

CONTENTS

EC declaration of conformity	0-1	9. Operation in the special work sites	4-23
Foreword	0-2	10. Storage	4-25
Before servicing this machine	0-3		
Table to enter S/No and distribution	0-4	5. TRANSPORTATION	
EC regulation approved	0-5	1. Road traveling	5-1
Safety labels	0-6	2. Preparation for transportation	5-2
Machine data plate	0-15	3. Loading the machine	5-3
Guide (direction, S/No, symbol)	0-16	4. Fixing the machine	5-4
		5. Loading and unloading by crane	5-6
		6. Towing the machine	5-7
1. SAFETY HINTS		6. MAINTENANCE	
1. Before operating the machine	1-1	1. Instructions	6-1
2. During operating the machine	1-15	2. Tightening torque	6-5
3. During maintenance	1-24	3. Spec of fuel, coolant and lubricants	6-8
4. Parking	1-28	4. Maintenance check list	6-10
		5. Maintenance chart	6-13
2. SPECIFICATIONS		6. Service instruction	6-15
1. Major components	2-1	7. Electrical system	6-44
2. Specifications	2-2	8. Air conditioner and heater	6-47
3. Weight	2-6		
4. Specification for major components	2-7	7. TROUBLESHOOTING GUIDE	
		1. Engine	7-1
3. CONTROL DEVICES		2. Electrical system	7-2
1. Cab devices	3-1	3. Power train system	7-3
2. Cluster	3-2	4. Hydraulic system	7-4
3. Monitors	3-11		
4. Switches	3-25	8. OTHERS	
5. Control device	3-32	1. Quick coupler	8-1
6. Air conditioner and heater	3-35		
7. Others	3-39	INDEX	9-1
4. OPERATION			
1. Suggestion for new machine	4-1		
2. Check before starting the engine	4-2		
3. Starting and stop the engine	4-3		
4. Warming-up operation	4-8		
5. Operation of the working device	4-9		
6. Traveling of the machine	4-10		
7. Efficient working method	4-15		
8. Adjustment of the work equipment	4-22		

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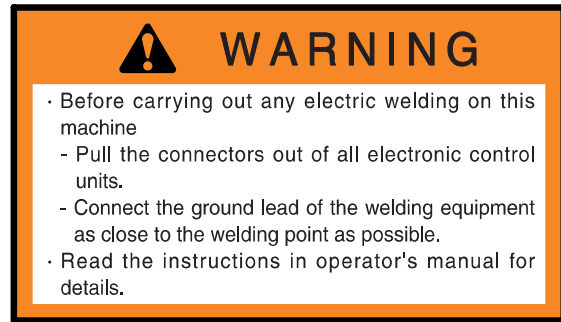
12) ELECTRIC WELDING (item 16)

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 6-46 for details.



7803AFW20

13) LIFT & TIE (item 18)

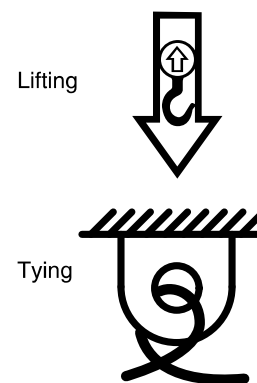
This label is positioned on the both side of the front and rear frame.

- 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.

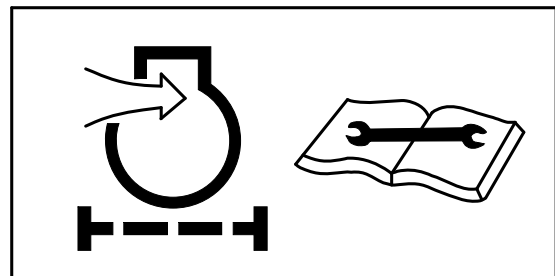


75790FW04

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.

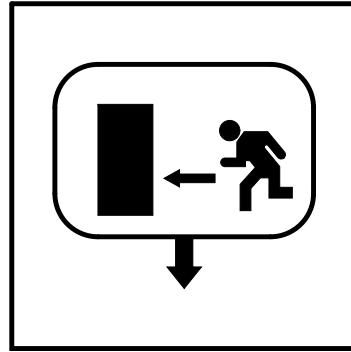


77070FW11

SECONDARY CAB EXIT

The door on the right side of the cab, also serves as a secondary exit.

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



7707FW12

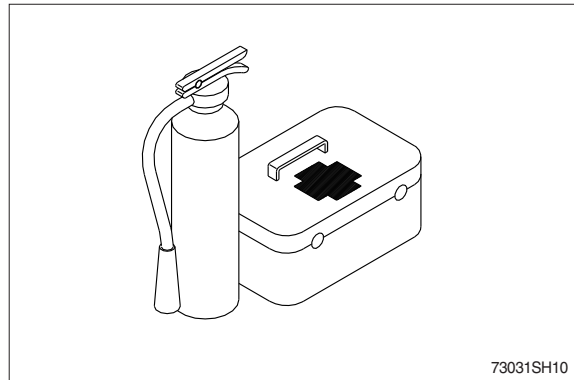
FIRE EXTINGUISHER AND FIRST AID KIT

Be sure fire extinguishers have been provided and know how to use them.

Provide a first aid kit at the storage point.

Know what to do in the event of a fire.

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



73031SH10

UNAUTHORIZED MODIFICATION

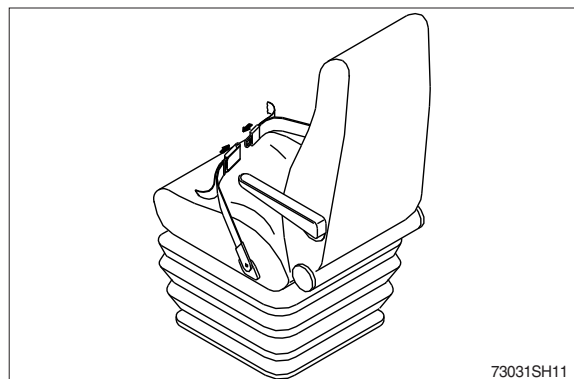
Any modification made without authorization from Hyundai can create hazards.

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

SEAT BELT

Check the condition of the seat belt and mounting hardware before operating the machine. If the seat belt and mounting hardware are worn or damaged, replace the seat belt and mounting hardware. Make sure that the mounting bolts are tight.

Always use seat belts when operating your machine.



73031SH11

MODIFICATIONS

Modifications to the machine, including use of unauthorized accessories and spare parts, may affect the machine's condition and its ability to function as it was designed. No changes of any kind may be performed without first obtaining written approval from Hyundai. Hyundai reserves the right to refuse all warranty claims that have resulted due to or can be attributed to unauthorized modifications.

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

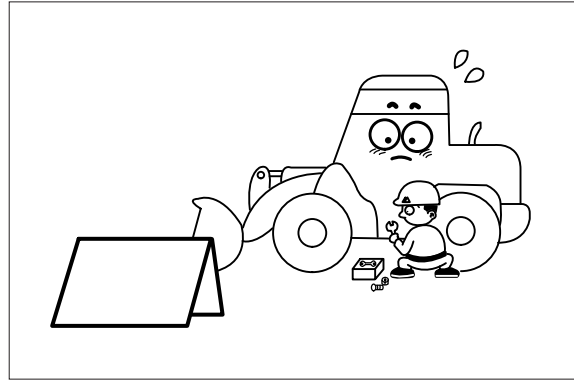
The person who performs unauthorized modifications assumes all responsibility for consequences that arise due to the modification or can be attributed to the modification, including damage to the machine.

Modifications may be considered to be officially approved, if at least one of the following conditions has been met :

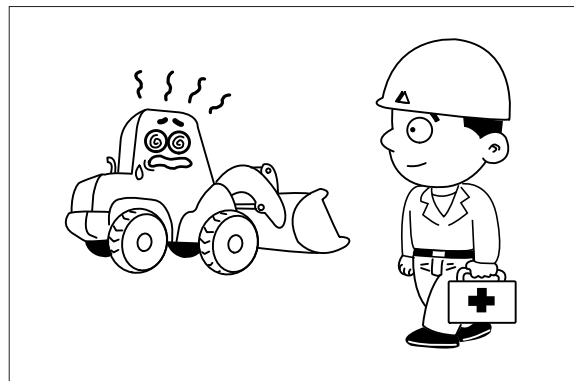
1. The attachment, the accessory, or the spare part has been made or distributed by Hyundai and has been installed according to approved methods described in a publication available from Hyundai; or
2. The modification has been approved in writing by the Engineering Department at each product company within Hyundai.

3. DURING MAINTENANCE

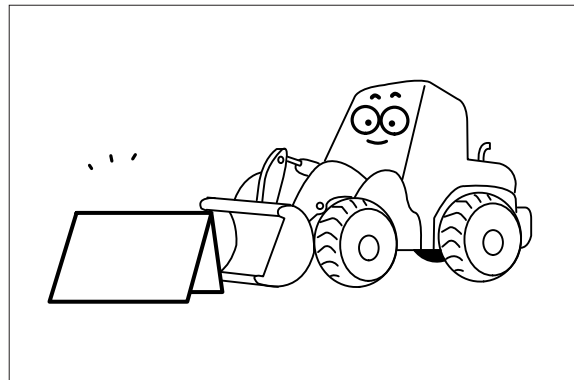
During maintenance do not allow any unauthorized person to stand near the machine. Also, be careful of people in the vicinity.



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 for inspecting and repairing and properly TAG machine is not operational. (remove start key)
Extreme care shall be taken during maintenance work.
Parts may require additional safe guarding.



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

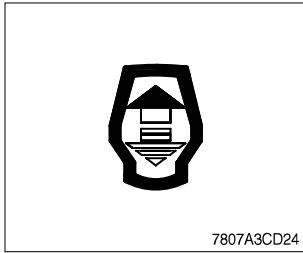


73031SH46

7) DYNAMIC POWER TRANSMISSION DEVICES

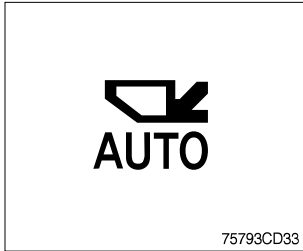
Item		Specification
Torque converter	Model	ZF 4WG130
	Type	Single-stage, single-phase
	Ratio	2.381 : 1
Transmission	Type	Full-automatic power shift
	Gear shift	Forward fourth gear, reverse third gear
	Control	Electrical single lever type, kick-down system
	Pump rated flow	85 ℓ /min (22.5 U.S.gpm) at 2000 rpm
Axle	Drive devices	4-wheel drive
	Front	Front fixed location
	Rear	Oscillation $\pm 12^\circ$ of center pin-loaded
Wheels	Tires	17.5-25, 12PR (L3)
Brakes	Travel	Four-wheel, wet-disc type, full hydraulic
	Parking	Spring applied, hydraulic released brake on transmission
Steering	Type	Full hydraulic, articulated
	Steering angle	40° to both right and left angle, respectively

(9) FNR select pilot lamp (option)

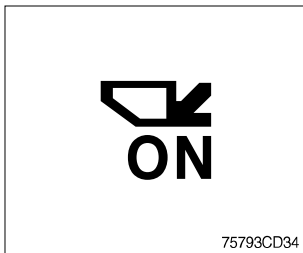


- ① The lamp comes ON when FNR select button on the optional FNR remote control lever is pressed.
- ※ Refer to page 3-41.

(10) Ride control pilot lamp (option)

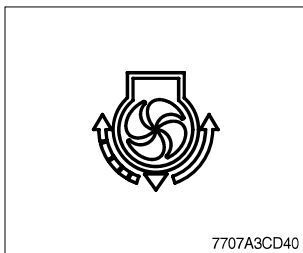


- ① **Auto ride control**
This lamp lights ON when push in the bottom of the ride control switch (auto position).
- ※ Refer to page 3-36.



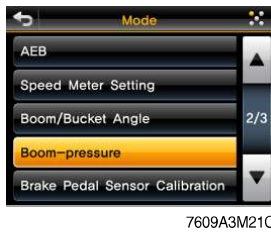
- ② **Manual ride control**
This lamp lights ON when push in the top of the ride control switch (manual position)
- ※ Refer to page 3-36.

(11) Fan reverse pilot lamp



- ① This lamp lights ON when the fan control switch is pressed.
- ※ Refer to page 3-35.

⑨ Boom-pressure



7609A3M21C



7609A3M21D


Display A

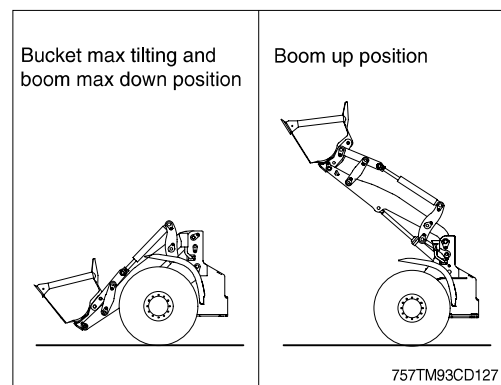
- Press START button after following the instruction.
- After a few minutes, "Calibration fail" or "Calibration success" message will be shown. Press OK button then process be ended.

※ **Using button** : Using  instead of NEXT, confirm button.

· Boom pressure calibration

- It is used when bucket weight is changed or measured weight is inaccurate.
- The calibration must be carried out as follows :

- ① Increase hydraulic temperature (about 30~60°C).
- ② Select "Boom-pressure".
- ③ Roll-in the bucket at maximum range and lower the boom at minimum height.
- ④ Press START button.
- ⑤ Raise boom to maximum position. Boom up must be finished before stepping advance in "display A".
- ⑥ If it show "Calibration success" message in a moment, press OK button (or .

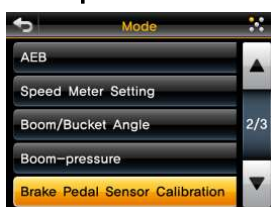


※ **Raise hydraulic temperature enough when checking work load / boom pressure sensor calibration (recommendation : about 30 ~ 60°C).**

※ **Check if pressure sensor or angle sensor is in normal condition for accurate work load algorism or pressure sensor calibration [pressure sensors at boom cylinder head area and rod area, boom angle sensor (CD-80), bell crank angle sensor (CD-81)].**

※ **Sensor error message during pressure sensor calibration : sensor need to be checked.**

⑩ Brake pedal sensor calibration



7609A3M21E



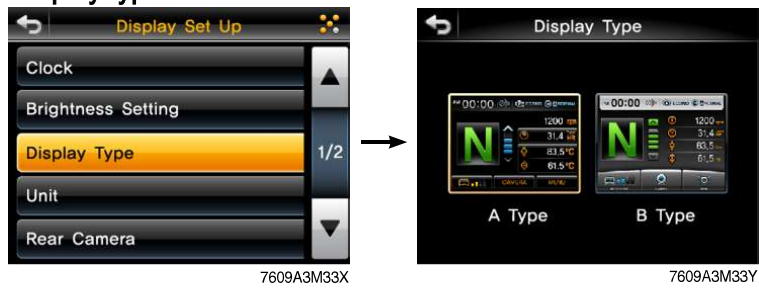
7609A3M21F

- Turn the engine OFF and turn the starting switch ON position.
- Press OK button, then calibration will be started.
- For cancel, press MENU button in main display.
- When it is finish (OK in actual gear window), press MENU button in main display.

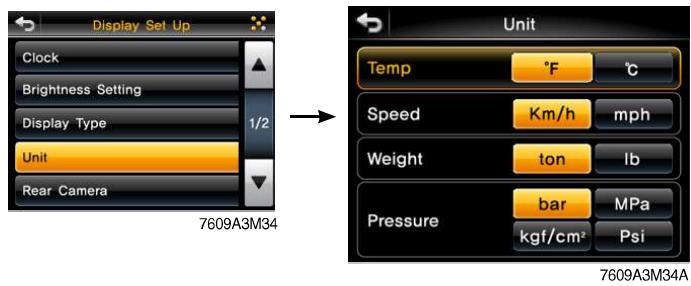
※ **Using button** : For cancel or finish, press **MENU**, / **ESC** or .

※ When replacing the brake pedal or sensor, brake pedal sensor calibration must be started.

③ Display type



④ Unit

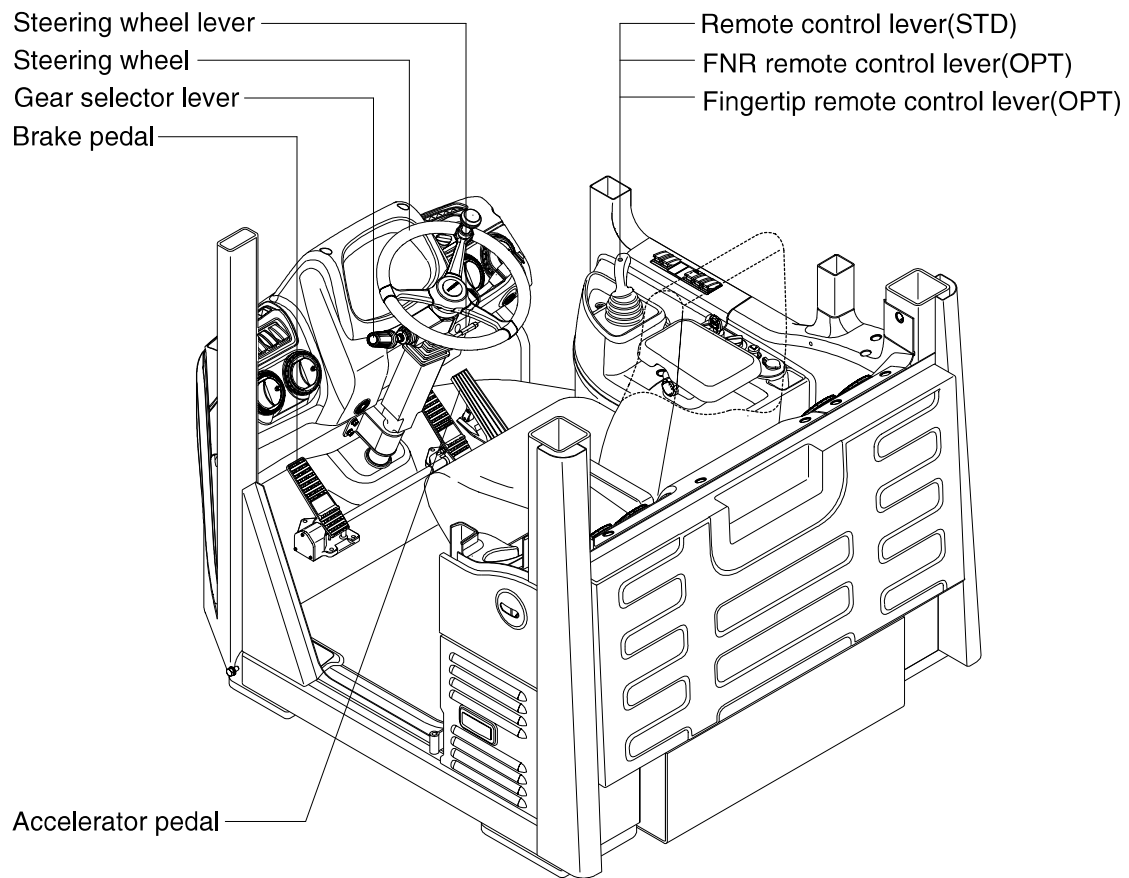


- Temperature : °C ↔ °F
- Speed : km/h ↔ mph
- Weight : ton ↔ lb
- Pressure : bar ↔ Mpa ↔ kgf/m² ↔ psi

※ Using button

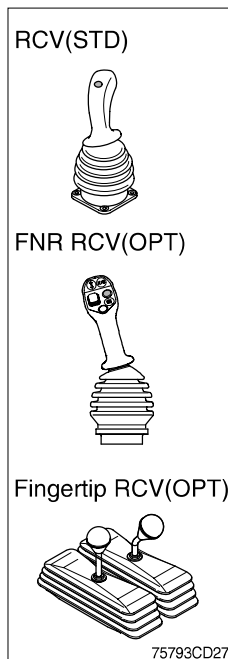
- Move to other item by .

5. CONTROL DEVICE



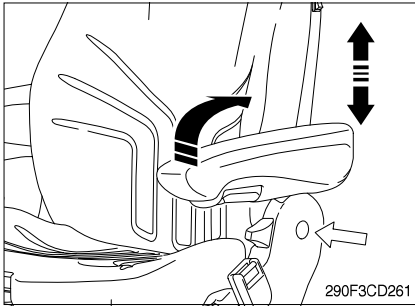
74093CD28

1) REMOTE CONTROL LEVER



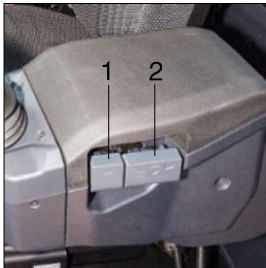
- (1) These joysticks are used to control the boom and the bucket.
- (2) Refer to operation of working device in chapter 4 at page 4-9.



(5) Armrest (LH)



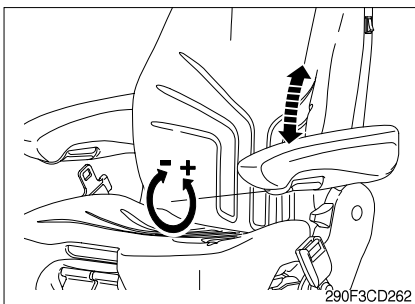
- ① The armrests can be folded up if required and the height can be individually adjusted.
- ② To adjust the armrest for height, separate the round cap (see arrow) from the cover and loosen the hexagon nut (size 13 mm) behind it adjust the armrests to the desired position (5 steps) and tighten the nut again (25 Nm). Replace the cap onto the nut.

Armrest (LH, RH)



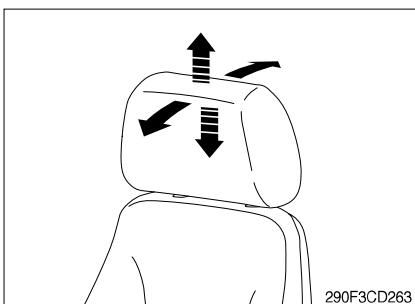
1. Tilt lever 
Pull up and hold to tilt armrest maximum 70 degrees.
2. Adjust lever 
Pull up, hold and slide forward or rearward or up or down.

(6) Armrest adjustment



- ① The inclination of the armrest can be modified by turning the adjustment knob.
- ② When turning the knob to the outside (+), the front part of the armrest will be lifted; when turning the knob to the inside (-), it will be lowered.

(7) Headrest



- ① The headrest can be individually adjusted for height by pulling it upward over the various increments up the end stop.
- ② By pushing forwards or rearwards the angle of the headrest can be adjusted individually.
- ③ To remove the headrest, pull it over the end stop.

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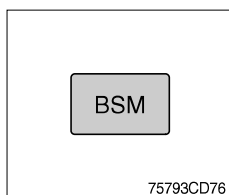
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(4) Pre-set scan (PS) / Best station memory (BSM) button



① Pre-set scan (PS)

Press BSM button shortly to scan the 6 pre-set station stored the memories on each band (AM/FM/LW).

The unit will stop at each pre-set station (the pre-set number on the LCD display will flash during pre-set scan operation) and remain on the selected frequency. Press the button momentarily again to remain on the station currently being heard.

② Best station memory (BSM)

Pressing BSM button for longer than 2 seconds will activate the BSM tuning feature which will automatically scan and enter each station into memory.

If you have already set the pre-set memories to your favorite stations, activating the BSM tuning feature will erase those stations and enter the new ones.

This BSM feature is most useful when traveling in a new area where you are not familiar with the local stations.

■ USB PLAYER

(1) USB function

There are two ways to play mp3 files in a USB device : using USB socket in the cab and the USB / AUX cable connected to the front side of the player.

· Use of USB socket

- ① Connect a USB device, which saves mp3 files, to USB socket in the cabin.
- ② If a USB device has not been connected, MP3 files are automatically played when you insert it into the USB port.
- ③ If a USB device has connected, MP3 files are played when you press mode for USB.

· Use of USB / AUX cable (option)

· Type A



75793CD81

- ① Connect the USB/AUX cable to the player in order to play MP3 files in a USB device.
- ② If a USB device has not been connected, MP3 files are automatically played when you insert it into the cable.
- ③ If a USB device has connected, MP3 files are played when you press mode for USB.

(4) Bluetooth setting

① Setting the automatic call answer feature

If this function is selected, the bluetooth radio automatically answers all INCOMING calls.

This feature enhances safety as the driver does not need to take their hands from the steering wheel to accept an INCOMING call.

Note that this feature cannot be set at different settings for each of the paired mobile phones.

- a. Press SEND button to select BLUETOOTH mode.
- b. Turn power button (type A) or selection knob (type B) until **SETTINGS** is displayed.
- c. Press SEL button until **AUTO ANSWERING** is displayed.
- d. Press SEL button and turn power button (type A) or selection knob (type B). The LCD then displays as follows :

ANSWER OFF → ANSWER 5 SEC → ANSWER 10 SEC → RETURN



- ANSWER OFF = Automatic answer function is not active.
 - ANSWER 5 SEC = Automatic answers all INCOMING calls after a 5 second delay.
 - ANSWER 10 SEC = Automatic answers all INCOMING calls after a 10 second delay.
 - RETURN = Return to previous menu.
- e. After making your selection, press SEL button to store the selection.
 - f. **SETTINGS** is then displayed for adjustment if required.
 - g. If you do not wish to adjust any further bluetooth settings, press END button to return to the last selected mode.

② Setting calling voice volume

This function is to set the level of the mobile phone's calling voice volume to be heard through the bluetooth radio and speakers.

- a. Follow steps a. to c. of above setting below ①.
- b. When **VOICE VOLUME** appears on the display, press SEL button to display the current level of the calling voice. Turn power button (type A) or selection knob (type B) right or left to adjust the calling voice volume as desired. This is the level the calling voice volume will be set to each time the bluetooth radio is used after the stating switch is turned off and then on again.
- c. After making your selection, press SEL button to store the selection.
- d. **SETTINGS** is then displayed for adjustment if required.
- e. If you do not wish to adjust any further bluetooth settings, press END button to return to the last selected mode.

③ Setting the ring volume

This function is to set the level of the mobile phones ring tone volume to be heard through the bluetooth radio and speakers.

- a. After making your selection, press SEL button to store the selection.
- b. When **RING VOLUME** appears on the display, press the SEL button to display the current level of the ring tone. Turn power button (type A) or selection knob (type B) right or left to adjust the ring tone volume as desired. This is the level the ringer volume will be set to each time the bluetooth radio is used after the starting switch is turned off and then on again.
- c. After making your selection, press SEL button to store the selection.
- d. The press END button to return to the last selected mode.

■AUX OPERATION

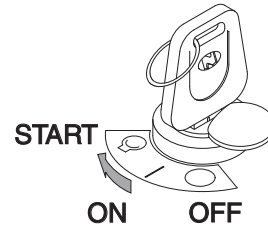
It is possible to connect your portable media player to the audio system for playback of the audio tracks via the cab speakers.

To get the best results when connecting the portable media to the audio system, follow these steps :

- Use a 3.5 mm stereo plug cable to connect the media player headphone socket at each end as follows.
 - Adjust the portable media player to approximately 3/4 volume and start playback.
 - Press the MODE button (3) on the audio unit to change into AUX mode.
 - The volume and tone can now be adjusted on the audio unit to the desired level.
- ※ **The audio quality of your media player and the audio tracks on it may not be of the same sound quality as the audio system is CD Player.**
- ※ **If the sound of the media player is too low compared with the radio or CD, increase the volume of the player.**
- ※ **If the sound of the media player is too loud and/or distorted, decrease the volume of the player.**
- ※ **When in AUX mode, only the Volume, Bass, Treble, EQ and Mode functions of the audio unit can be used.**

2) STARTING ENGINE IN NORMAL TEMPERATURE

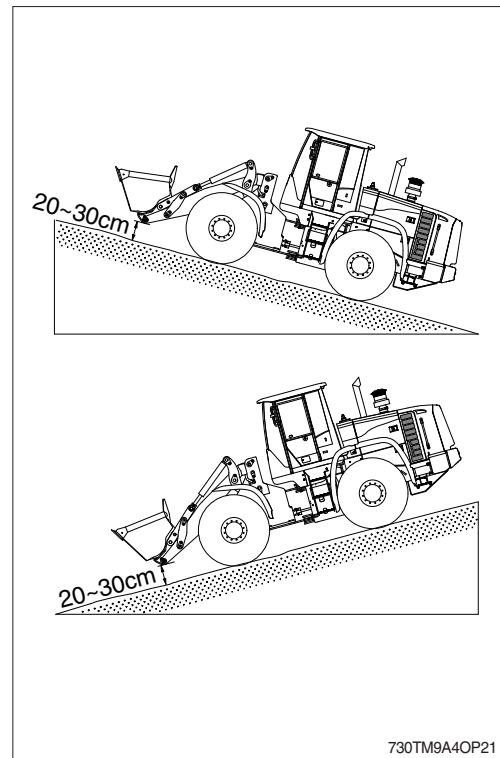
- ※ **Sound the horn to warn the surroundings after checking if personnel or obstacles are in the area.**
- (1) Check if the parking brake is locked (with the parking switch ON).
- (2) Check if the gear selector lever is in the neutral position.
- (3) Check if the pilot cut off switch is locked (with the switch OFF)
- (4) Turn the starting switch to START position to start the engine.
- ※ **Do not crank the engine for more than 20 seconds. If the engine does not start, allow the starter to cool for about 2 minutes before attempting to start the engine again.**
- (5) Release the starting switch instantly after the engine starts to avoid possible damage to the starting motor.
- ※ **Refer to the START PROCEDURE on the page 0-12.**



77074OP04

2) TRAVELING ON A SLOPE

- (1) Never travel down a slope in neutral.
 - (2) Lower the bucket 20-30 cm (1 ft) to the ground so that it can be used as a brake in an emergency.
 - (3) If the machine starts to slide or loses stability, lower the bucket immediately and brake the machine.
 - (4) When parking on a slope, use the bucket as a brake and place blocks behind the tires 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.**



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.

- (6) Keep the tow line angle to a minimum. Do not exceed a 30 degree angle from the straight ahead position.
 - (7) Quick machine movement could overload the tow line or the tow bar. This could cause the tow line or the tow bar to break. Gradual, steady machine movement will be more effective.
 - (8) Normally, the towing machine should be as large as the disabled machine. Make sure that the towing machine has enough brake capacity, enough weight, and enough power. The towing machine must be able to control both machines for the grade that is involved and for the distance that is involved.
 - (9) You must provide sufficient control and sufficient braking when you are moving a disabled machine downhill. This may require a larger towing machine or additional machines that are connected to the rear of the disabled machine. This will prevent the machine from rolling away out of control.
 - (10) All situation requirements cannot be listed. Minimal towing machine capacity is required on smooth, level surfaces. On inclines or on surfaces in poor condition, maximum towing machine capacity is required.
 - (11) When any towed machine is loaded, this machine must be equipped with a brake system that is operable from the operator compartment.
- ※ **Consult your HYUNDAI dealer for the equipment that is necessary for towing a disabled machine.**

2) WHEN THE ENGINE WORKS

- (1) When the transmission system or steering wheel is workable and the engine is running, the machine can be towed only for a short distance.
For example, pull the machine out of mud or pull the machine to side of the road.
- (2) The operator of the towed machine should turn the steering wheel into the direction in which the machine is towed.

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)							
			-50 (-58)	-30 (-22)	-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)
Engine oil pan	Engine oil	11 (2.9)	* ² SAE 5W-40							
			SAE 30							
			SAE 10W							
			SAE 10W-30							
			SAE 15W-40							
Transmission	Engine oil	20 (5.3)	SAE 10W-30							
			SAE 15W-40							
Axle	UTTO	FR : 17 (4.5) RR : 17 (4.5)	*Refer to below list							
Hydraulic tank	Hydraulic oil	Tank; 121 (32.0) System; 154 (40.7)	* ² ISO VG 15							
			ISO VG 46							
			ISO VG 68							
Fuel tank	Diesel fuel* ¹	200 (52.8)	* ² ASTM D975 NO.1							
			ASTM D975 NO.2							
Fitting (grease nipple)	Grease	As required	* ² NLGI NO.1							
			NLGI NO.2							
Radiator (reservoir tank)	Mixture of antifreeze and soft water* ³	30 (7.9)	Ethylene glycol base permanent type (50 : 50)							
			* ² Ethylene glycol base permanent type (60 : 40)							

SAE : Society of Automotive Engineers

API : American Petroleum Institute

ISO : International Organization for Standardization

NLGI : National Lubricating Grease Institute

ASTM : American Society of Testing and Material

UTTO : Universal Tractor Transmission Oil

*¹ Ultra low sulfur diesel

- sulfur content ≤ 15 ppm

*² Cold region

Russia, CIS, Mongolia

* Recommended oil list

- BP TERRAC SUPER TRANSMISSION 10W-30

- CASTROL AGRI TRANS PLUS 10W-30

- MOBILFLUID 426

- SHELL DONAX TD 10W-30

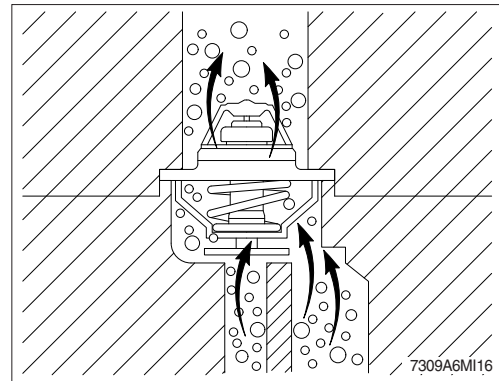
- TOTAL DYNATRANS MPV

*³ Soft water

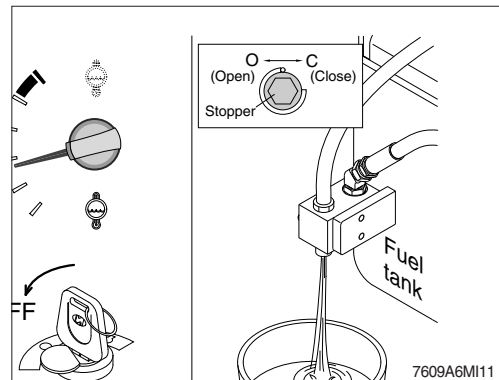
City water or distilled water

- ※ During filling, air must be vented from the engine coolant passages.

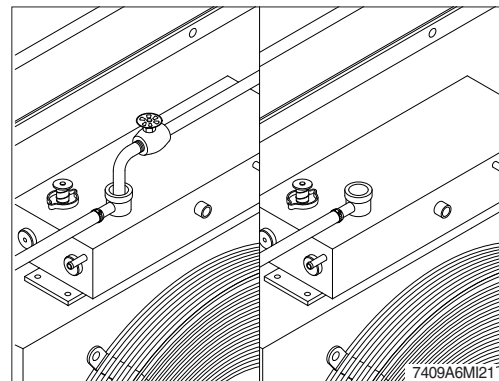
The system must be filled slowly to prevent air locks. Wait 2 to 3 minutes to allow air to be vented, then add mixture to bring the level to the top.



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

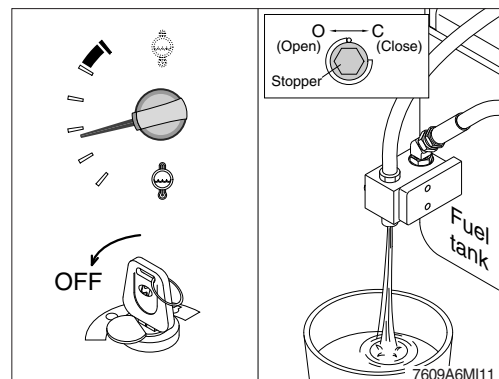


- ③ Fill the cooling system with clean water.
 - ※ Be sure to vent the engine and EGR cooler for complete system filling.
 - ※ Do not install the surge tank cap or the new coolant filter.



- ④ Operate the engine for 5 minutes with the coolant temperature above 80°C (176°F). Shut the engine off, and drain the cooling system.

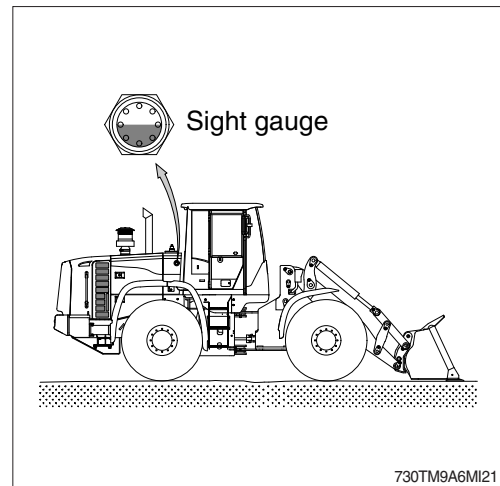
- ※ If the water being drained is still dirty, the system must be flushed again until the water is clean.



17) HYDRAULIC OIL CHECK

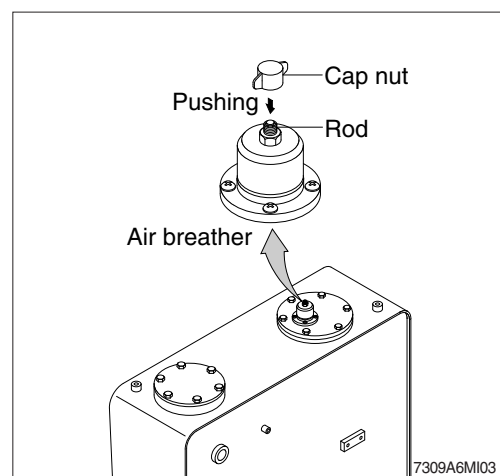
- (1) Lower the bucket on the ground at a flat location as in the illustration.
Stop the engine and then leave for about 5 minutes.
- (2) Check the oil level at the sight gauge. The sight gauge is located on the left side of the hydraulic oil tank.
- (3) The sight gauge should indicate the middle position.

※ **Add hydraulic oil, if necessary.**



18) FILLING HYDRAULIC OIL

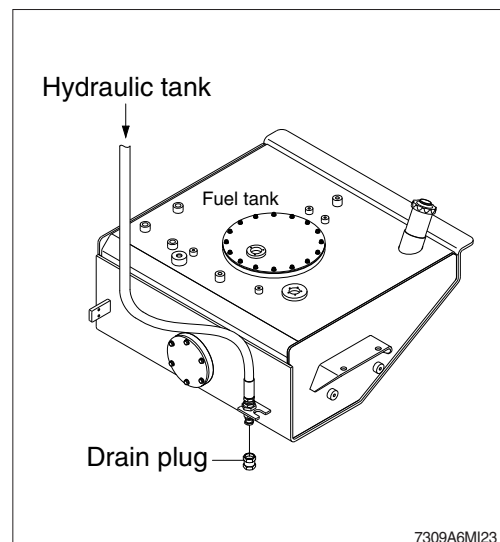
- (1) Stop the engine to the position of level check.
- (2) Rotate the cap nut counter-clockwise by hand and push the rod to release the air pressure.
- (3) Remove the breather on the top of oil tank and fill the oil to the specified level.
- (4) Start engine after filling and operate the work equipment several times.
- (5) Check the oil level at the level check position after engine stops.



19) CHANGE THE HYDRAULIC OIL

- (1) Lower the bucket on the ground extend the 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) Prepare a suitable container.
- (4) To drain the oil loosen the drain plug at the fuel tank block.
- (5) Tighten the drain plug.
- (6) Fill proper amount of recommended oil.
- (7) Put the breather in the right position.
- (8) Start engine and run continually. Release the air by full stroke of control lever.

※ **The oil must be free of bubbles. If bubbles are present in the oil, air is entering the hydraulic system. Inspect the suction hoses and hose clamps.**



(6) Supply oil into the differential gear and the planetary gear.

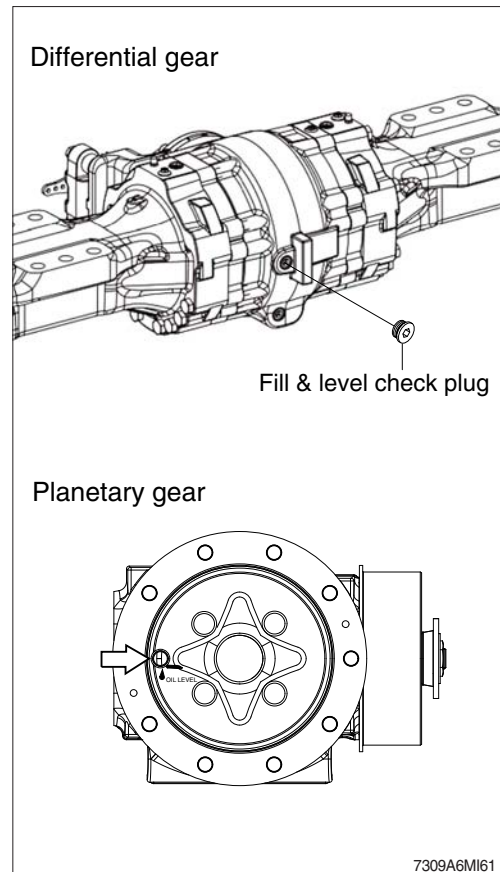
• Oil amount

Front axle : 17 ℓ (4.5 U.S. gal)

Rear axle : 17 ℓ (4.5 U.S. gal)

(7) Supply oil until it overflows from the oil filler, then install the plug.

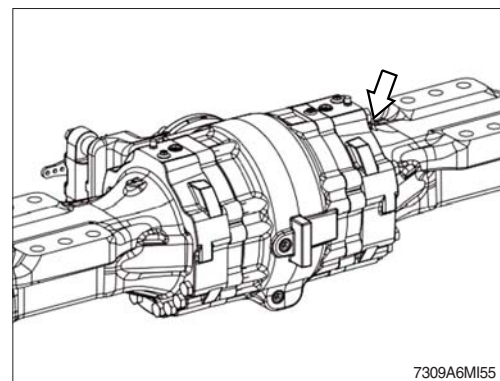
**▲ As the machine is hot after operation, wait until the temperature has dropped.
If a work requires frequent use of brake, replace it earlier than normal change interval.**



33) CLEANING AXLE BREATHER

(1) Remove dust or debris around the breather.

(2) Remove the breather and wash it with cleaning oil.



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