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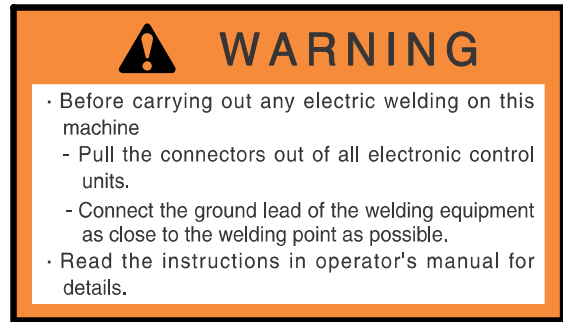
12) ECU CONNECTOR (item 16)

This warning label is positioned on the side of the battery box.

⚠ Before carrying out any electric welding on this machine

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

※ Refer to the page 6-44 for details.



7803AFW20

13) LIFT & TIE (item 18)

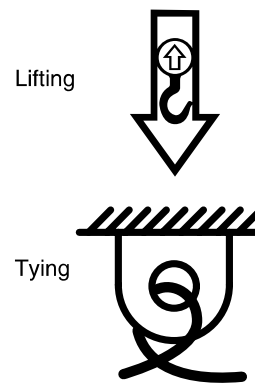
This label is positioned on the both side of the front and rear frame.

- Lifting point

In order to lift the machine, attach the lifting devices to the lifting points.

- Tying point

In order to tie down the machine, attach the tie-downs to the tying points.

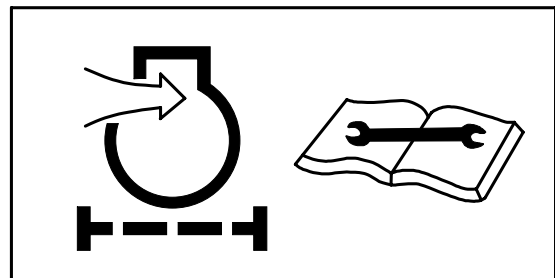


75790FW04

14) AIR CLEANER (item 19)

The warning label is positioned on the air cleaner.

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



21070FW01

15) RADIATOR CAP (item 20)

This warning label is positioned on the radiator cover.

⚠ Never open the filler cap while engine running or at high coolant temperature.



77070FW11

FIRE PREVENTION AND EXPLOSION PREVENTION

Regeneration

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

General

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

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

Always perform a Walk-Around Inspection, which may help you identify a fire hazard.

Do not operate a machine when a fire hazard exists. Contact your dealer for service.



3001SH01

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

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

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

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

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

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

Do not operate the machine near any flame.

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

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

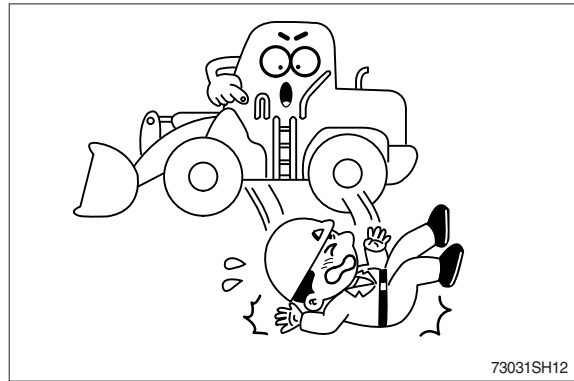
Dust that is generated from repairing nonmetallic hoods or fenders may be flammable and/or explosive. Repair such components in a ventilated area away from open flames or sparks. Use suitable Personal Protection Equipment (PPE).

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

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.

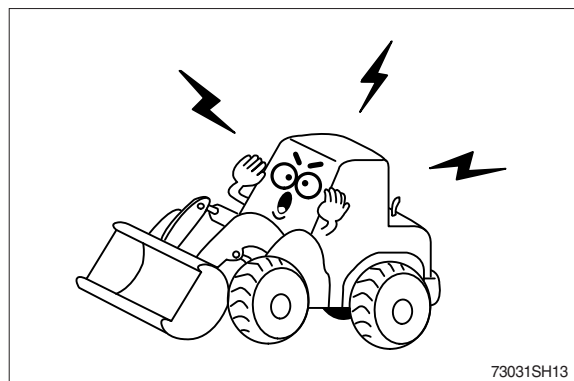


Sound the horn to warn nearby personnel before operating the machine.

KEEP RIDERS OFF MACHINE

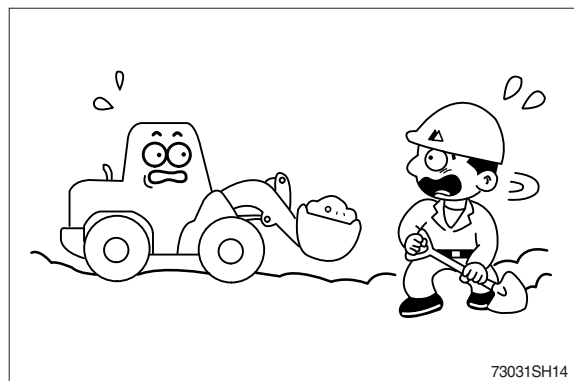
Riders on a machine are subject to injury such as being struck objects and being thrown off the machine.

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

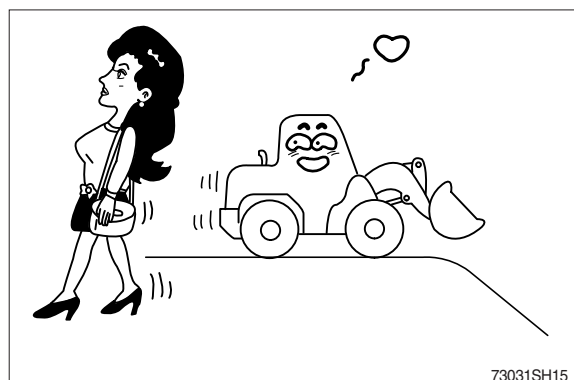


Operate carefully to make sure all personnel or obstacles are clear within the working range of the machine.

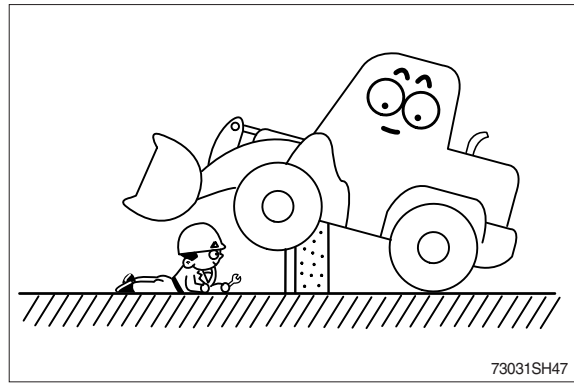
Place safety guards if necessary.



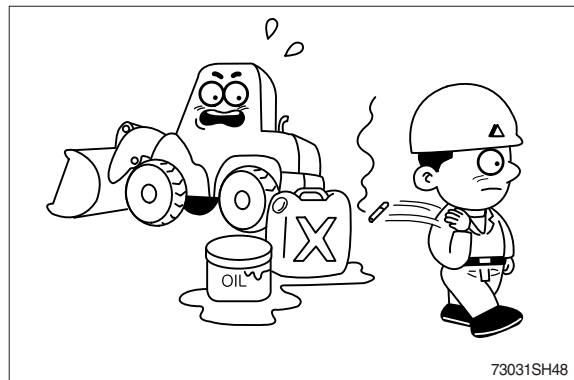
When using the work equipment, pay attention to jobsite.



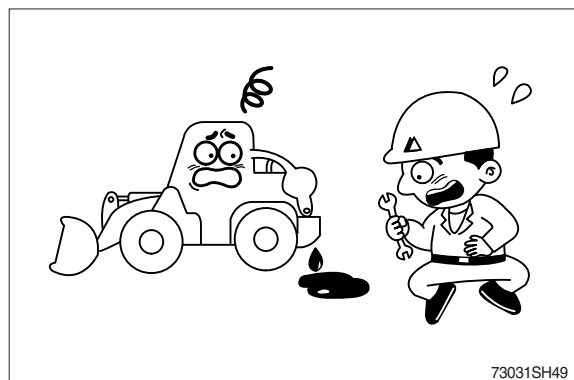
Do not work below the machine.
When working under or around the bucket or linkage, with the bucket raised, proper support must be provided for the bucket and / or the linkage.



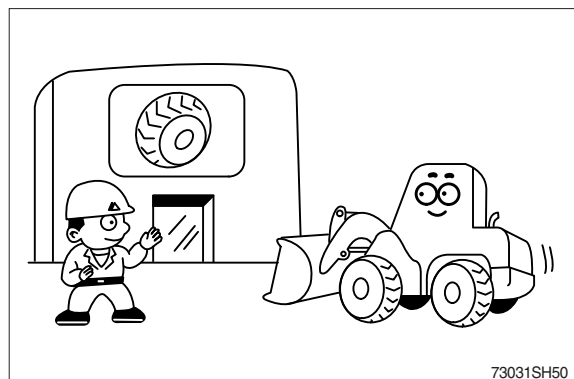
There is the danger of fire in fuel and oil.
Store in cool dry area, away from any open flames.
Do not refuel the machine while smoking or when near open flame or sparks.
Always stop engine before refueling machine.



Spilled grease and oil are dangerous to safety.
Keep your machine always clean and dry.



Disassembly, reassembly and repair of tire requires special skills and equipment.
Contact a tire repair shop.

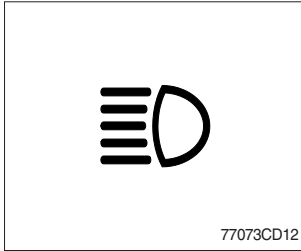


4. SPECIFICATION FOR MAJOR COMPONENTS

1) ENGINE

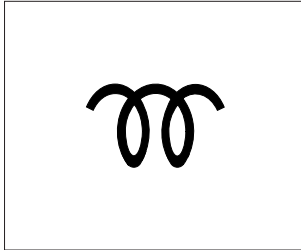
Item	Specification
Model	Cummins QSB6.7 / HYUNDAI HE6.7
Type	4-cycle turbocharged and charge air-cooled diesel engine.
Cooling method	Water cooling
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	107 × 124 mm (4.2" × 4.9")
Piston displacement	6730 cc (409 cu in)
Compression ratio	17.2 : 1
Rated gross horse power	145 hp at 2100 rpm
Maximum gross torque at 1400rpm	69 kgf · m (499 lbf · ft)
Engine oil quantity	18 l (4.8 U.S. gal)
Dry weight	485 kg (1069 lb)
High idling speed	2230 ± 50rpm
Low idling speed	950 ± 25 rpm
Rated fuel consumption (at rated)	254 g/kw · hr
Starting motor	Nippondenso 228000-7902 (24 V-3.7 kW)
Alternator	Delco Remy 24SI (24V-70Amp)
Battery	2 × 12V × 80Ah

(4) High beam pilot lamp



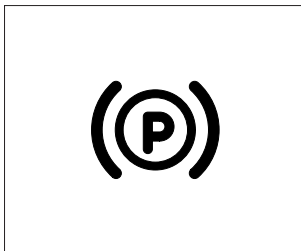
- ① This lamp works when the illuminating direction is upward.
- ② This lamp comes ON when the dimmer switch is operated, e.g., when passing another vehicle.

(5) Preheat pilot lamp



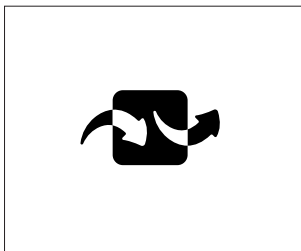
Refer to page 4-5.

(6) Parking brake pilot lamp

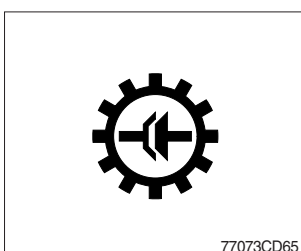


- ① When the parking brake is actuated, the lamp lights ON.
- ※ **Check the lamp is OFF before driving.**

(7) Maintenance pilot lamp

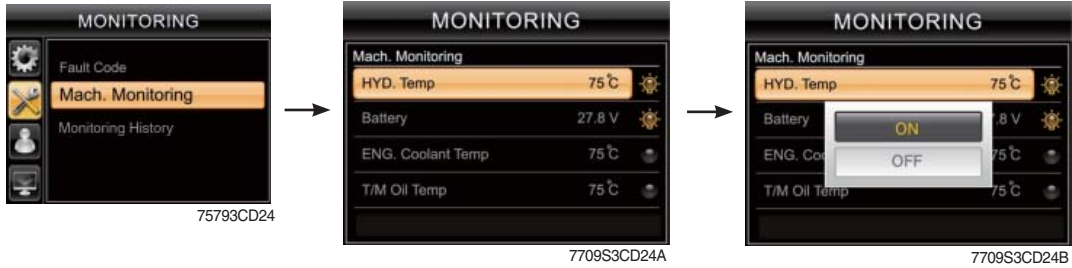



(8) Clutch cut off pilot lamp



Refer to page 3-29.

② Machine monitoring



- Monitor the status of the machine.
- To check the item in main display, choose it and press .
- The right icon shows ON/OFF status.

※ Priority in the main display



The example of the weighing system


- The priority of the weighing system is the highest.
- If selected the weighing system, the other items are not available.
- To check the other items, the weighing system should not be selected.

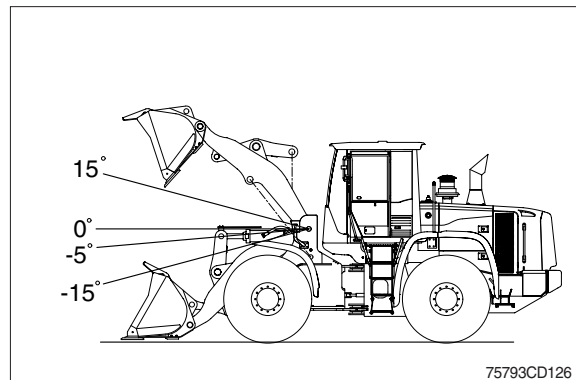
※ Weighing system

1. PRINCIPLE

- 1) The weight indication in bucket is calculated by measuring boom position and boom pressure.
 - (1) The weight is '0.0 ton' when the boom is placed at below -15° .
 - (2) The weight is indicated when the boom is placed at the range $(-5^{\circ} \rightarrow 15^{\circ})$.
 - (3) The weight is calculated when the boom is placed at above -5° and boom is lowered below -15° after dumping operation.

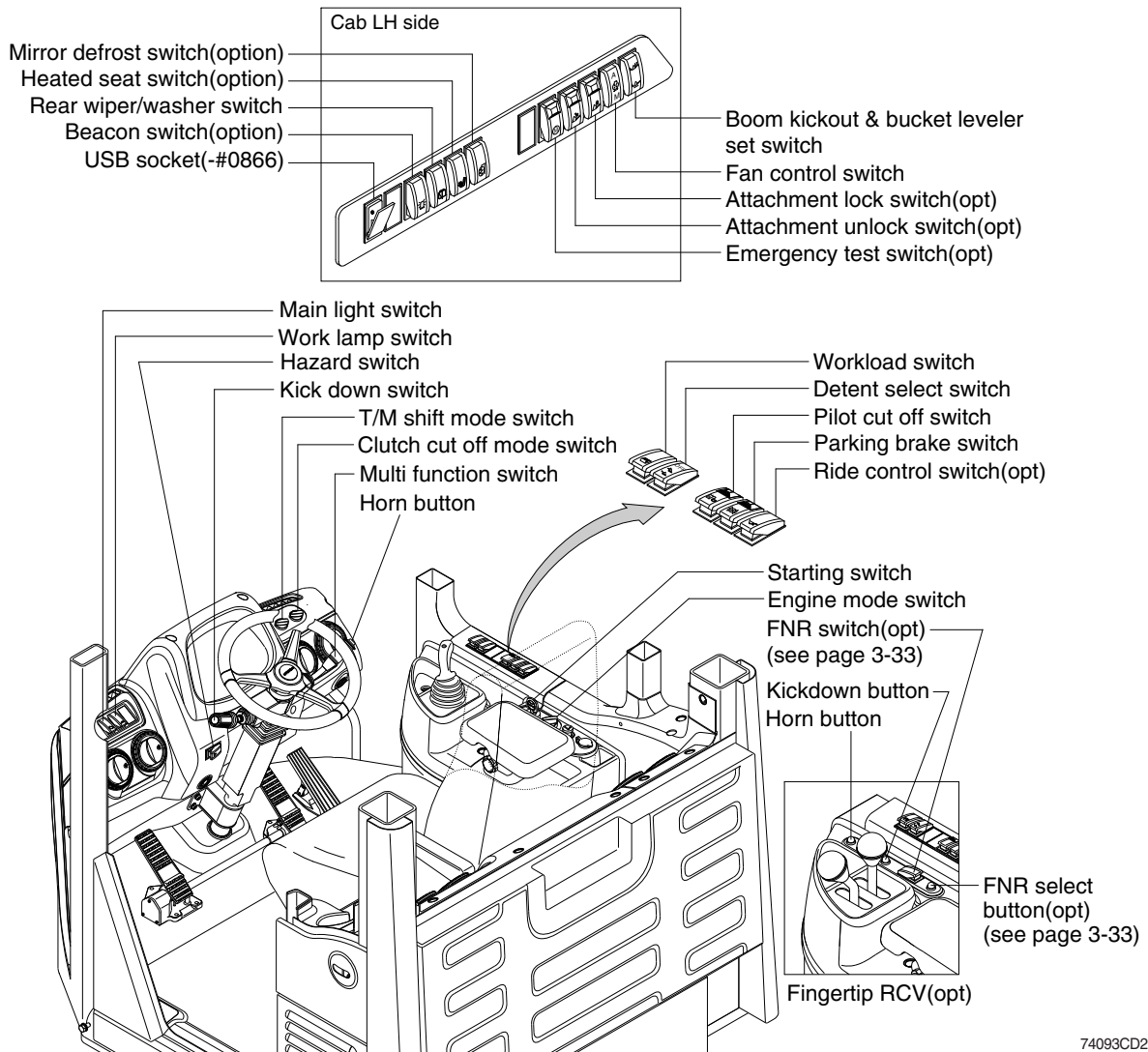
In order to re check weight, go to the (2) after changing boom position (below -15°).

(The other way is to select  of monitor and go to (2) in case boom is placed at above -5°).
- 2) Dump operation : It is checked by bucket cylinder's stroke change (below 250 mm).



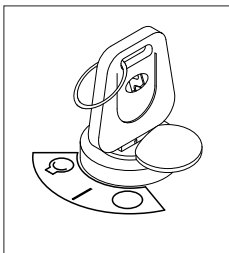
75793CD126

4. SWITCHES



74093CD29

1) STARTING SWITCH



There are three positions, OFF, ON and START.

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

Release key immediately after starting.

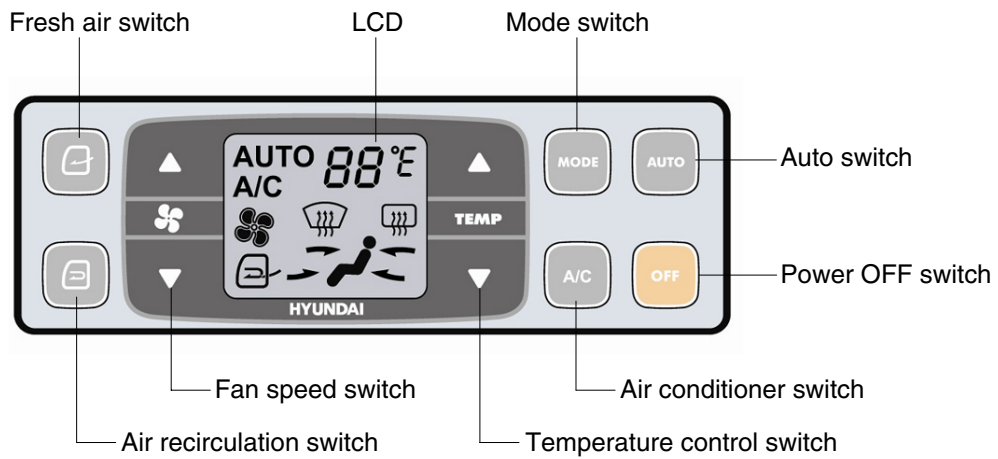
If you turn ON the starting switch in cold weather, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature. Start the engine in 1~2 minutes after turning ON the starting switch. More time may take according to ambient temperature.

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

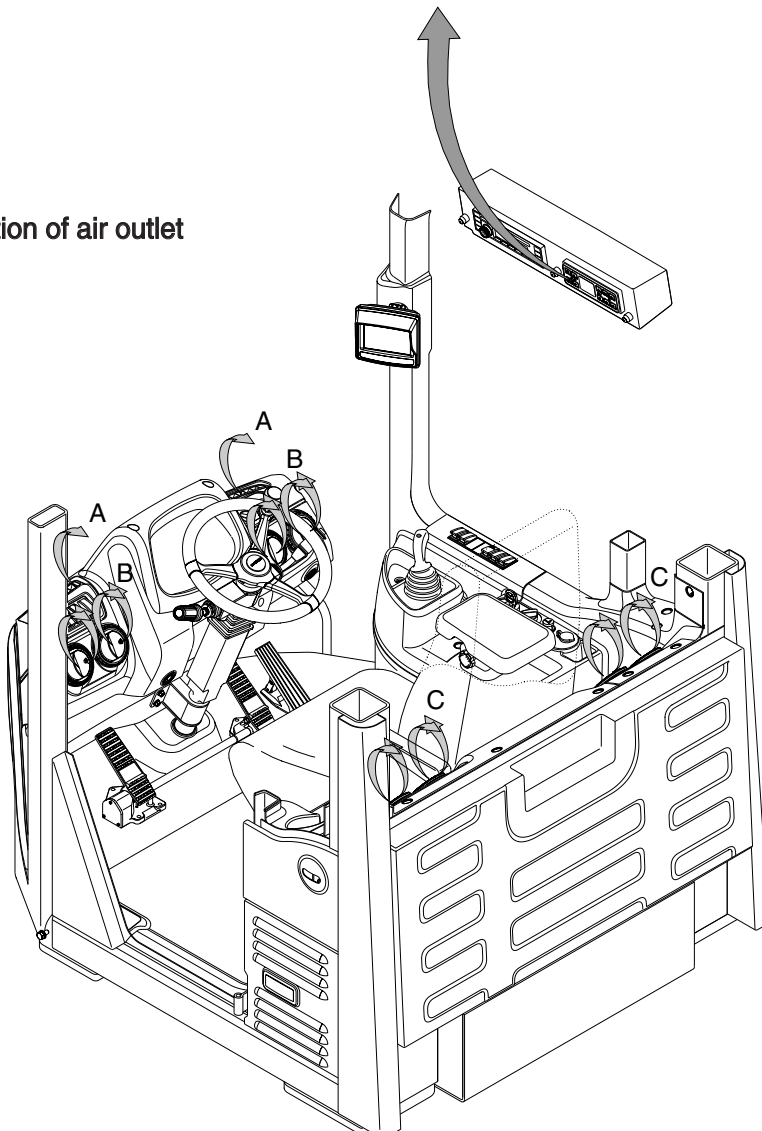
6. AIR CONDITIONER AND HEATER

■ FULL AUTO AIR CONDITIONER AND HEATER

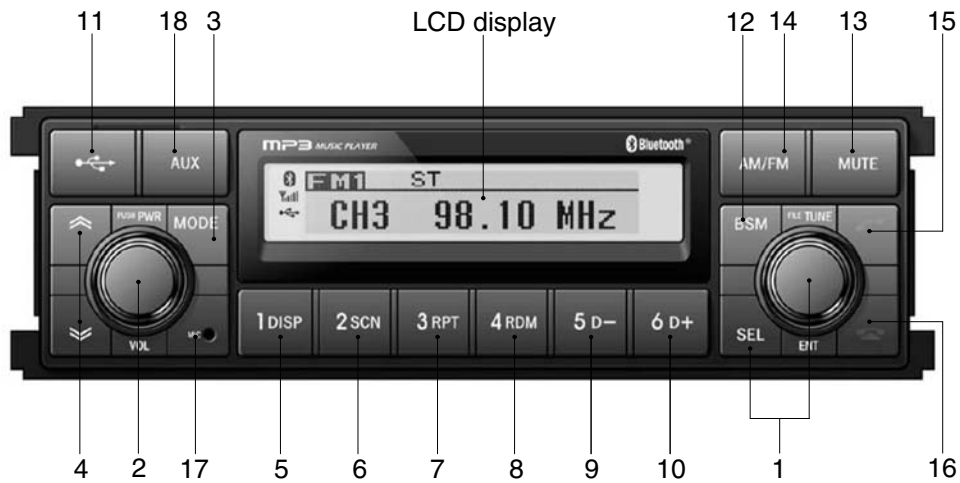
Full auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.



· Location of air outlet



■ Type B



75793CD62-2

■ FRONT PANEL PRESENTATION

- | | | | | | |
|---|--|--|----|--|---|
| 1 | | Audio selection button | 10 | | Preset memory button 6
D+ Directory up |
| | | Audio selection knob | 11 | | Aux function |
| 2 | | Power and volume button | 12 | | Preset scan (PS)
Best station memory (BSM) |
| 3 | | Mode button
(select RADIO / USB / AUX) | 13 | | Audio mute button |
| 4 | | UP / DOWN tuning button | 14 | | AM / FM button (radio) |
| 5 | | Preset memory button 1
DISP ID3 v2 display | 15 | | Send |
| 6 | | Preset memory button 2
SCN File scan | 16 | | End |
| 7 | | Preset memory button 3
RPT Repeat play selector | 17 | | MIC (microphone) |
| 8 | | Preset memory button 4
RDM Random play selector | 18 | | Aux connector |
| 9 | | Preset memory button 5
D- Directory down | | | |

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(2) Bluetooth function

① Pairing a bluetooth mobile phone or music player

A bluetooth connection must first be established between your bluetooth mobile phone or bluetooth music player and the bluetooth radio. The first step to connecting the bluetooth radio and bluetooth device is to introduce or "Pair" the bluetooth radio and bluetooth device together.

It is recommended that you have the instruction manual for your bluetooth mobile phone or music player with you during the pairing process described below to understand how to set your device to pair with the bluetooth radio.

- ※ It is recommended that all other bluetooth devices other than mobile phones are switched off during the registration or pairing process.

a. Connection method

- a) Press SEND button for 2 seconds in any mode, **PAIRING** appears on the bluetooth radio display.
 - b) Browse your mobile phone or music player menu to find the **SETTINGS** or **CONNECTIVITY** section to find the bluetooth connection section.
 - c) Find the command that may be called search for bluetooth device or discovery mode so that your bluetooth device can locate all the bluetooth devices within range that may be connected.
 - d) After the search is complete, **HFI AUDIO** should appear on your mobile phone or music player screen.
 - e) Select **CONNECT** or **SELECT** on your mobile phone or music player.
 - f) The mobile phone or music player should now prompt you to enter a PIN code. Enter 0000 into your bluetooth device and select OK.
 - g) The mobile phone or music player should confirm that it has established a new paired connection with the bluetooth radio.
 - h) The connecting process is now complete.
 - i) If the connecting process is successful, the bluetooth logo appears on the radio display and paired phone name (e.g. Samsung or LG) and **CONNECTED** appear on the display for 2 seconds.
 - j) Your bluetooth device is now ready for use with the bluetooth radio.
 - k) If the pairing failed, **FAIL** appears on the bluetooth radio display.
- ※ (a) The bluetooth radio allows a maximum of 6 bluetooth devices to be paired.
 - (b) Bluetooth technology only allows one phone to be connected to your bluetooth radio at one time.
 - (c) If a bluetooth music player is to be connected together with a mobile phone, refer to the page 3-56, PLAYING MUSIC USING BLUETOOTH AUDIO.
 - (d) Bluetooth connection with a mobile phone is normally established using the Hands-Free Profile (HFP). However, in some cases, the connection may use Head Set Profile (HSP) and some functions may not be available.
 - (e) As each mobile phone or music player brand and model has a different menu structure and control names, you may need to refer to the user manual of your bluetooth device for the correct procedure to connect to another bluetooth device.
 - (f) Once the bluetooth pairing is complete, automatic connection between mobile phone and the bluetooth radio is possible whenever the starting switch is switched ON.

The mobile phone must be set to automatically connect to the bluetooth radio to allow this automatic connection.

■ RADIO

(1) Mode button



- ① Repeat press MODE button to select FM1, FM2 or AM.

(2) Manual tuning button



- ① To manually tune to a radio station, simply turn encoder TUNE (2) left or right to increase or decrease the radio frequency.

(3) Auto tuning button



- ① To automatically select a radio station, simply press Seek up or Track down button.



(4) Station preset button



- ① In radio mode, pressing buttons (6) to (11) will recall the radio stations that are memorized. To store desired stations into any of the 6 preset memories, in either the AM or FM bands, use the following procedure :

- a. Select the desired station.
- b. Press and hold one of the preset buttons for more than 2 seconds to store the current station into preset memory. Six stations can be memorized on each of FM1, FM2, and AM.

■ RESET AND PRECAUTIONS

1) Reset function

Interfere noise or abnormal compressed files in the MP3 disc or USB instrument may cause extraordinary operation (or unit frozen/locking up). It's strongly recommended to use appropriate USB storage not cause any malfunction to the audio unit. In the unlikely event that the player fails to operate correctly, try out to reset unit by any of following two methods.

(1) press and hold   simultaneously for about 5 seconds. (without Bluetooth)

Press and hold   simultaneously for about 5 seconds. (with Bluetooth)

(2) Take out the fuse for the audio system in the vehicle once and then plug again.

※ It will be necessary to re-enter the radio preset memories as these will have been erased when the microprocessor was reset.

After resetting the player, ensure all functions are operation correctly.

2) Precautions

When the inside of the car is very cold and the player is used soon after switching on the heater, moisture may form on the disc or the optical parts of the player and proper playback may not be possible.

If moisture forms on the optical parts of the player, do not use the player for about one hour. The condensation will disappear naturally allowing normal operation.

(1) Operation voltage : 9~32 volts DC, negative

(2) Output power : 40 watts maximum (20 watts x 2 channels)

(3) Tuning range

Area	Band	Frequency range	Step
USA	FM	87.5~107.9 MHZ	200K
	AM	530~1710 KHZ	10K
EUROPE	FM	87.5~108.0 MHZ	50K
	AM	522~1620 KHZ	9K
ASIA	FM	87.5~108.0 MHZ	100K
	AM	531~1602 KHZ	9K
LATIN	FM	87.5~107.9 MHZ	100K
	AM	530~1710 KHZ	10K

● AREA Selection :

- To select an area, press and hold related buttons at FM1 band for about 3 seconds.
- USA Area: Press and hold mode + 1DIS buttons for 3 seconds
- EUROPE Area: Press and hold mode + 2 buttons for 3 seconds
- ASIA Area: Press and hold mode + 3RPT buttons for 3 seconds
- LATIN Area: Press and hold mode + 4RDM buttons for 3 seconds.

(4) USB version : USB 1.1

(5) Bluetooth version : V2.1

(6) Bluetooth supported profile :

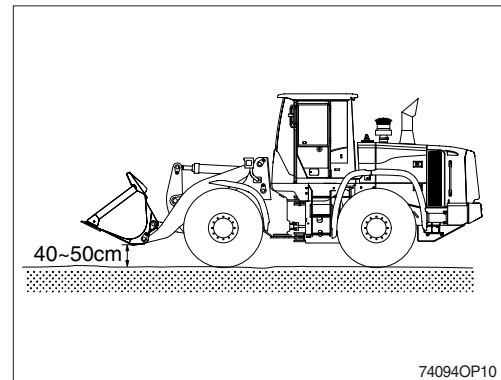
- A2DP : Advanced Audio Distribution Profile
- AVRCP : Audio/Video Remote Control Profile
- HFP : Hands-Free Profile

6. TRAVELING OF THE MACHINE

1) BASIC OPERATION

(1) Traveling posture

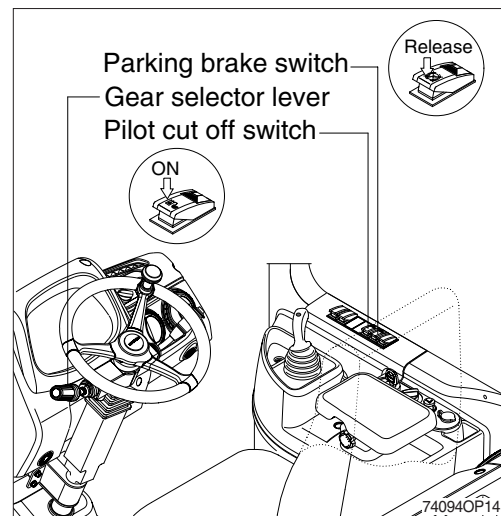
Lift the boom so that the bucket is placed 40-50cm above the ground.



(2) Traveling operation

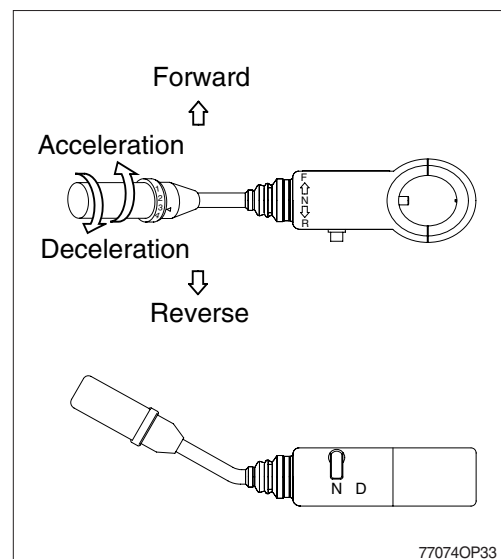
When warm-up operation is completed after the engine is started, move the machine according to the following procedure.

- ① Push the pilot cut off switch to the ON position.
- ② Release the parking brake.
- ③ Put the gear selector lever in the 1st stage of forward or backward direction and press gently the accelerator pedal to move the machine.



(3) Changing direction and speed

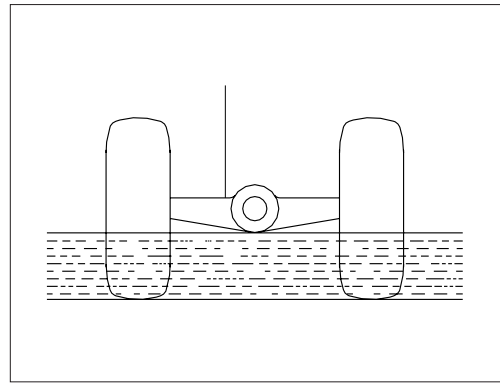
- ① The gear selector is designed for the mounting on the left side of the steering column.
- ② The positions (speeds) 1 to 4 are selected by a rotary motion, the driving direction Forward (F)-Neutral (N)-Reverse (R) by tilting the gear selector lever.
- ③ A neutral lock is installed as protection against inadvertent drive off.
 - Position N - Gear selector lever blocked in this position
 - Position D - Driving
- ④ When doing digging or dumping work, run the machine in the 1st or 2nd speed.



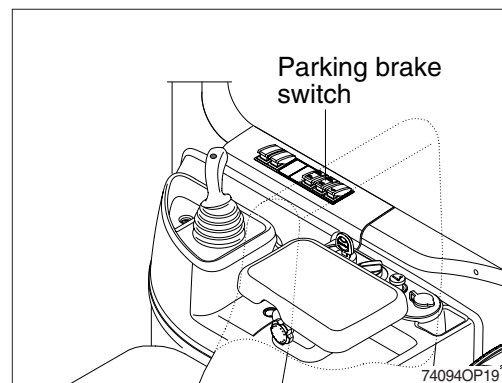
7) PRECAUTIONS DURING OPERATION

(1) Permissible water level

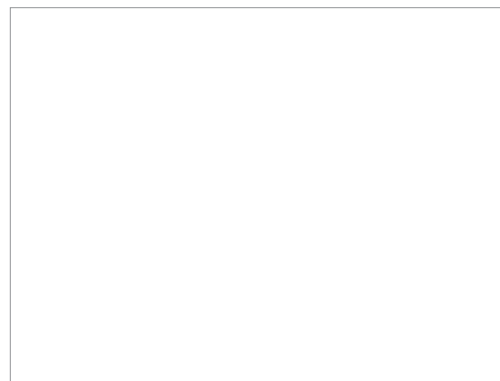
- ① Do not work in water or damp ground deeper than the permissible depth (Up to lower part of the axle housing).
- ② After the work is completed, grease parts which has been immersed in water.



(2) When the brake does not operate

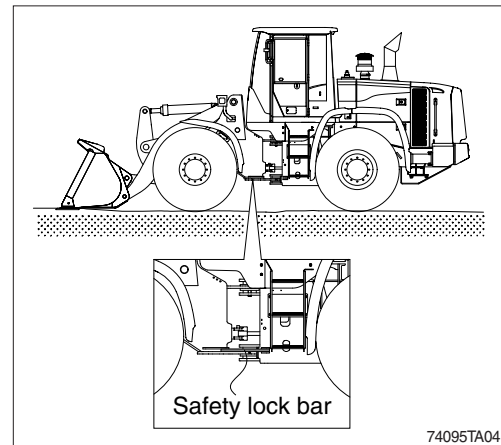


(3) Precautions when driving on a slope

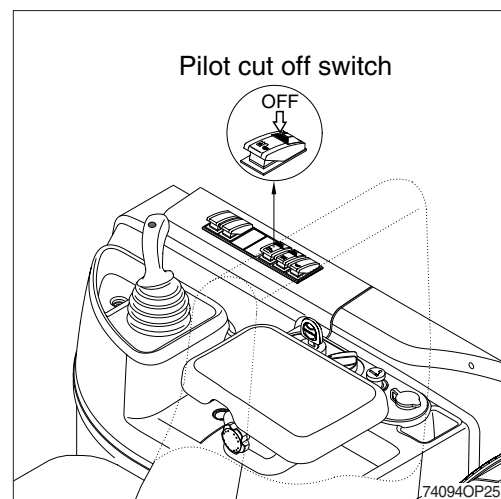


4. FIXING THE MACHINE

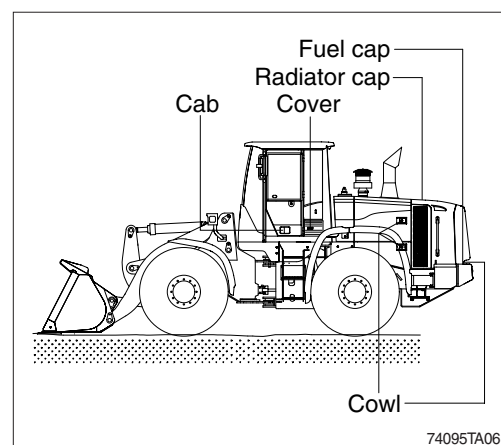
- 1) Fix front and rear frame by linking safety lock bar.
- 2) Push the parking brake switch.



- 3) Push the pilot cut off switch to the OFF position to prevent the hydraulic system from operating.
- 4) Stop the engine, turn the starting switch off and remove the key.



- 5) Secure all locks.

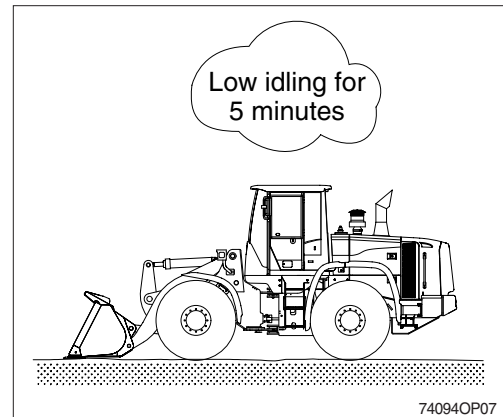


4) RELIEVING THE PRESSURE IN THE HYDRAULIC SYSTEM

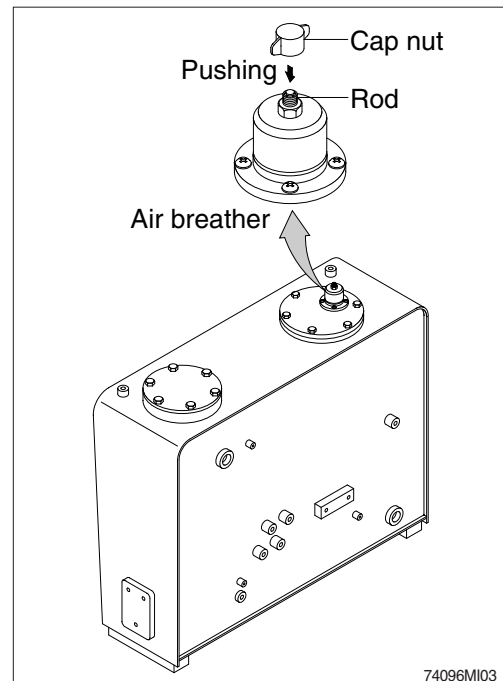
※ Spouting of oil can cause the accident when loosening the cap or hose right after the operating of the machine as the machine or oil is on the high pressure on the condition.

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

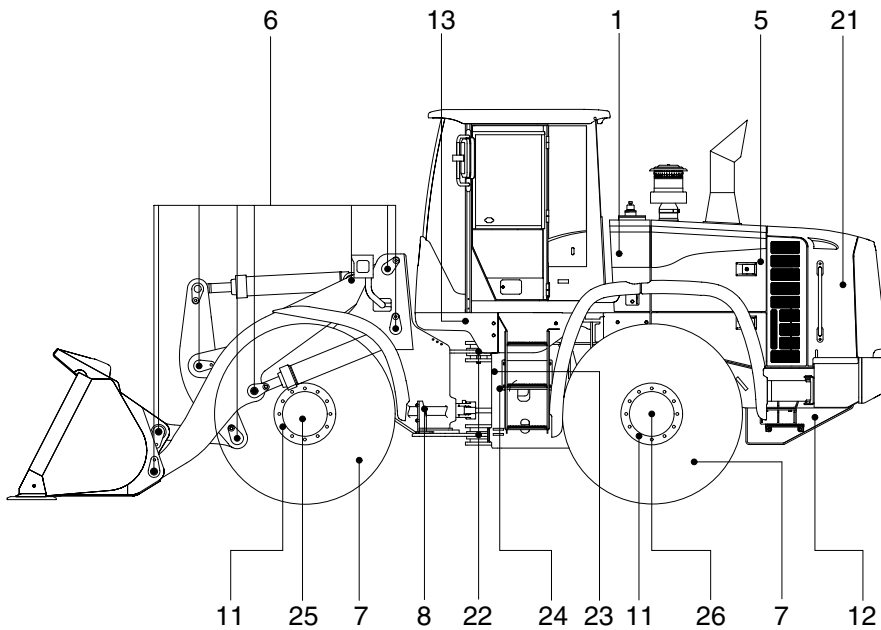
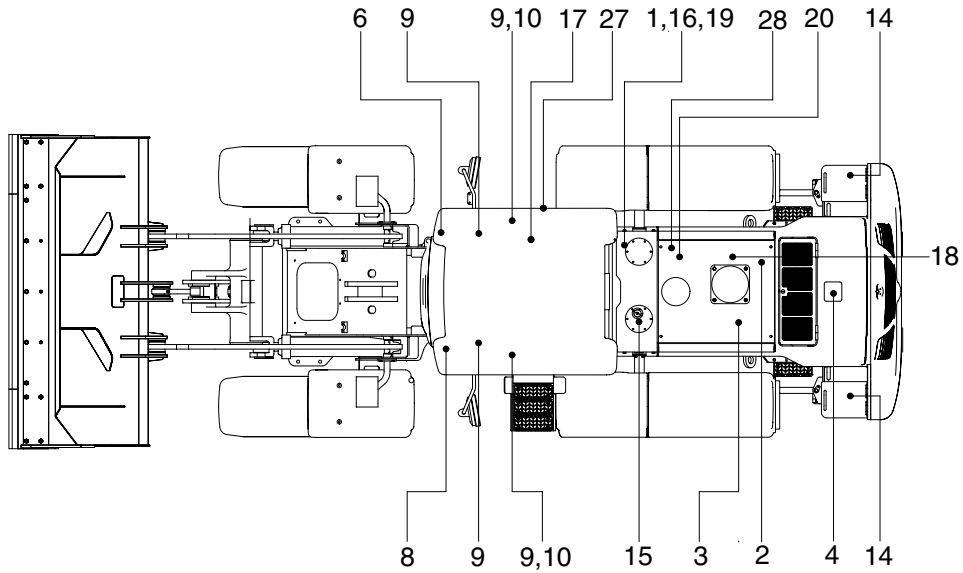
- (1) Place the machine in parking position, and stop the engine.



- (2) Rotate the cap nut counter-clockwise by hand and push the rod to release the air pressure.



5. MAINTENANCE CHART



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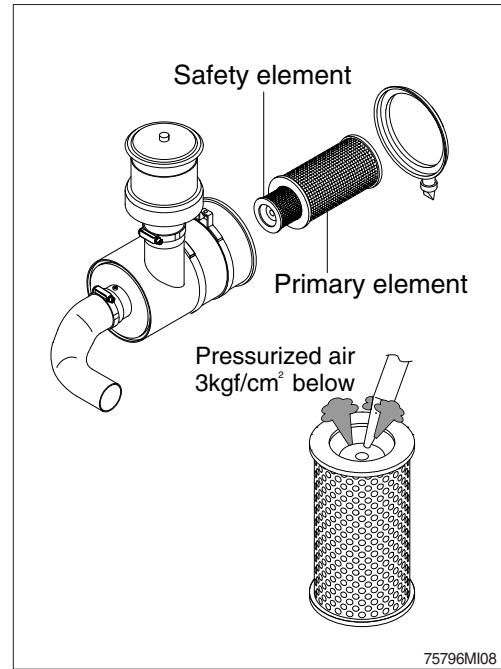
Caution

1. Service intervals are based on the hour meter reading.
2. The number of each item shows the lubrication point on the machine.
3. Stop engine while filling oil, and use no open flames.
4. For other details, refer to the service manual.

10) CLEANING OF AIR CLEANER

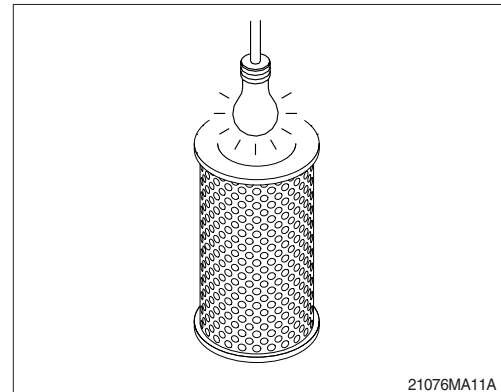
(1) Primary element

- ① Loosen the wing nut and remove the element.
 - ② Clean the inside of the body.
 - ③ Clean the element with pressurized air.
 - Remove the dust inside of the element by the pressurized air (below 3 kgf/cm², 40 psi) forward and backward equally.
 - ④ Inspect for cracks or damage of element by putting a light bulb inside of the element.
 - ⑤ Insert element and tighten wing nut.
- ※ **When the air cleaner warning lamp is ON, clean the primary element.**
 - ※ **The primary element should be replaced if the warning lamp is ON after installation of a clean primary element, or if the exhaust smoke is still black.**
 - ※ **Replace the primary element after 4 times cleanings.**



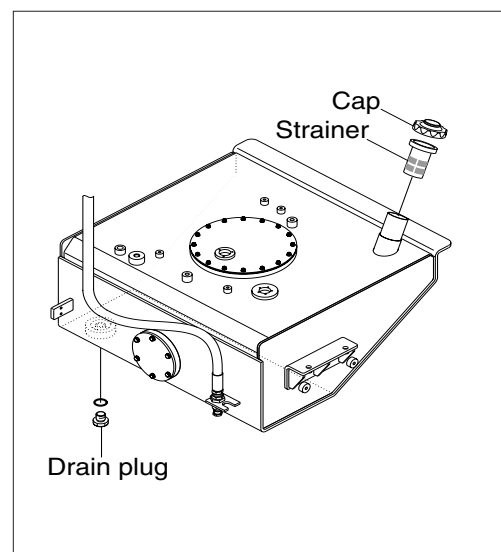
(2) Safety element

- ※ **The safety element should be replaced at the time the primary element is replaced.**
- ※ **Always replace the safety element. Never attempt to reuse the safety element by cleaning the element.**

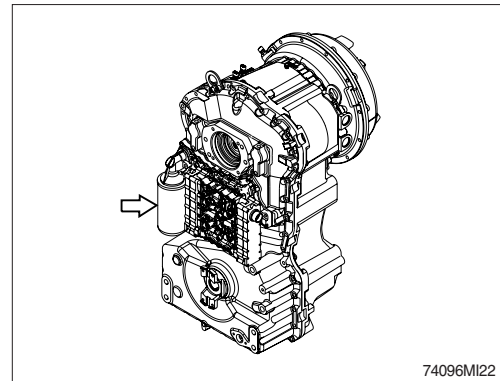


11) FUEL TANK

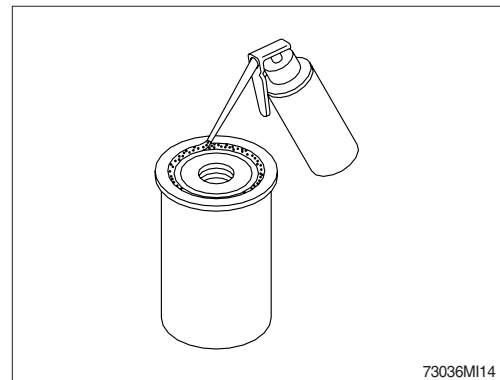
- (1) Fill fuel fully when system the operation to minimize water condensation, and check it with fuel gauge before starting the machine.
 - (2) Drain the water and sediment in the fuel tank by opening the plug.
 - ※ **Be sure to LOCK the cap of fuel tank.**
 - ※ **Remove the strainer of the fuel tank and clean it if contaminated.**
- ▲ **Stop the engine when refueling.**
All lights and flames shall be kept at a safe distance while refueling.



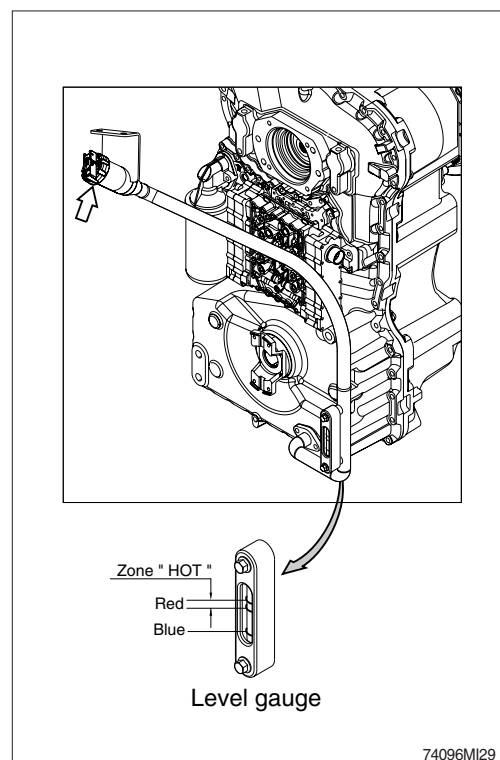
- (6) Remove the transmission oil filter cartridge.
Dispose of the used transmission oil filter cartridge properly.
- (7) Clean the filter cartridge mounting base.
Remove any part of the filter cartridge gasket that remains on the filter cartridge mounting base.



- (8) Apply a light coat of oil to the gasket of a new transmission oil filter cartridge.
- (9) Install the new transmission oil filter cartridge.
Screw the filter in until contacts with the sealing surface is obtained and tighten it now by hand about 1/3 to 1/2 turn.

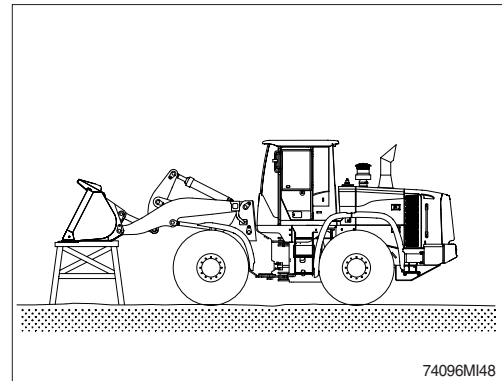


- (10) Fill the oil through level gauge inlet and check if the oil is at the appropriate level.
- (11) The proper oil amount is 25 liters. (6.6 U.S. gallons)
- ▲ As the machine is hot after operation wait until the temperature has dropped.
- ▲ It is imperative to pay attention to absolute cleanliness of oil and filter.
Binding is in any case the marking on the oil level gauge.



37) WORK EQUIPMENT SUPPORT

When carrying out inspection and maintenance with the equipment raised, fit a stand under the lift arm securely to prevent the work equipment from coming down. In addition, set the work equipment control levers to the Hold position and Lock with the safety lock.



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