) Drain into a proper container.
  - (4) Wash the drain plug and reinstall it with sealing tape.
- Fill proper amount of recommended oil.
- Amount of oil : 1.5 l (0.4U.S.gal)



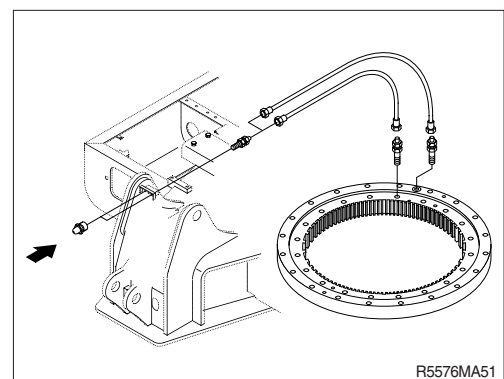
## 23) LUBRICATE BEARING OF OUTPUT SHAFT IN REDUCTION GEAR

- (1) Grease at fitting.
- ※ Lubricate every 50 hours.



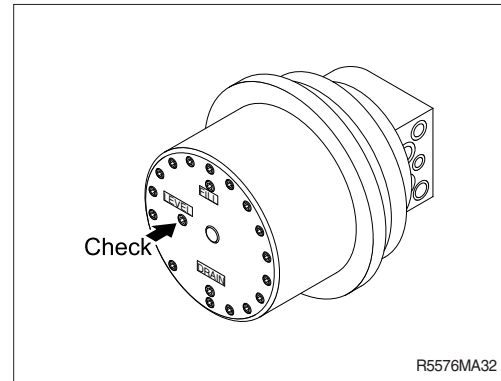
## 24) LUBRICATE SWING BEARING

- (1) Grease at 2 fitting.
- ※ Lubricate every 50 hours.



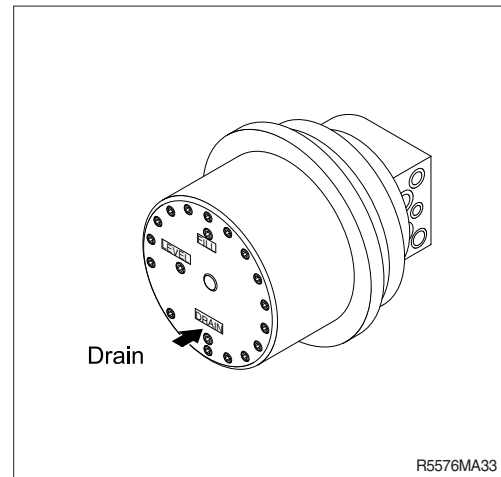
## 25) CHECK THE TRAVEL REDUCTION GEAR OIL

- (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 oil : 1.2 l (0.3 U.S.gal)



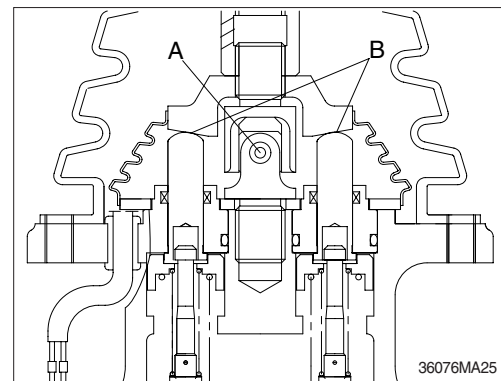
## 26) CHANGE OF THE TRAVEL REDUCTION GEAR OIL

- (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.



## 27) LUBRICATE RCV LEVER

Remove the bellows and with a grease gun grease the joint part(A) and sliding parts(B).





## 28) 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 track of shoe.
- ※ Remove mud with rotating the track before measuring.

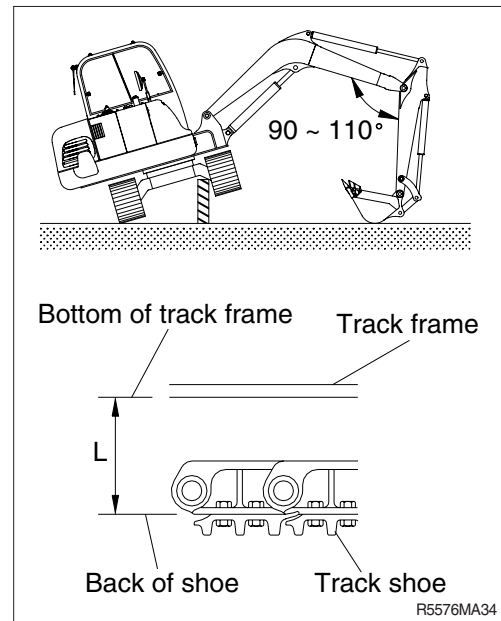
- (3) If the tension is tight, drain the grease in the grease nipple and if the tension is loose, charge the grease.

▲ 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.

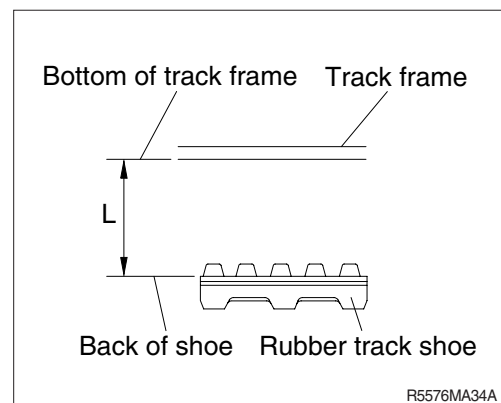
※ When the grease is drained, move the track to the forward and backward slightly.

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.



### Steel track

Length(L)	
130~150mm	5.1~5.9"



### Rubber track

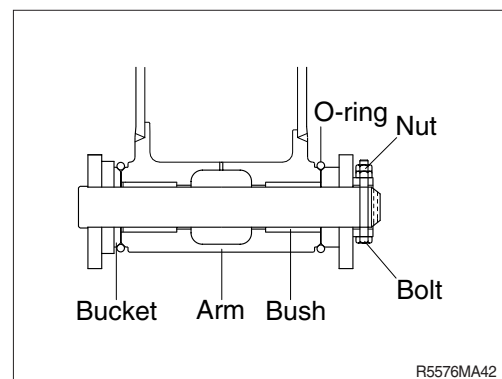
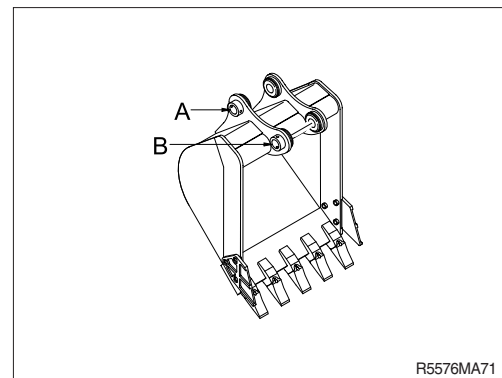
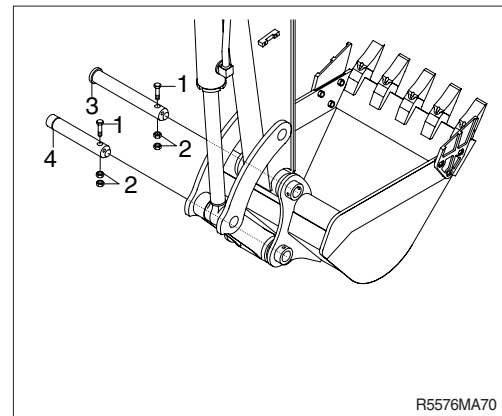
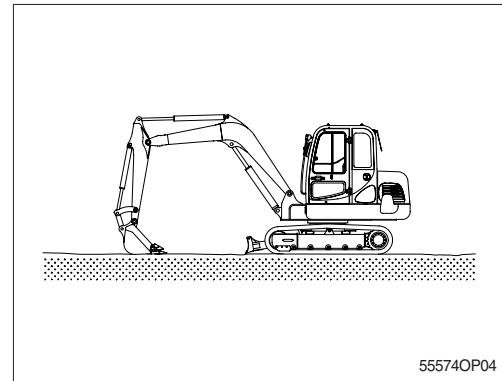
Length(L)	
65~70mm	2.6~2.8"

## 29) 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.

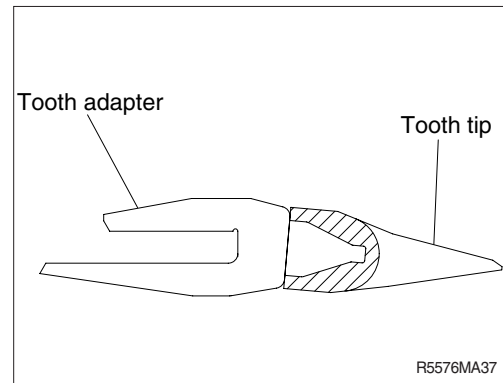
- (1) Lower the bucket on the ground as the picture shown in the right.
- (2) Lock the safety lever to the LOCK position and stop the engine.
- (3) Remove the stopper bolts(1) and nuts(2), then remove pins(3, 4) and remove the bucket.
- ※ When removing the pins, place the bucket so that it is in light 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.



### 30) 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.

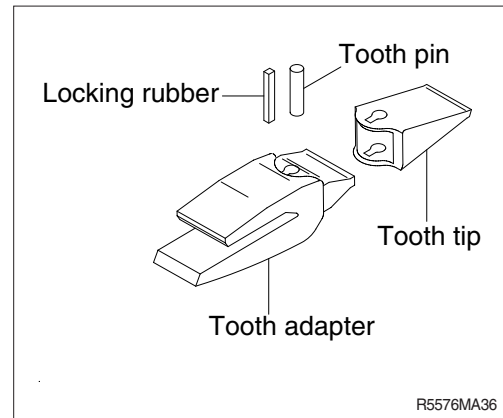


#### (2) Instructions for replacement

- ① Pull out pin by striking pin with punch or hammer, avoiding damage to locking rubber.
- ② Remove dust and mud from surface of tooth adapter by using knife.
- ③ Place locking rubber in its proper place, and fit tooth tip to adapter.
- ④ Insert pin until locking rubber is positioned at tooth pin groove.

▲ **Personal injury can result from bucket falling.**

▲ **Block the bucket before changing tooth tips or side cutters.**



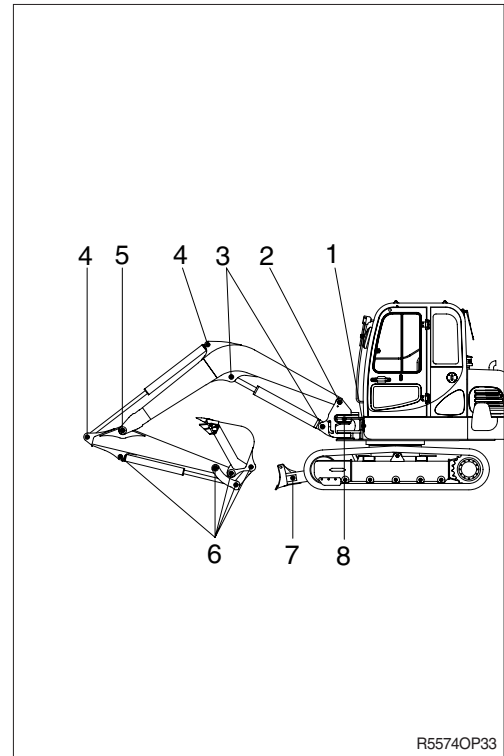
### 31) LUBRICATE PIN AND BUSHING

#### (1) Lubricate to each pin of working device

Lubricate the grease to the grease nipple according to the lubricating interval.

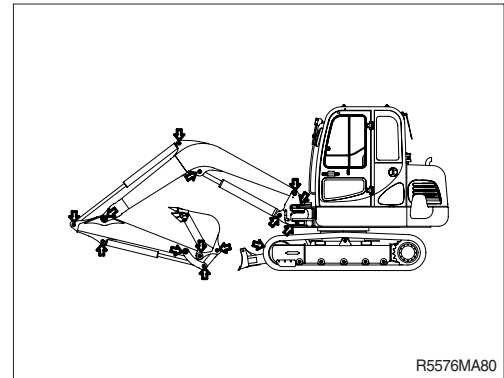
No.	Description	Qty
1	Lubrication manifold at upper frame	4
2	Boom connection pin	2
3	Boom cylinder(Head and rod side)	2
4	Arm cylinder pin(Head and rod side)	2
5	Boom and arm connection pin	1
6	Bucket cylinder pin(Head and rod)	2
	Bucket link(Control rod)	1
	Arm and bucket connection pin	1
	Arm and control link connection pin	1
7	Dozer connection pin	2
	Dozer cylinder pin	2
8	Boom swing post	2

※ Shorten lubricating interval when working in the water or dusty place.



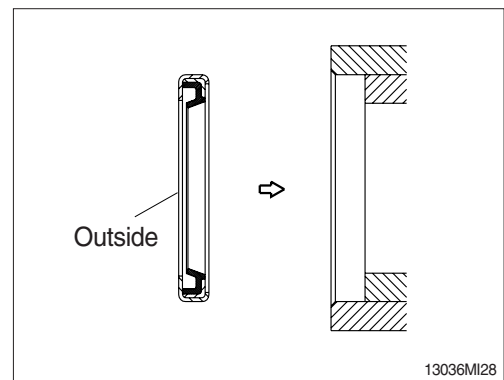
#### (2) Dust seals are mounted on the rotating part of working device to extend the lubricating interval.

※ Mount the lip to be faced outside when replace the dust seal.



※ If it is assembled in wrong direction, it will cause fast wear of pin and bushing, and create noise and vibration during operation.

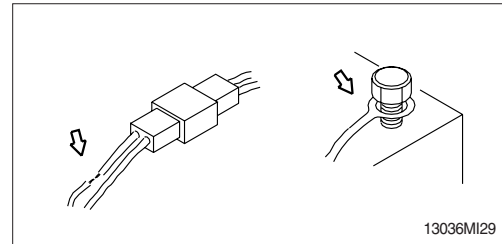
※ Assemble the seal same direction with picture and use with plastic hammer when replace.



## 7. ELECTRICAL SYSTEM

### 1) WIRING, GAUGES

Check regularly and repair loose or malfunctioning gauges when found.



### 2) BATTERY

#### (1) Check and repair

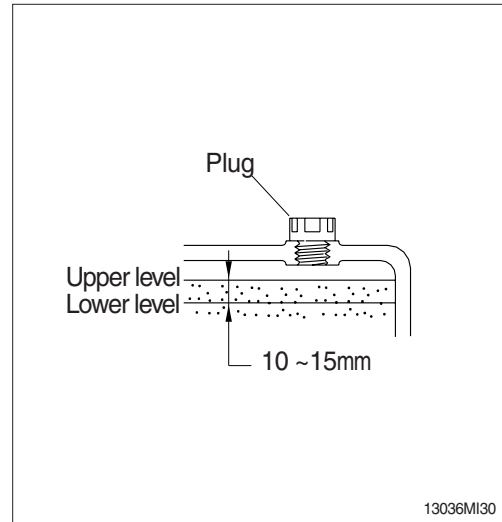
- ① Check the electrolyte level and fill with distilled water to the prescribed level as necessary.
- ② Wash the terminal with hot water if it is contaminated, and apply grease to the terminals after washing.

**▲ 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.**

※ Remove the fire and spark around battery.

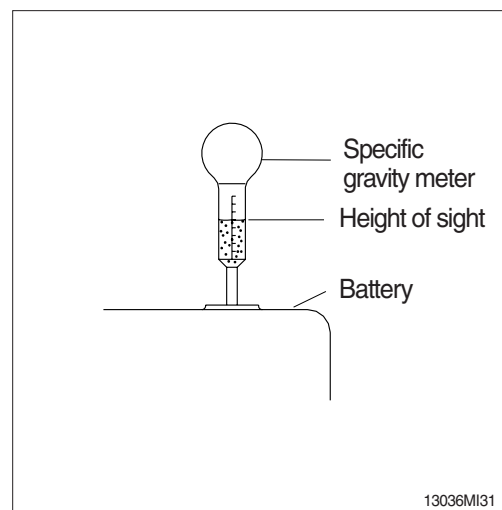


#### (2) Specific gravity of battery

Judge the charging rate of battery by the specific gravity. The specific gravity changes by the ambient temperature.

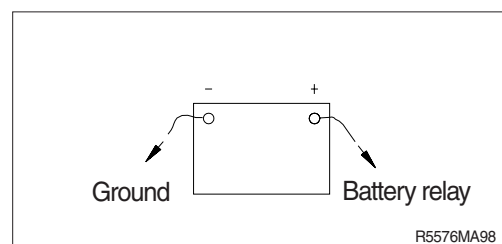
Check the charging rate by referring to the chart below.

Temperature Charging rate	20°C (68°F)	10°C (50°F)	-10°C (14°F)
100%	1.26	1.27	1.28
90%	1.24	1.25	1.26
80%	1.22	1.23	1.24
75%	1.21	1.22	1.23



#### (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

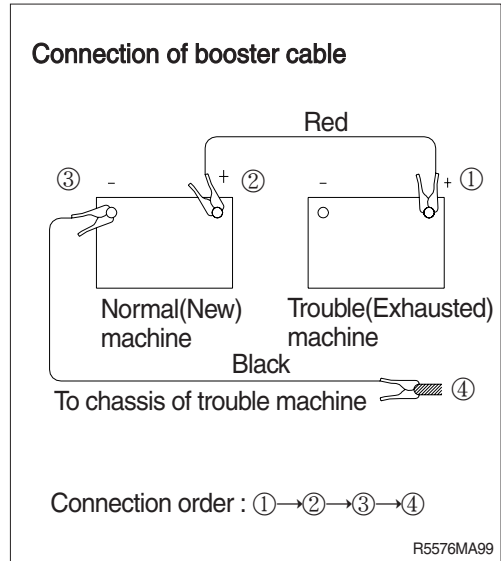
Keep following order when you are going to start engine using booster cable.

#### (1) Connection of booster cable

※ Use the same capacity of battery for starting.

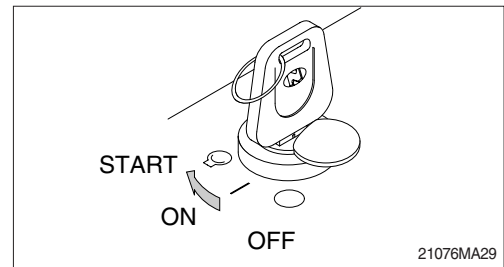
- ① Make sure that the starting switches of the normal machine and trouble machine are both at the OFF position.
- ② Connect the red terminal of booster cable to the battery (+) terminal between exhausted and new battery.
- ③ Connect the black terminal of the booster cable between new battery (-) terminal 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

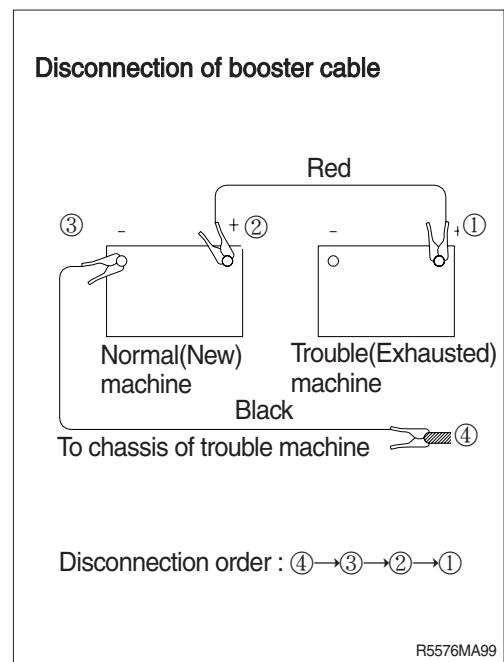
- ① Take off the booster cable(black).
- ② Take off the booster cable(red) connected to the (+) terminal.
- ③ Run engine with high idle until charging the exhausted battery by alternator, fully.

▲ 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.

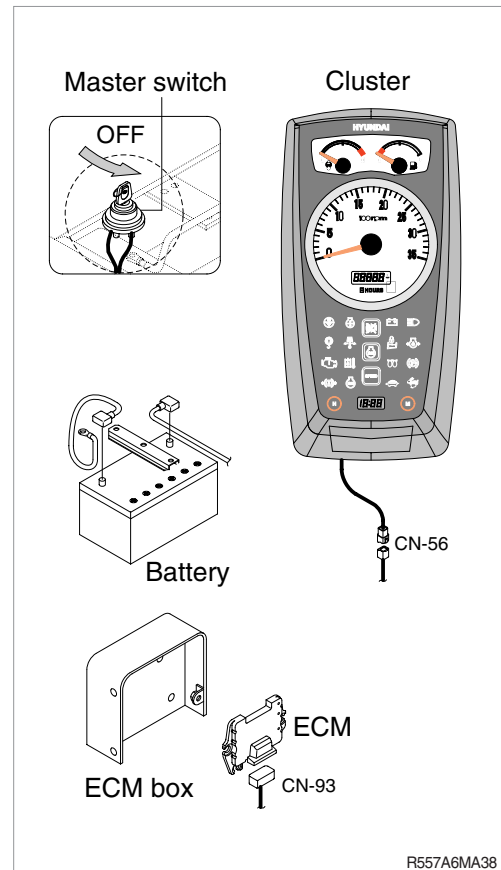
※ Do not connect (+) terminal and (-) terminal when connecting booster cable because it will be shorted.



#### (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(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.

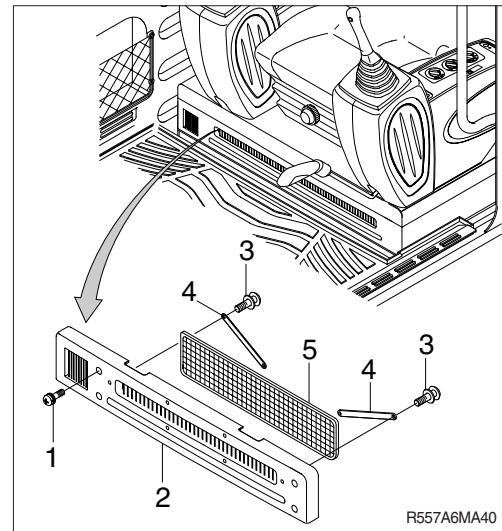


## 8. AIR CONDITIONER AND HEATER

### 1) CLEAN AND REPLACE OF THE CIRCULATION FILTER

※ **Always stop the engine before servicing.**

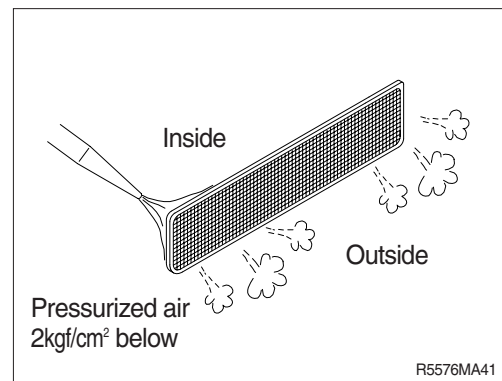
- (1) Remove the screw(1) and cover(2) on the seat base.
- (2) Remove the bolt(3) and bracket(4).
- (3) Remove the circulation filter(5).



- (4) Clean the filter using a pressurized air(Below  $2\text{kgf/cm}^2$ , 28psi).

△ **When using pressurized air, be sure to wear safety glasses.**

- (5) Inspect the filter after cleaning. If it is damaged or badly contaminated, use a new filter.



### 2) 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  $5^{\circ}\text{C}$  lower than the outside temperature).
- (4) When cooling, change air occasionally.

### 3) CHECK DURING SEASON

Ask the service center for replenishment of refrigerant or other maintenance service so that the cooling performance is not damaged.

### 4) 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.



# TROUBLESHOOTING GUIDE

## 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.	<ul style="list-style-type: none"> <li>• Add the oil to the specified level.</li> <li>• Replace the oil filter cartridge.</li> <li>• Check oil leakage from the pipe or the joint.</li> <li>• Replace the monitor.</li> </ul>	
Steam is emitted from the top part of the radiator(The pressure valve). Coolant level warning lamp lights ON.	<ul style="list-style-type: none"> <li>• Supply the coolant and check leakage.</li> <li>• Adjust fan belt tension.</li> <li>• Wash out inside of cooling system.</li> <li>• Clean or repair the radiator fin.</li> <li>• Check the thermostat.</li> <li>• Tighten the radiator cap firmly or replace the packing of it.</li> <li>• Replace the monitor.</li> </ul>	
The engine does not start when the starting motor is turned over.	<ul style="list-style-type: none"> <li>• Add fuel.</li> <li>• Repair where air is leaking into fuel system.</li> <li>• Check the injection pump or the nozzle.</li> <li>• Check the valve clearance.</li> <li>• Check engine compression pressure.</li> </ul>	
Exhaust gas is white or blue.	<ul style="list-style-type: none"> <li>• Adjust to specified oil quantity.</li> <li>• Replace with specified fuel.</li> </ul>	
Exhaust gas occasionally turns black.	<ul style="list-style-type: none"> <li>• Clean or replace the air cleaner element.</li> <li>• Check the nozzle.</li> <li>• Check engine compression pressure.</li> <li>• Clean or replace the turbocharger.</li> </ul>	
Combustion noise occasionally changes to breathing sound.	<ul style="list-style-type: none"> <li>• Check the nozzle.</li> </ul>	
Unusual combustion noise or mechanical noise.	<ul style="list-style-type: none"> <li>• Check with specified fuel.</li> <li>• Check over-heating</li> <li>• Replace the muffler.</li> <li>• Adjust valve clearance.</li> </ul>	

## 2. ELECTRICAL SYSTEM

Trouble	Service	Remark
Lamp does not glow brightly even when engine runs at high speed. Lamp flickers while engine runs.	<ul style="list-style-type: none"> <li>• Check for loose terminals and open-circuit wiring.</li> <li>• Adjust belt tension.</li> </ul>	
Battery charging lamp does not go out even when engine runs at high speed.	<ul style="list-style-type: none"> <li>• Check the alternator.</li> <li>• Check and repair wiring.</li> </ul>	
Unusual noise is emitted from the alternator.	<ul style="list-style-type: none"> <li>• Check the alternator.</li> </ul>	
Starting motor does not turn when starting switch is turned START.	<ul style="list-style-type: none"> <li>• Check and repair the wiring.</li> <li>• Charge the battery.</li> <li>• Check the starting motor.</li> <li>• Check the safety relay.</li> </ul>	
The pinion of the starting motor keeps going in and out.	<ul style="list-style-type: none"> <li>• Charge the battery.</li> <li>• Check the safety relay.</li> </ul>	
Starting motor turns the engine sluggishly.	<ul style="list-style-type: none"> <li>• Charge the battery.</li> <li>• Check the starting motor.</li> </ul>	
The starting motor disengages before the engine starts up.	<ul style="list-style-type: none"> <li>• Check and repair the wiring.</li> <li>• Charge the battery.</li> </ul>	
The engine warming up lamp does not go ON.	<ul style="list-style-type: none"> <li>• Check and repair wiring.</li> <li>• Check the monitor.</li> </ul>	
The engine oil pressure lamp does not light up when engine is stationary(When the starting switch is in ON position.)	<ul style="list-style-type: none"> <li>• Check the monitor.</li> <li>• Check the caution lamp.</li> </ul>	
Battery charging lamp does not light up when the engine is stationary. (When the starting switch is in ON position.)	<ul style="list-style-type: none"> <li>• Check the monitor.</li> <li>• Check and repair the wiring.</li> </ul>	

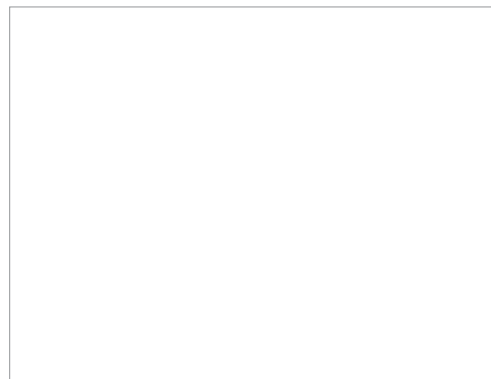
### 3. OTHERS

Trouble	Service	Remark
Track slip out of place. Excessive wear of the sprocket.	<ul style="list-style-type: none"><li>• Adjust tension of track.</li></ul>	
Bucket either rises slowly or not at all.	<ul style="list-style-type: none"><li>• Add oil to specified level.</li></ul>	
Slow speed of travel, swing, boom, arm and bucket.	<ul style="list-style-type: none"><li>• Add oil to specified level.</li></ul>	
Unusual noise emitted from pump.	<ul style="list-style-type: none"><li>• Clean the hydraulic tank strainer.</li></ul>	
Excessive oil temperature rise of hydraulic oil.	<ul style="list-style-type: none"><li>• Clean the oil cooler.</li><li>• Adjust fan belt tension.</li><li>• Add oil to specified level.</li></ul>	

# HYDRAULIC BREAKER AND QUICK CLAMP

## 1. SELECTING HYDRAULIC BREAKER

- 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 Hyundai 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.
- 3) The pressure of the ROBEX55-7A system is 160kgf/cm<sup>2</sup>(2276psi).
- 4) 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 60kgf/cm<sup>2</sup>(853psi) by installing the accumulator.**
- 5) Do not connect the breaker return line to the main control, but connect to the return line front of the cooler.
- 6) Do not connect the breaker return line to drain lines, such as of swing motor, travel motor or pump, otherwise they should be damaged.
- 7) One of spool of the main control valve should be connected to the tank.
- 8) Select the size of pipe laying considering the back pressure.
- 9) Shimless tube should be used for the piping. The hose and seal should be used Hyundai genuine parts.
- 10) 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 4 kinds of filter elements in particular, in order to prolong machine life.
- (4) Replace when the breaker work is used for short time according to the standard of right graph.

Service interval

unit : hours

Attachment	Operating rate	Hydraulic oil	Filter element
Breaker	100%	600	500

#### ● Replace following filter same time

- Hydraulic return filter : 1EA
- Pilot line filter : 1EA
- Element in hydraulic tank breather : 1EA

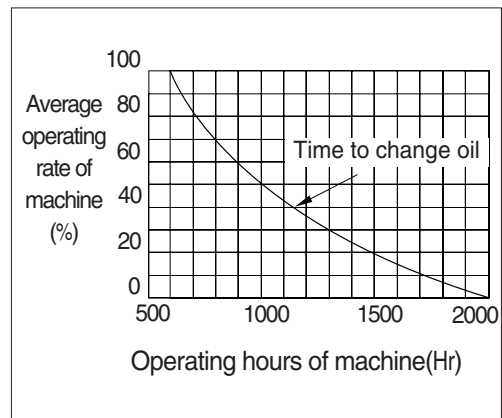
#### 2) RELEASE THE PRESSURE IN BREAKER CIRCUIT

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.

Oil change guide for hydraulic breaker



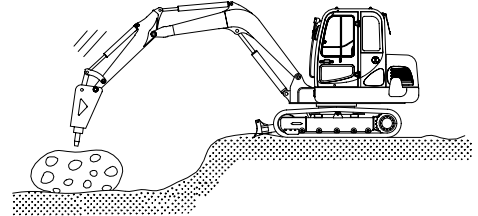
#### 4. PRECAUTIONS WHILE OPERATING THE BREAKER

**1) 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.

Incorrect

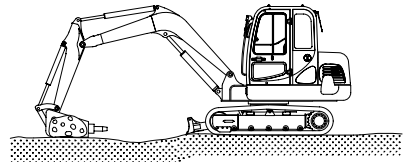


55578OA01

**2) DO NOT USE BREAKER TO CARRY BROKEN STONE OR ROCK BY SWING OPERATING**

This may damage the operation device and swing system.

Incorrect

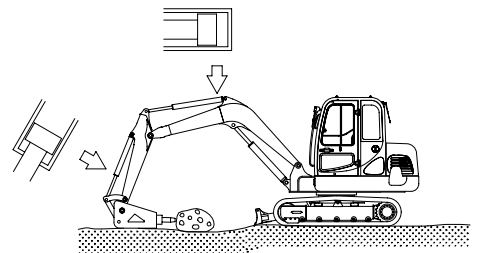


55578OA02

**3) OPERATE BREAKER WITH A GAP IN EXCESS OF 100mm(4 inches) FROM THE END OF THE STROKE TIP**

If breaker is operated with the end tip, the cylinder may be damaged.

Incorrect

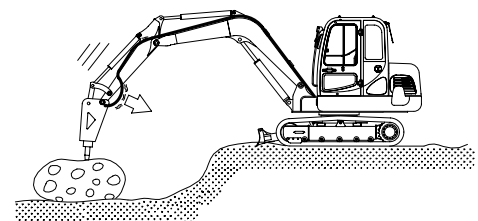


55578OA03

**4) IF THE HYDRAULIC HOSES VIBRATE EXCESSIVELY**

If the machine used in this condition continuously this will effect badly on the machine such as loosening bolt, oil leakage, damage of pump pipe and etc.

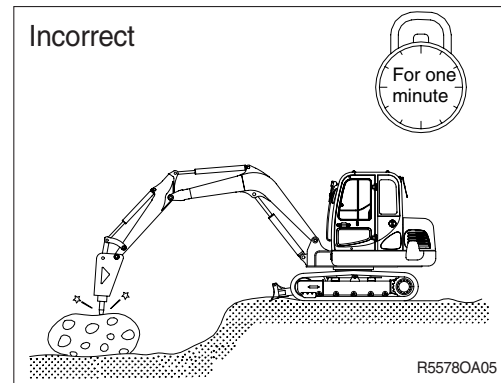
Incorrect



55578OA04

**5) DO NOT CONTINUE TO WORKING OVER ONE MINUTE AT SAME POSITION OF BOOM AND ARM**

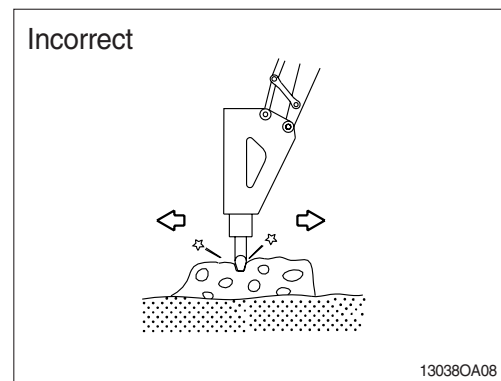
This will increase the temperature of the oil, and cause problem in the accumulator and seals.



**6) DO NOT MOVE MACHINE OR BREAKER WHILE STRIKING**

Do not move hammer while striking.

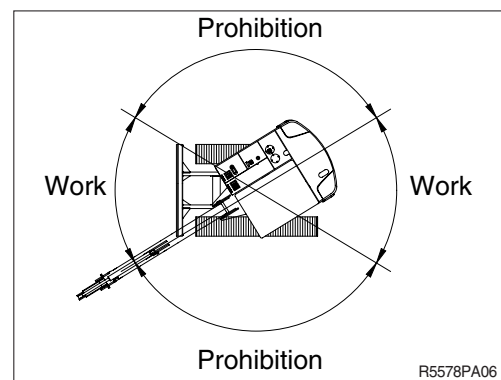
This will cause damage to the working device and the swing system.



**7) DO NOT WORK WHILE SWING STATE**

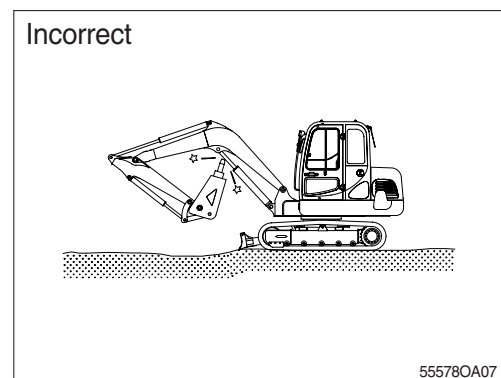
Do not work while swing position of superstructure.

It cause the band of track shoe, oil leakage of roller.



**8) TAKE CARE OF CHISEL AND BOOM INTERFACE**

Make sure of the arm and bucket control lever operation.

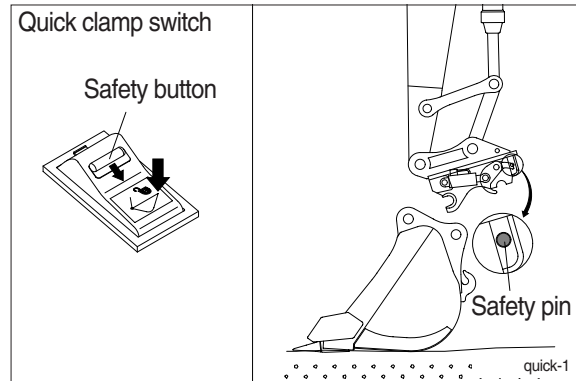




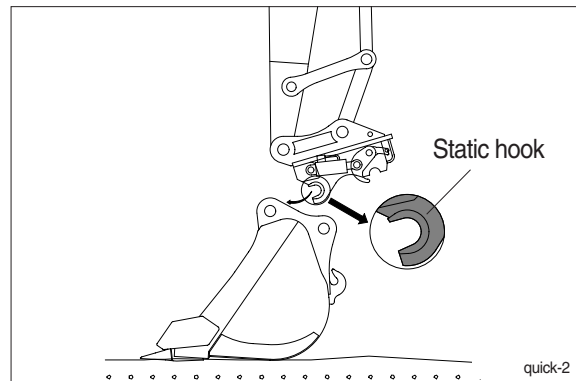
## 5. QUICK CLAMP

### 1) FIXING BUCKET WITH QUICK CLAMP

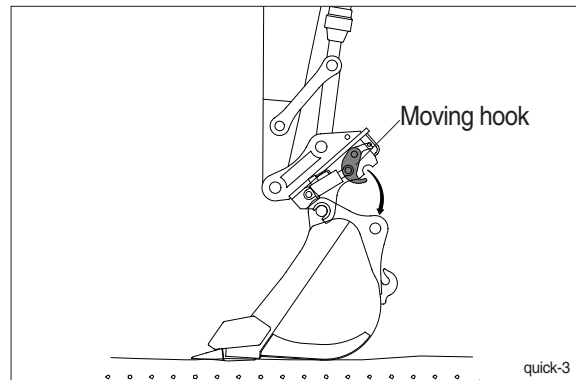
- (1) Before fixing bucket, remove safety pin of the moving hook.
- (2) Pulling safety button, press the quick clamp switch to unlock position. Then, the moving hook is placed on release position.



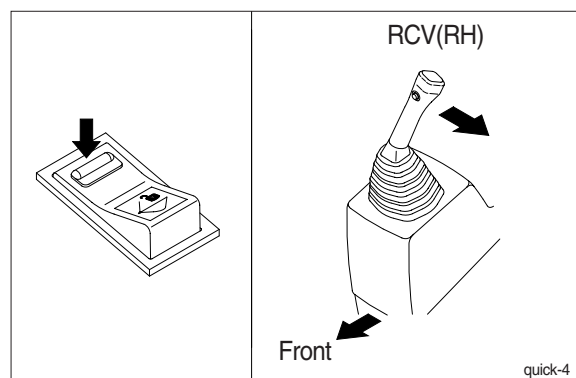
- (3) Aligning the arm and bucket, insert static hook of quick clamp to the bucket pin.



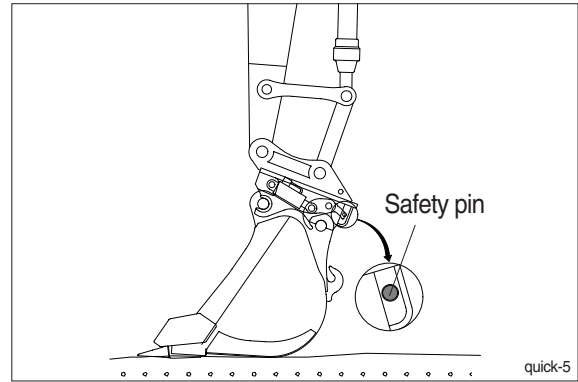
- (4) Operate RCV lever to bucket-in position. Then, the moving hook is coupled with the bucket link pin. Make sure that the moving hook is completely contacted with bucket link pin.



- (5) Press quick clamp switch 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.



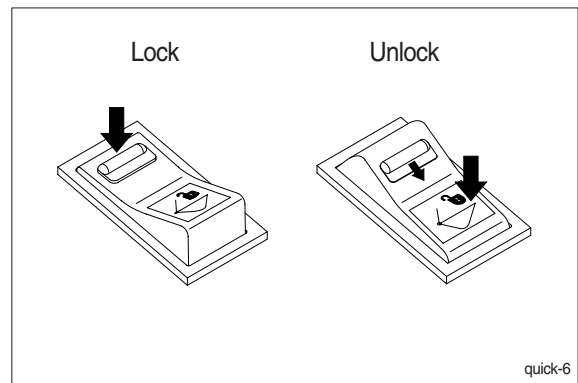
## 2) REMOVE BUCKET FROM QUICK CLAMP

Removing procedure is reverse of fixing.

## 3) PRE-CAUTION 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.

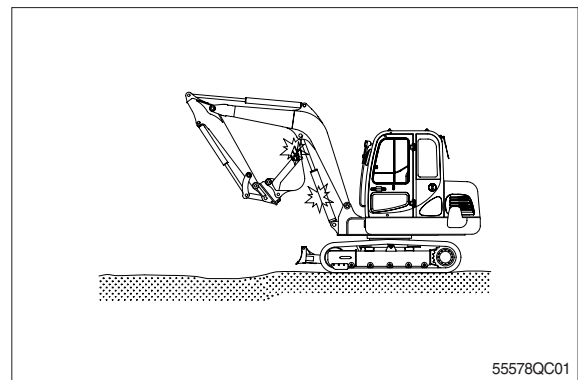
Operating the machine with quick clamp switch unlocked and without safety pin of moving hook can cause the bucket to drop off and bring about the accident.



- ⚠ 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.

- ※ HYUNDAI will not be responsible for any injury or damage in case that safety pin is not installed properly.



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