HITACHI

Reliable solutions

ZW SALES MANUAL

ZW 220

Model Code:	ZW220-7
Engine Max power:	157 kW (ISO14396 gross) 152 kW (ISO 9249 net)
Operating Weight:	18,190 – 19,450 kg
Backhoe Bucket:	ISO Heaped: 2.80 - 10.00 m^3

Contents

HITACHI

Reliable solutions

HITACHI
Reliable solutions

Product concept of ZW-7

The ZW-7 series has been developed with the owner and operator in mind.
For the owner we can provide added value by lowering Total Cost of Ownership (TCO).
For the operator we focused on comfort in the cabin and the ability to adjust machine settings easily, depending on application requirements.
Safety was of the highest priority during the development of the new ZW220-7.

HITACHI
Reliable solutions

Design concept of ZW-7

1. Impact / Rigid

Newly arranged silver line wing decal.
A symbol of high quality and technology.
Graphic design of model decal with enhanced texture by adding a three-dimensional effect.

2. Comfort

Operator's cab interior is fully redesigned. Improved operator's seat with mounted electric control levers.

3. Safety

Direct unobstructed visibility.
Additional safety and warning systems are included in machine configuration.

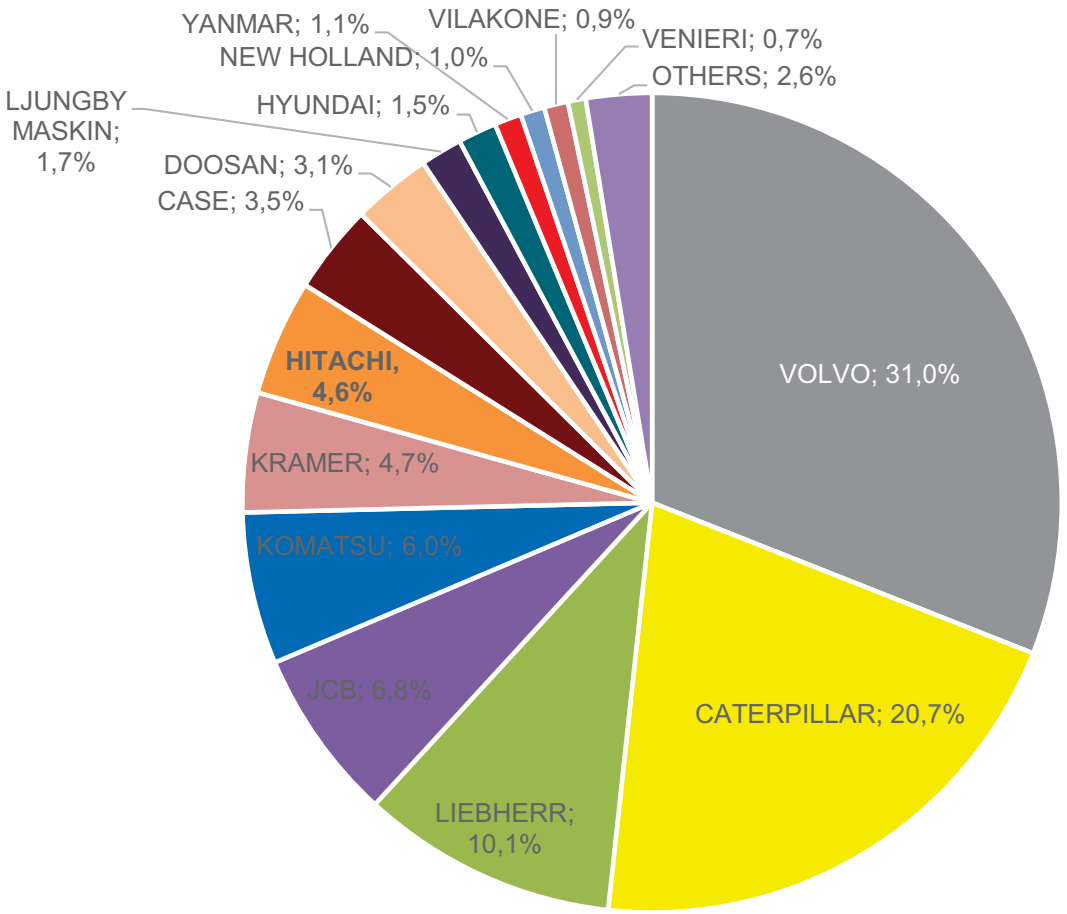
4. Durability / Strength

The color of wheel rim, front lift arm and bell crank changed to black which highlights the impression of durability and strength.

Overview – Marketing information

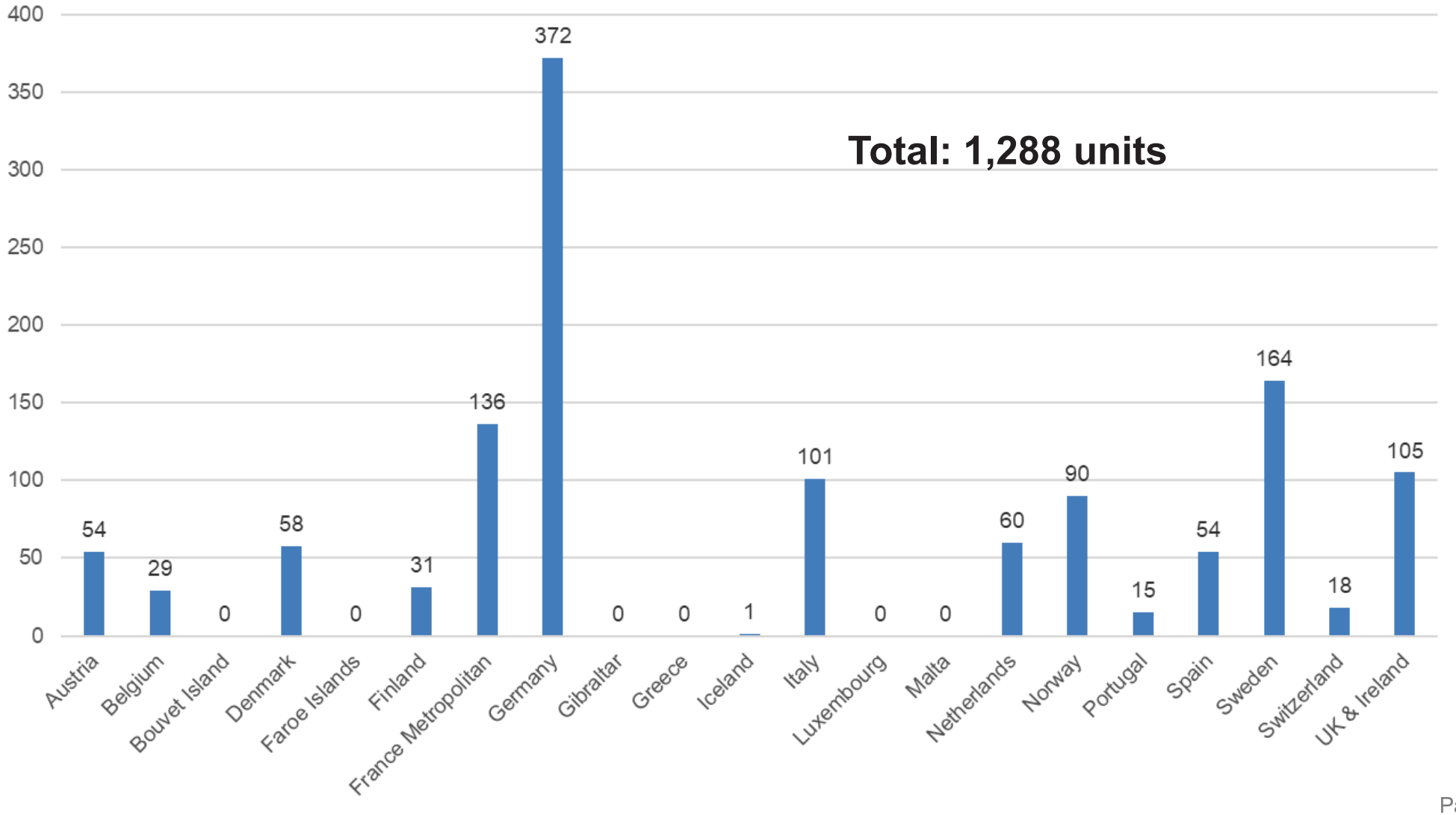
HITACHI
Reliable solutions

2019 Wheel loader share by manufacturer total 11,977 units

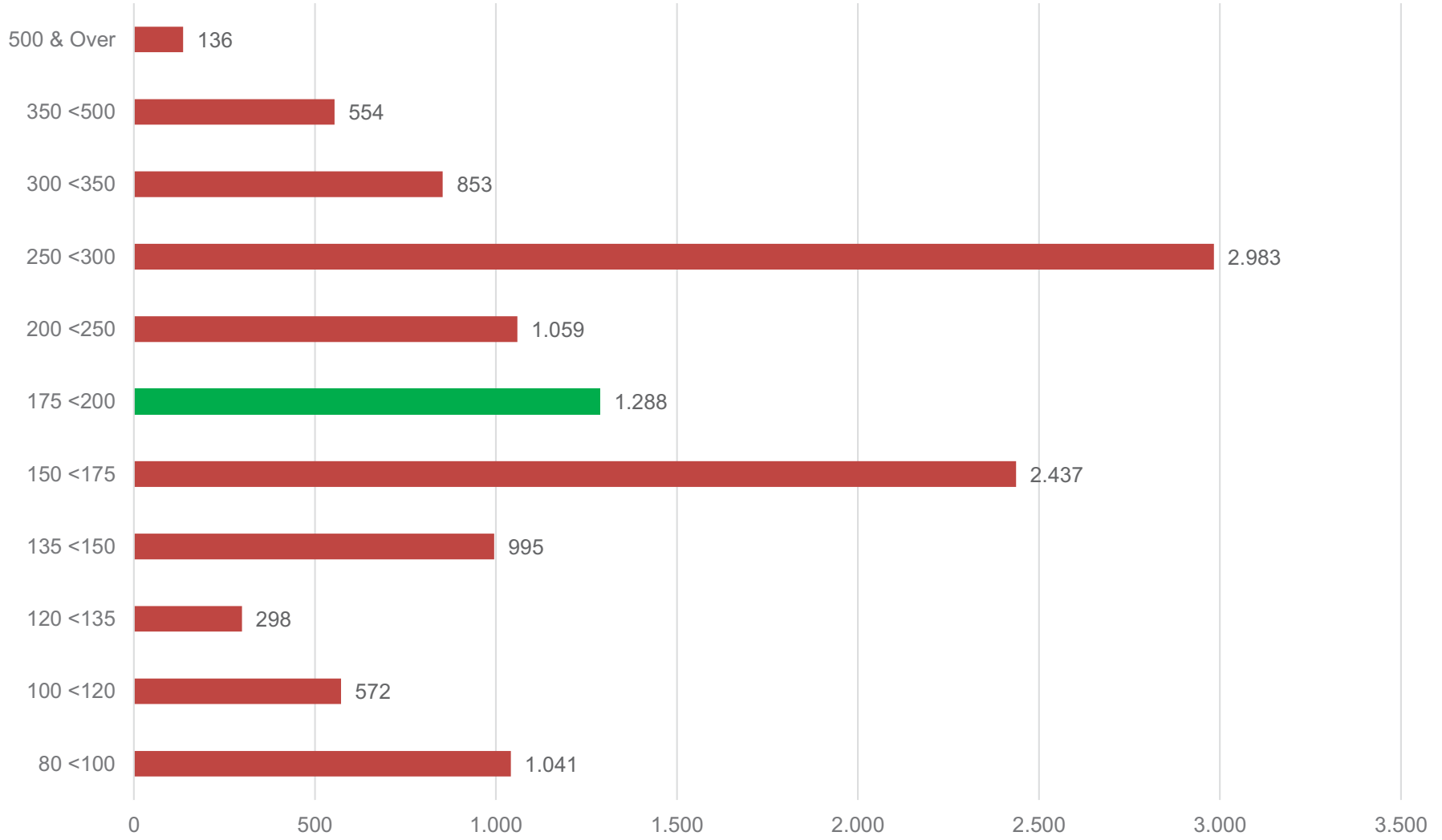


HITACHI
Reliable solutions

Demand for ZW220 class (175-200 kW) wheel loaders by country (2019 Western Europe)

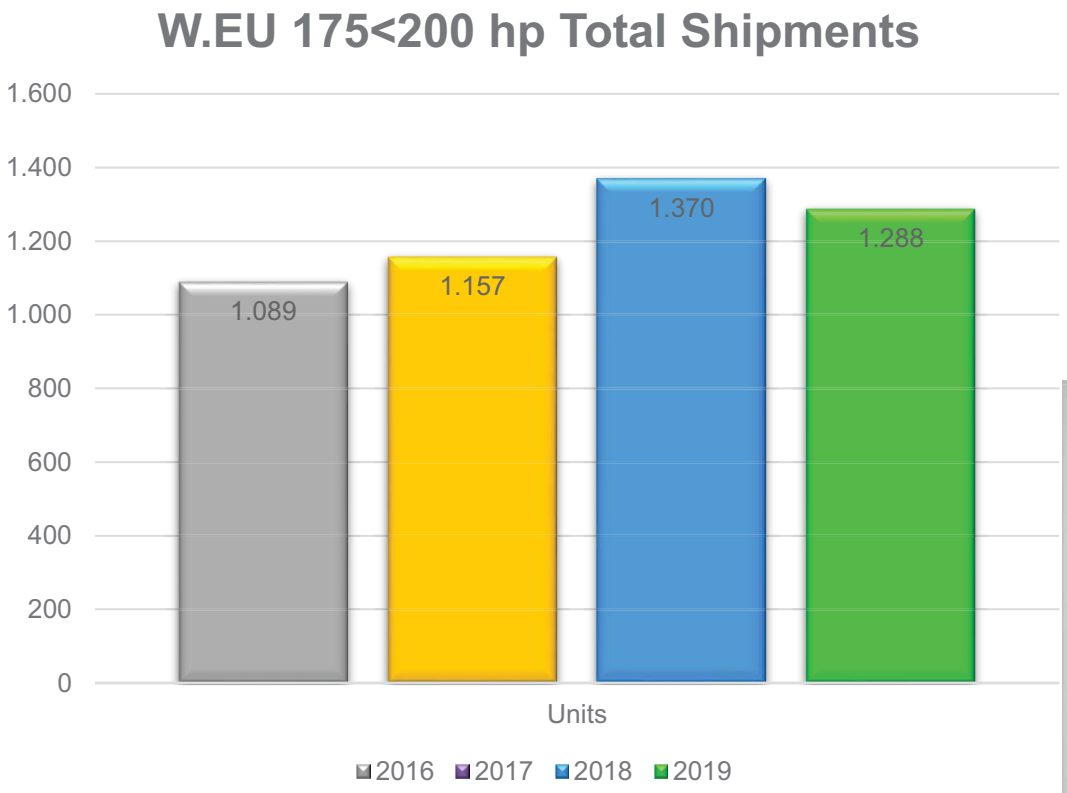


Demand for wheel loaders by size (2019 Western Europe)



HITACHI
Reliable solutions

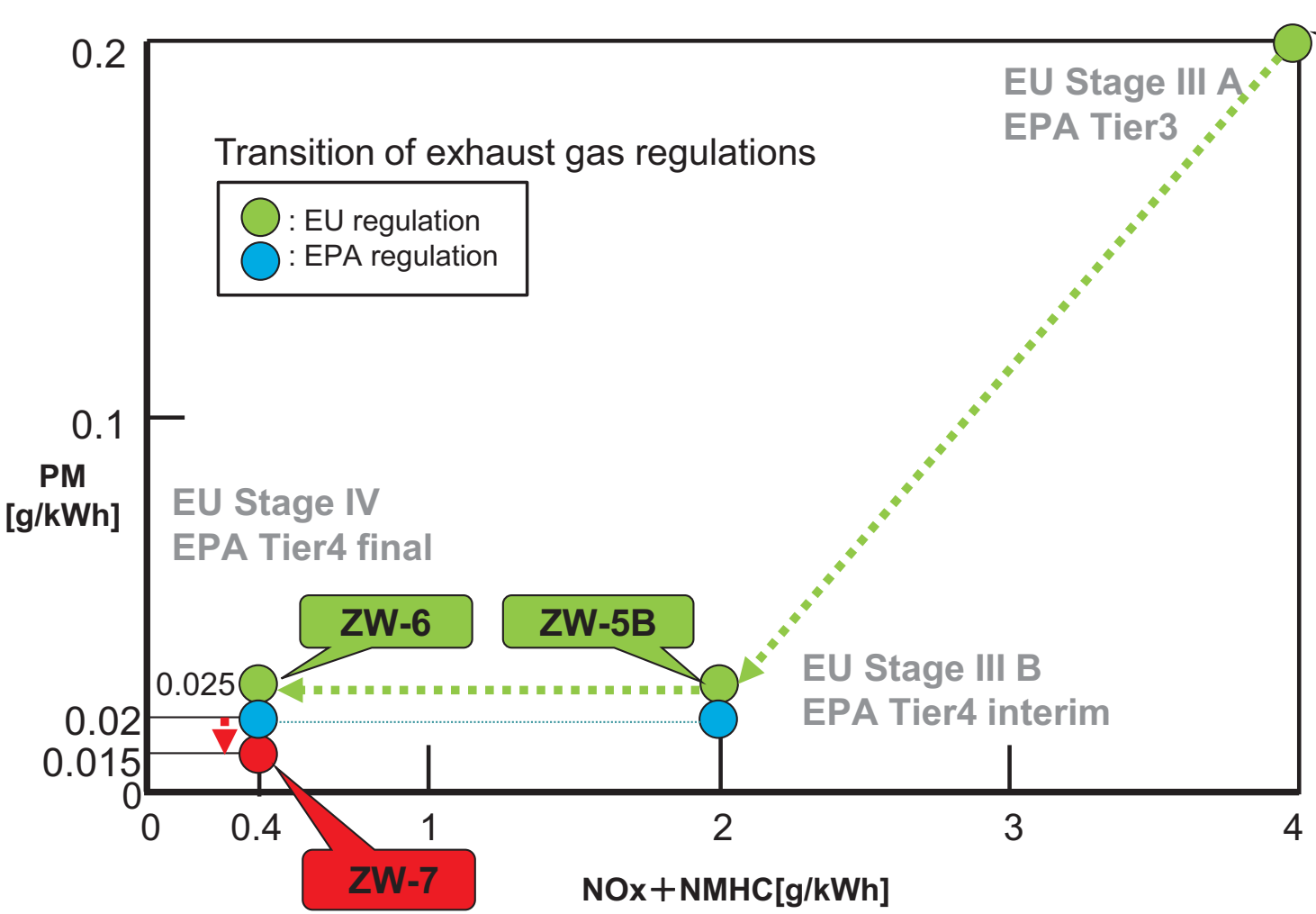
Demand for ZW220 class loaders, and Hitachi's share (2016-2019 Western Europe)



HITACHI
Reliable solutions

Stage V exhaust gas limits (130 – 560 kW)

Particle Number (PN) limit has been added in addition to a tighter PM limit.



Stage V emissions limit

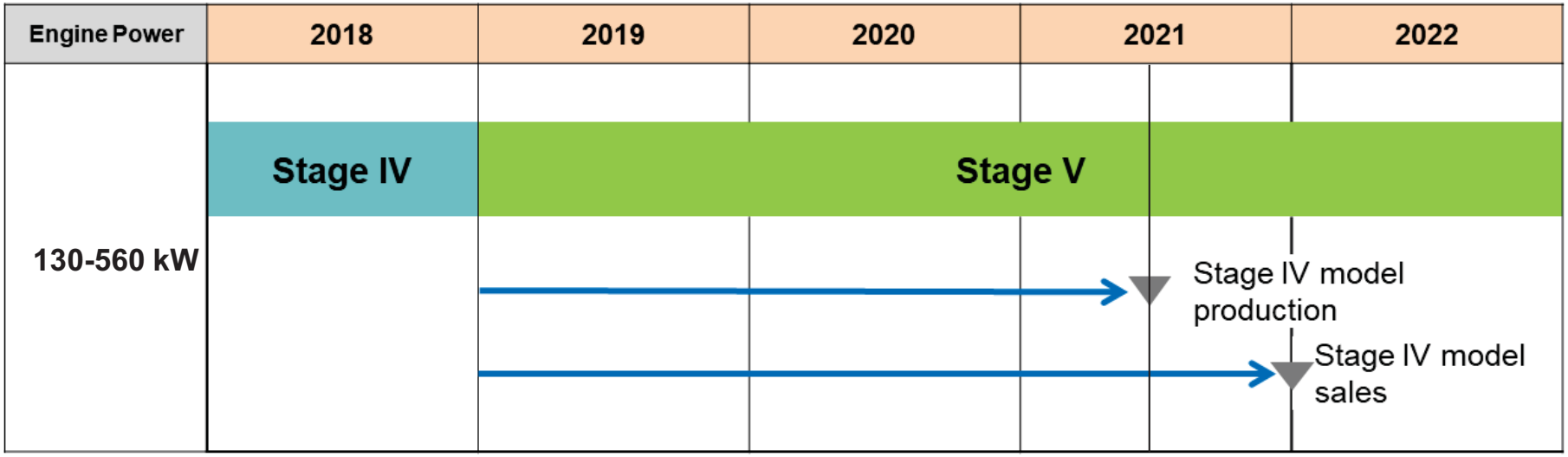
	Stage IV	Stage V
NOx (g/kWh)	0.4	0.4
PM (g/kWh)	0.025	0.015
PN (piece/ kWh)	-	$1X10^{12}$

NOx: Nitrogen Oxides
PM: Particulate Mass
PN: Number of particles with 23 nm or more particle diameters

HITACHI

Reliable solutions

Timing of Stage V emissions regulations in Europe



Walkaround

HITACHI

Reliable solutions

- **Stage V engine**
- Urea SCR system + **Muffler Filter**
- Variable geometry turbocharger
- **Approach speed control**
- Rise run
- **Max. gear shift limited switch**
- **Tilt angle sensor (IMU) (OPT)**
- **Electric pilot control levers**
- **Eco gauge**

- **Panel Switch on right front cabin pillar**
- **Sub monitor display**
- **Aerial Angle Camera System (OPT)**
- **Payload checker with tip off function**
- **Rear obstacle detection and warning system (OPT)**
- Joystick Steering System (JSS) (OPT)
- Excellent rear visibility
- **Cab top rail (Front / Rear)**
- Large-screen, multifunctional color monitor
- **Integrated console and seat suspension**
- Spacious legroom
- **Sub monitor controller**
- **DAB+ radio with Bluetooth and hands-free function**
- Parallel tandem hydraulic circuit

New: New features highlighted red

- Automatic reversible cooling fan
- Wide open engine covers
- Easy access to AdBlue tank
- Easy access to greasing points
- Easy access to daily inspection points
- Auto shut-down

- **Cleanable engine air filter (outer)**
- **Seat belt reminder**
- TPD and LSD differentials
- Several control lever patterns

Product sales feature

Customer benefit

Photo comparison

HITACHI

Reliable solutions

Exterior

ZW-6

ZW-7

‘Robust’ and ‘Strong’ design concept with silver accents

A straight-lined, powerful outer look

Photo comparison

HITACHI
Reliable solutions

Exterior

ZW-6

ZW-7

ZW220-7 exterior design

Renewed design improves its visibility in the dark by increased orange painted areas at critical positions

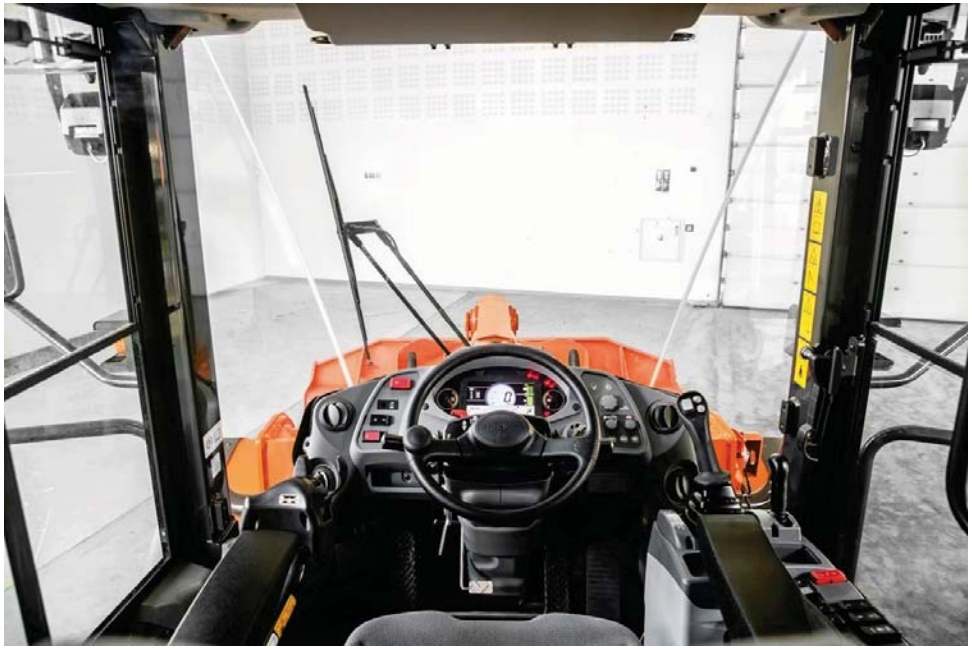
Photo comparison

HITACHI

Reliable solutions

View from the driver's seat

ZW-6



ZW-7

Redesigned cab interior based on operator feedback

First-class cab interior with the ultimate in comfort and quality

Front right pillar and right console box

ZW-6

ZW-7

Redesigned and enhanced based on operator feedback

Improved operator comfort, reducing operator fatigue

Front right pillar and right console box

ZW-6

ZW-7

Redesigned and enhanced based on operator feedback

Improved operator comfort, reducing operator fatigue

Rear grille

ZW-6

ZW-7

Rear grille and fan opens to the rear
(same proven concept as ZW220-6)

Easy access to radiator compartment for regular maintenance

Air filter

ZW-6

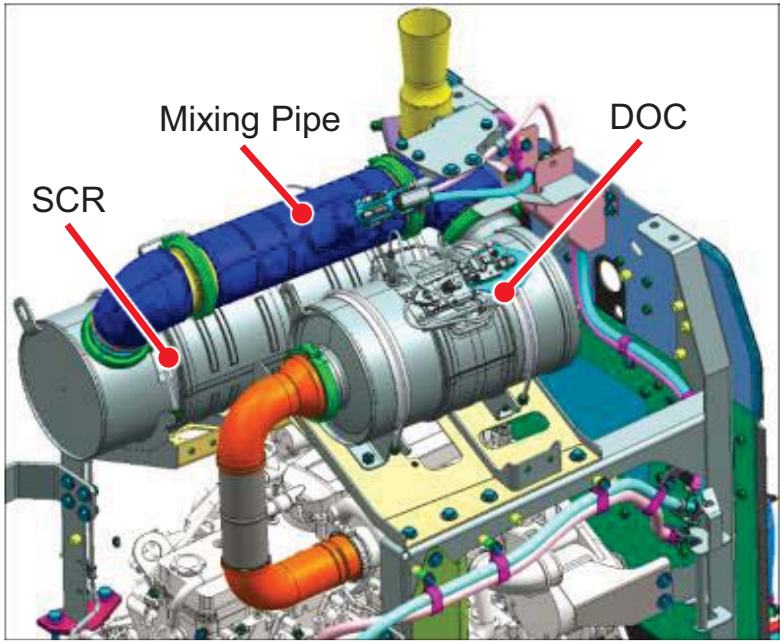
ZW-7

New engine air filter type

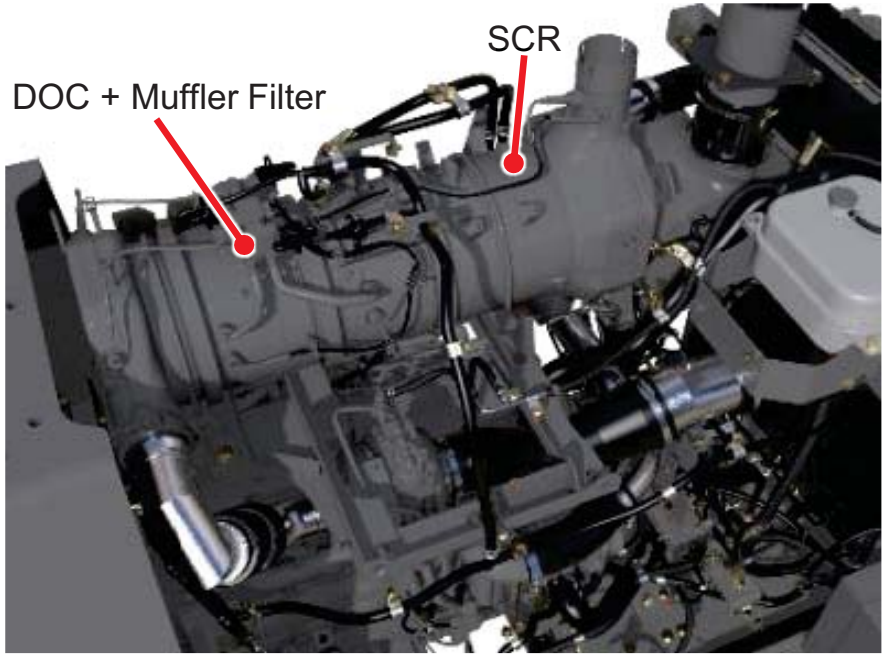
Cleanable engine air filter (outer) is newly installed and is easily accessible from ground level

After treatment device

ZW-6



ZW-7



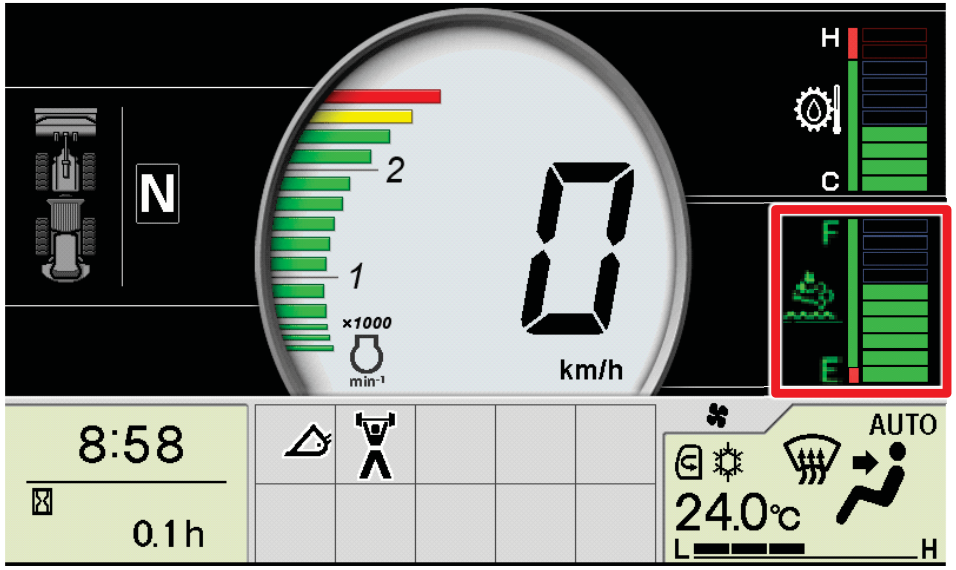
Durable DOC, Muffler, and SCR system of single module are utilized for after treatment

Meets Stage V emissions regulation and delivers exceptional efficiency

HITACHI
Reliable solutions

Urea level indicator

ZW-6



ZW-7

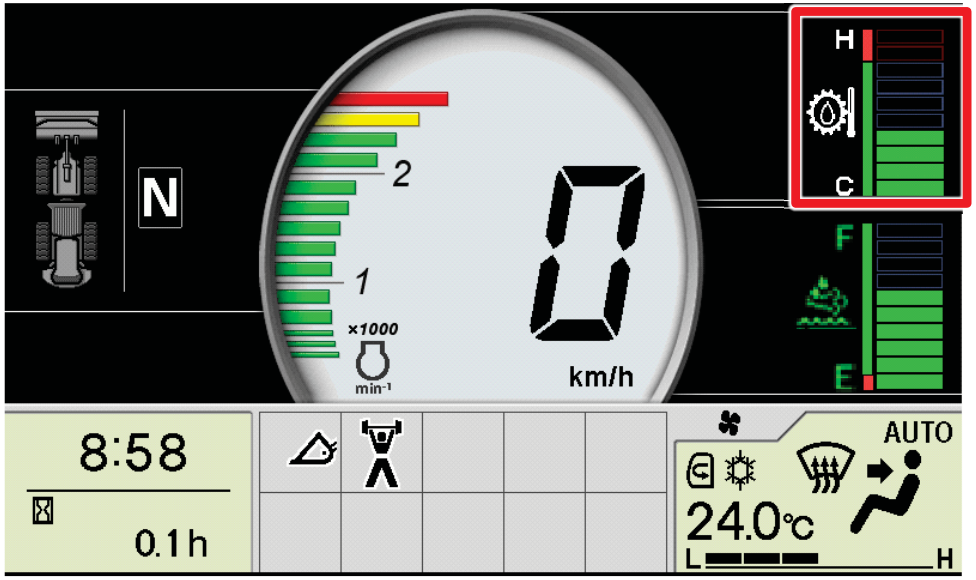
Urea level can be monitored from multifunctional display

Urea level indicator is centrally positioned in the main monitor

HITACHI
Reliable solutions

Transmission oil temperature gauge

ZW-6



ZW-7

Transmission oil temperature gauge is changed to analog gauge

For better visibility

Urea tank

ZW-6

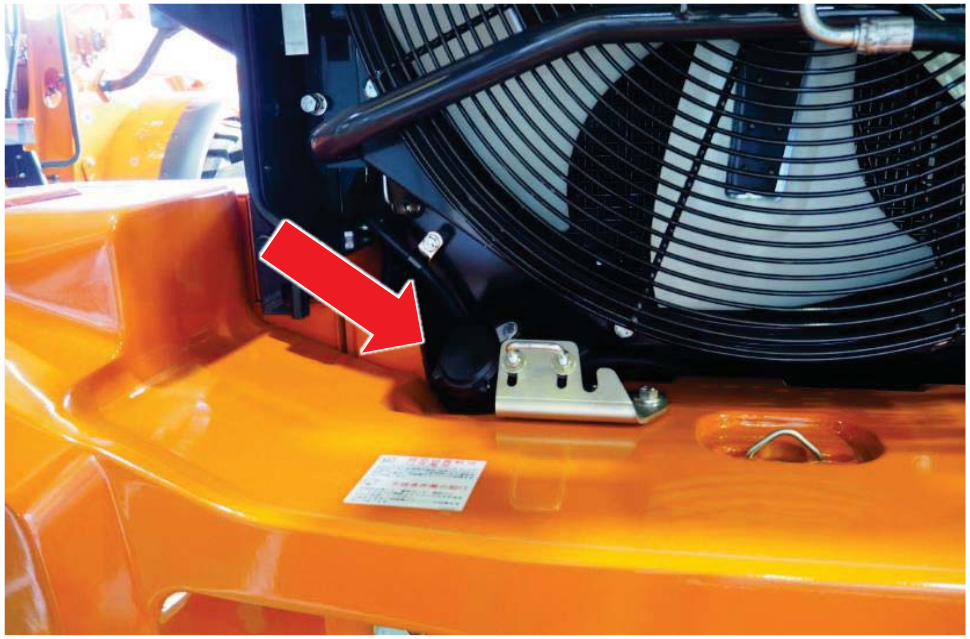
ZW-7

The urea tank is located on the left rear side of the machine,
ZW-7 has newly installed urea tank filler filter

Easy and safe access & re-filling

Fuel tank

ZW-6



ZW-7

Fuel tank refill location

The location is changed to right rear side of machine for better maintenance (and to prevent warm air from the radiator heating up the fuel tank cap, and dust accumulation)

Battery box

ZW-6

ZW-7

Battery box

Maintenance and replacement of batteries can be performed easily resulting in less downtime

Utility space

ZW-6

ZW-7

The utility space is located to the right rear side of the machine

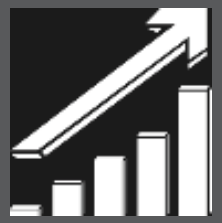
Space for several tools is available

Features

HITACHI

Reliable solutions

Fuel Consumption



Machine Performance

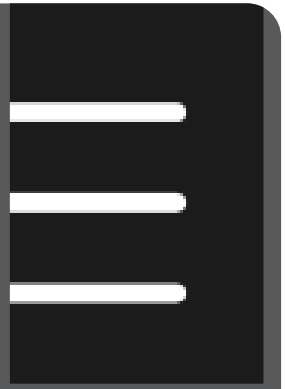
Environmental Performance

Operability and Comfort

Reliability / Durability

Maintenance

Safety



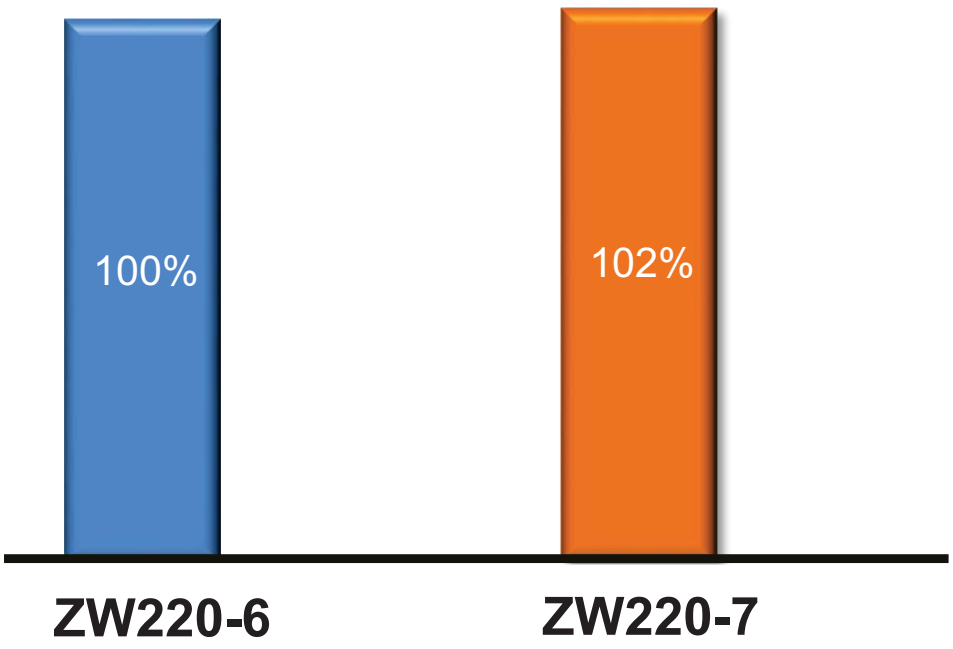
Option List

New Fuel consumption

<Real complex operation>
evaluation test of V-shaping operation, running operation and idling operation

Standard mode

Fuel consumption per hour (l/hr)

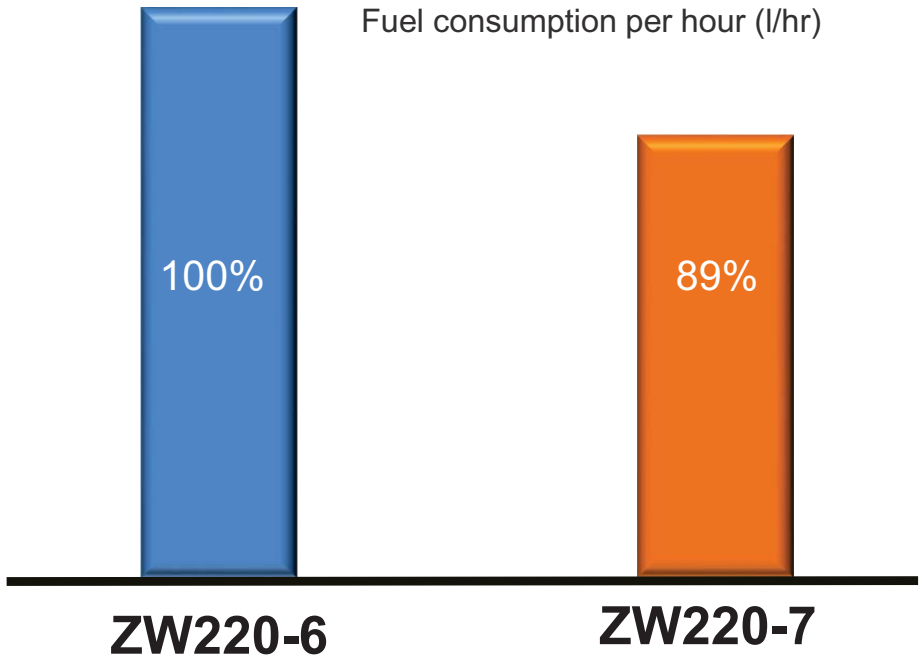


<Full acceleration operation>
evaluation test of V-shaping operation

Power mode

Power mode +
Approach speed control

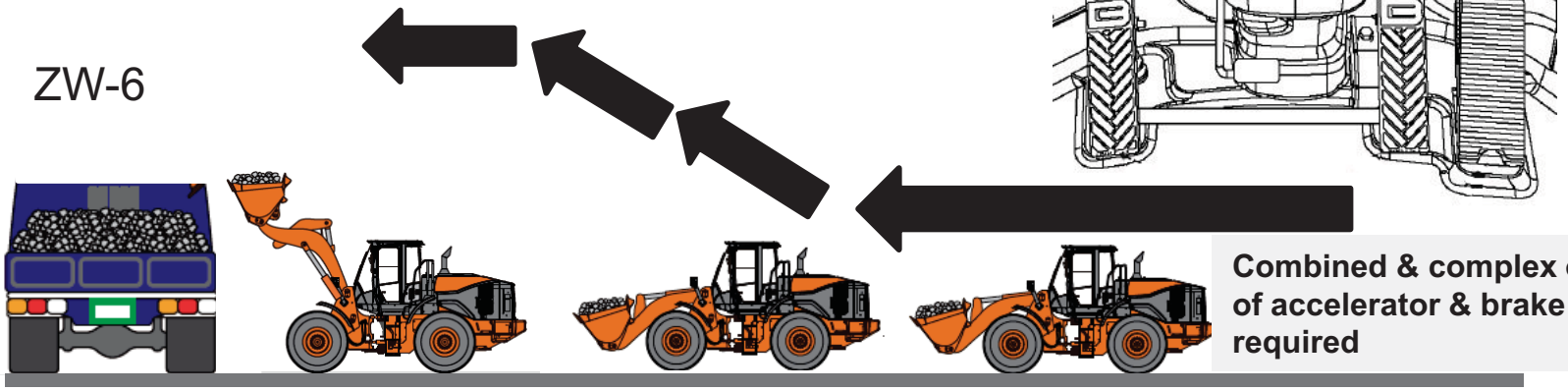
Fuel consumption per hour (l/hr)



ZW220-7 fuel consumption is improved in P mode thanks to Approach speed control function

New Approach speed control

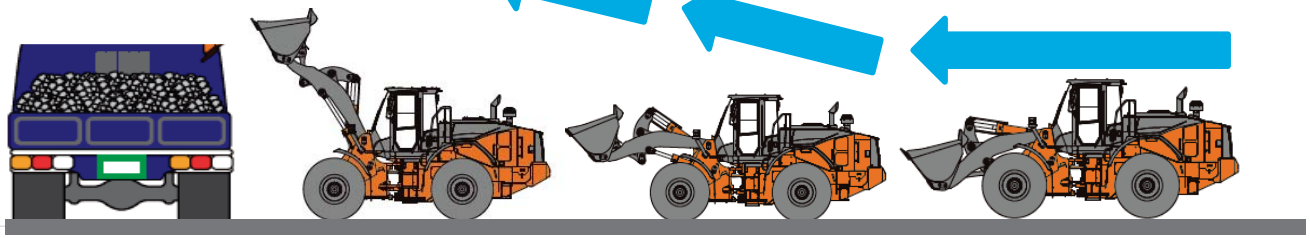
ZW-6



Combined & complex operation of accelerator & brake pedal is required

ZW-7

Ensures smooth lifting



With approach speed control there is no need for complicated use of accelerator & brake pedal

When truck loading operation is detected as per the following parameters:
a. Lift Arm lifting operation **b.** Gear shift (F) **c.** Constant travel speed
Automatically, the travel speed is reduced by lowering engine rpm's.
As a result better fuel efficiency and operability is realized even if the accelerator pedal is fully depressed.
Approach speed control is adjustable to three levels (**F**ast / **M**iddle / **S**low) depending on the distance and operator preference.

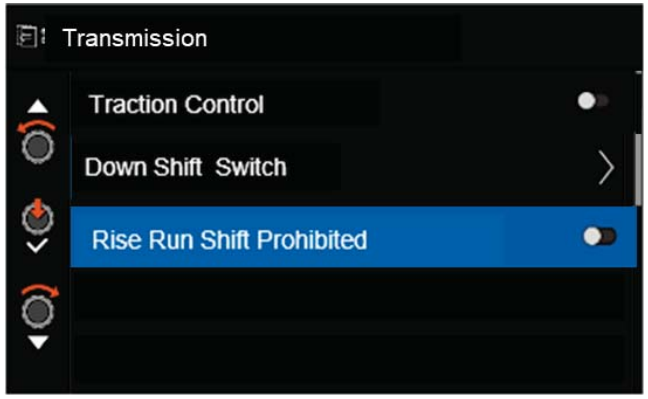
LED indicator			
□□□	■□□	■□□	■■■
OFF	Fast	Middle	Slow

Reference travel speed by full acceleration

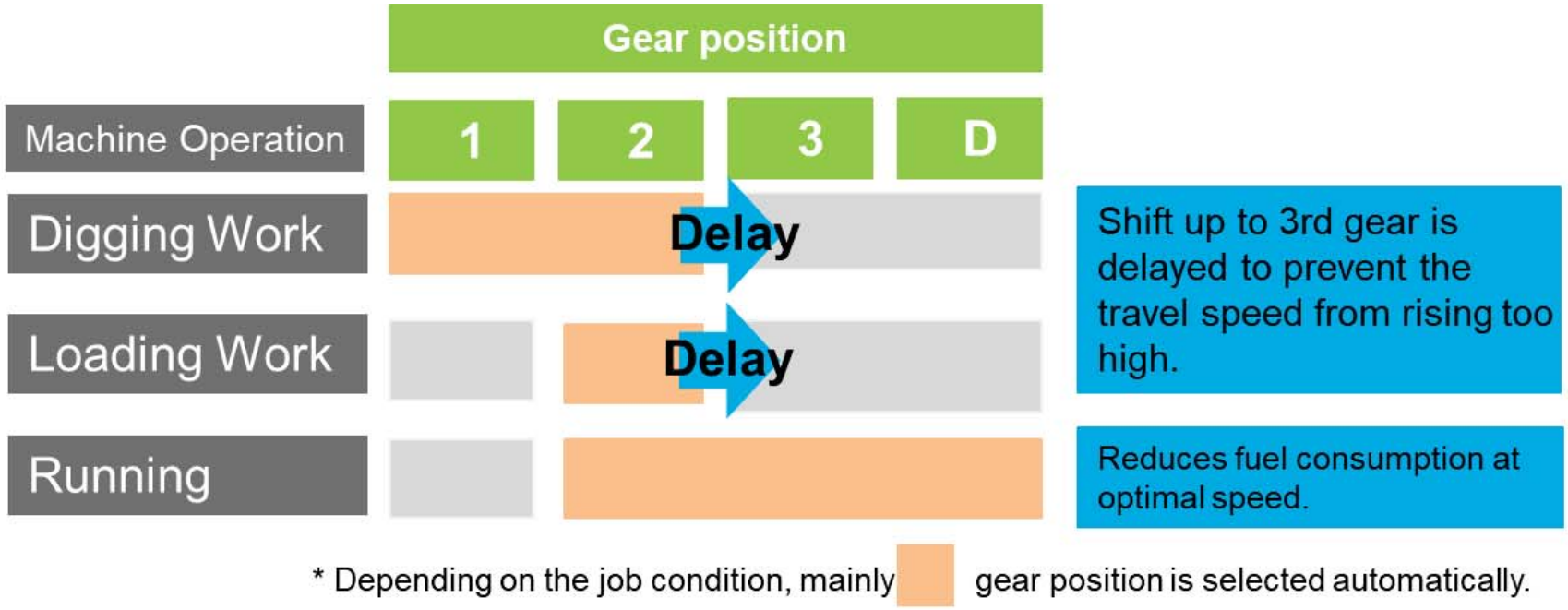
OFF: 10 km/h, Fast: 9 km/h,
Middle 8 km/h, Slow 7 km/h

STD Rise run shift prohibited

(Improved shift up delay)



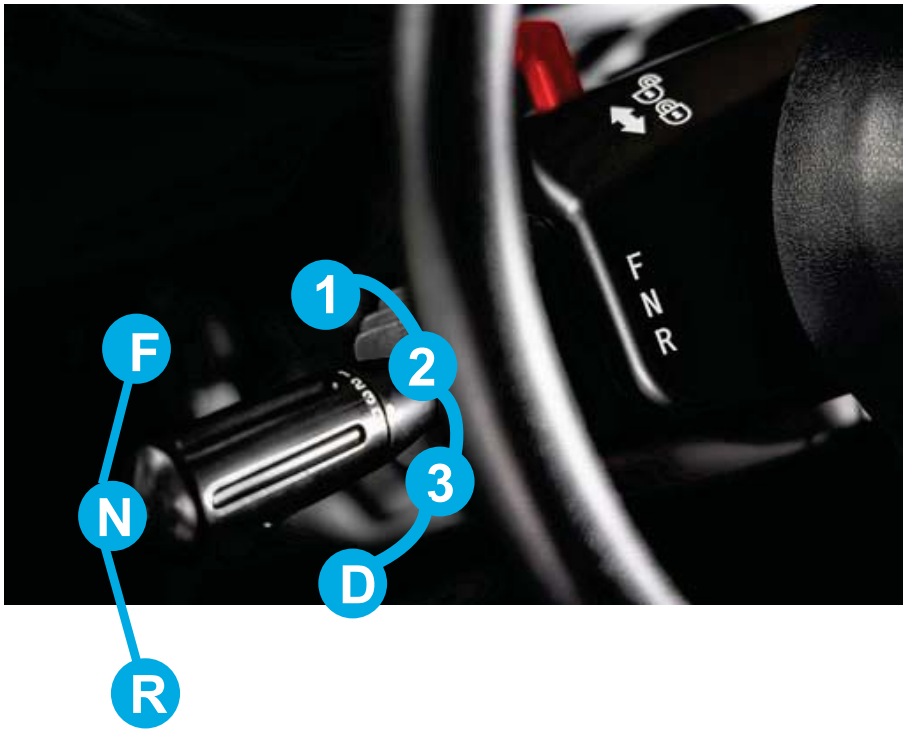
As per the following conditions:
a. Rise Run Shift Prohibited function; On
b. Lift arm; Rising operation
c. Gear shift switch position; F
d. Gear range; 3 or D
e. Travel Mode; AUTO (1 or 2)
Then 2nd gear is maintained and shifting up to 3rd gear is delayed automatically.
*If the machine detects no loading operation, gear shift is automatically changed.

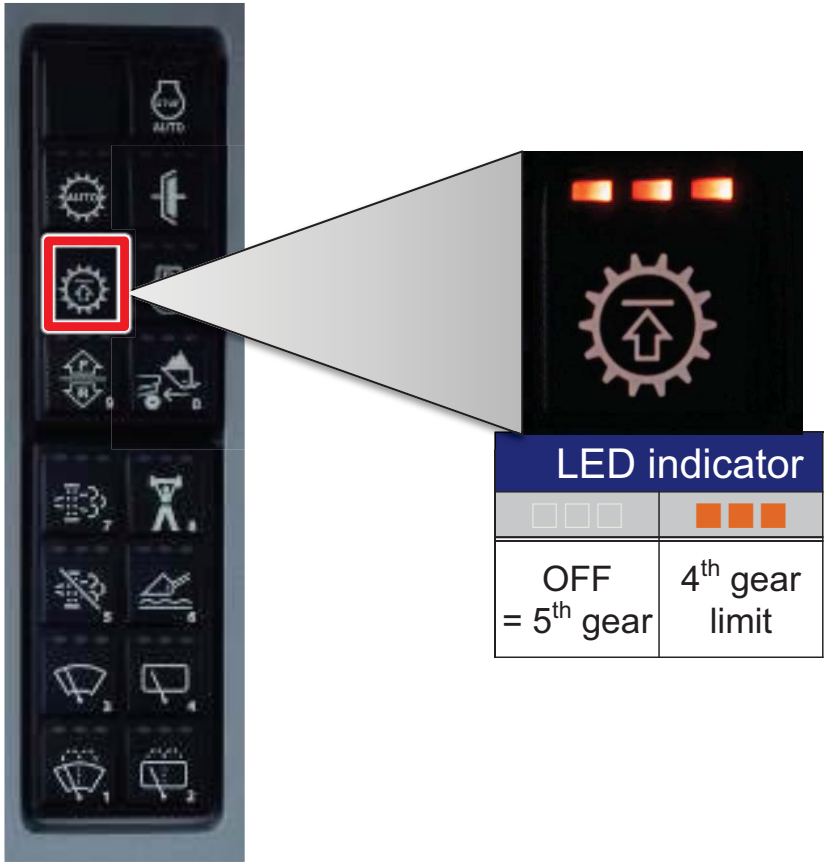


* Depending on the job condition, mainly gear position is selected automatically.

New Max. gear shift limit switch

The maximum gear is limited to 4th gear when max. gear shift switch is on and the shift lever is set to the “D” position.





LED indicator	
□□□	■■■
OFF = 5th gear	4th gear limit

* No indicator on main monitor nor sub monitor.

STD Power mode

Two modes are available and can be selected based on job site conditions.

Standard mode: Suitable for loading work and emphasizes fuel saving. While automatic shifting is selected, the gear shift up is performed at an earlier timing.

Power mode: Suitable for high productivity and fast traveling speeds. Ideal for heavy-duty operation where larger traction force is required.

LED indicator	
□□□	□■□
OFF = Standard mode	ON

* No indicator on main monitor nor sub monitor.

STD Travel mode selector switch

Manual: The gear shifts according to the shift switch.

AUTO 1: Traveling starts at 2nd speed. When traveling load increases, automatically shifts from 2nd to 1st speed. (Auto DSS function)

- Suitable for heavy digging work
- Traveling uphill with heavy load

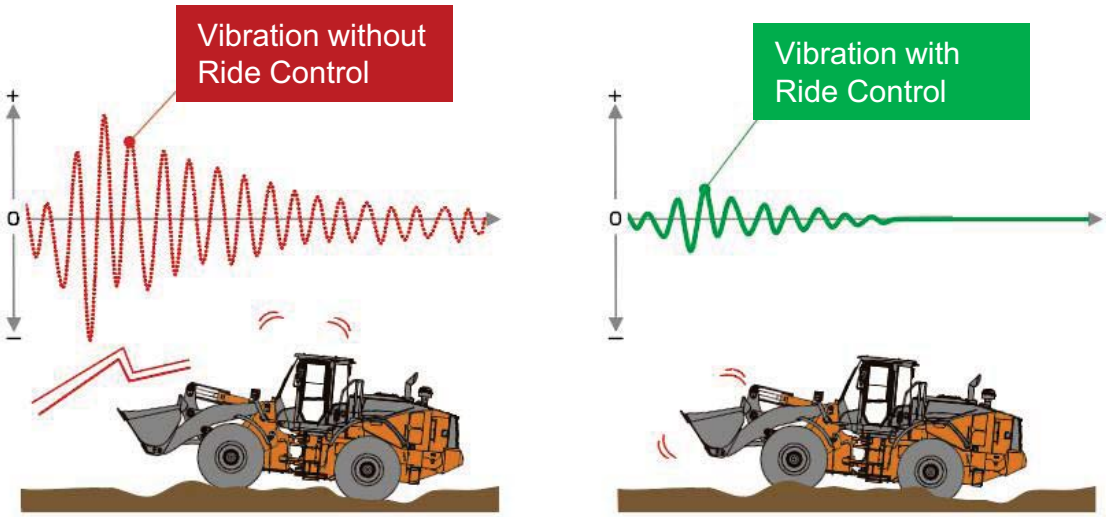
AUTO 2: Traveling starts at 2nd speed. Effective for

- Snow removal
- Applications where low fuel consumption is required
- Traveling uphill without load

LED indicator		
□□□	■■■	□■■
Manual	AUTO1 (1～5 (4))	AUTO2 (2～5 (4))

* No indicator on main monitor nor sub monitor.

Improved STD Ride control



LED indicator	
OFF	AUTO

Auto mode: Ride control is automatically turned on and off based on traveling speed setting.
Speed can be adjusted through the sub-monitor.

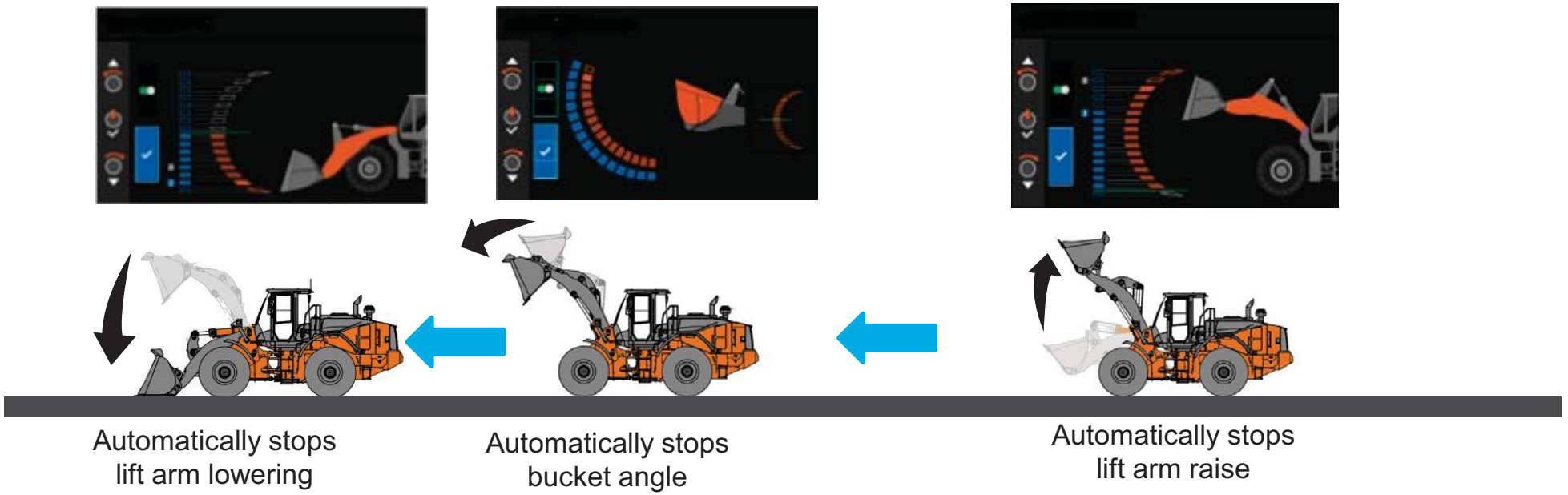
In ZW-7 the Ride control is improved.
When digging application is detected, activation and deactivation timing is changing automatically for improved performance.

Default ride control activation speed is 6 km/h and changeable from 3 km to 10 km/h.

* No indicator on main monitor nor sub monitor.

Prevents unnecessary machine pitching and vibration

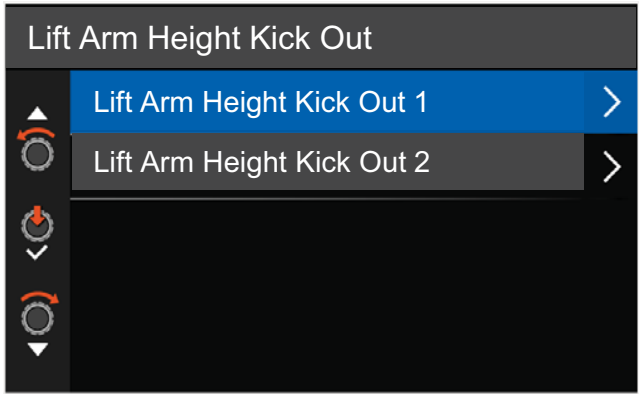
Improved STD Auto leveler

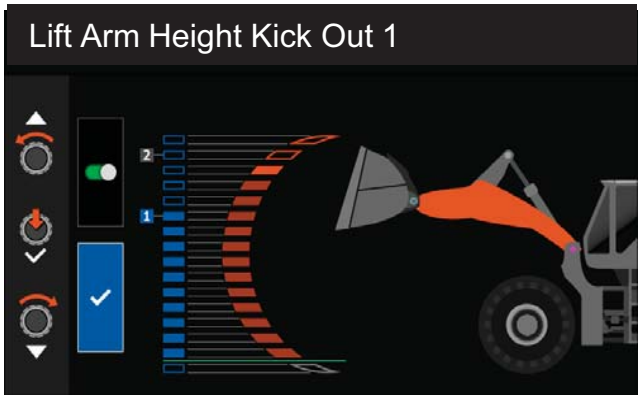


Lift arm lowering, raise stop position and bucket tilt, dump angle position can easily be adjusted from multifunction switch and sub monitor

Ease of operation

Auto leveler - Height Kick Out -





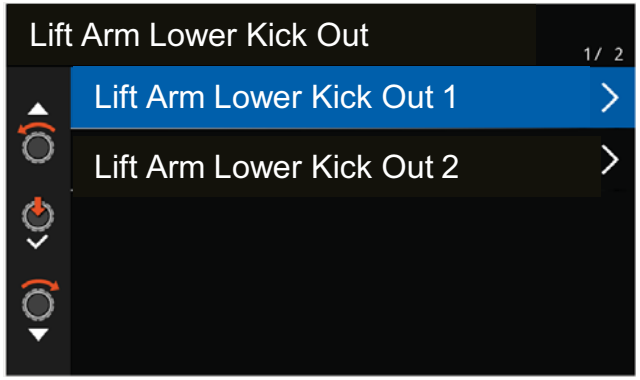
ZW220-7 has 2 height kick out position settings. Adjustment could be performed by sub monitor controller and is visualized in the sub monitor.

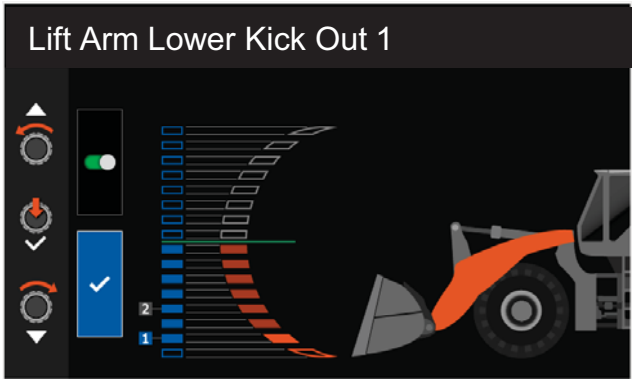
When enabled, it is displayed on the sub monitor.

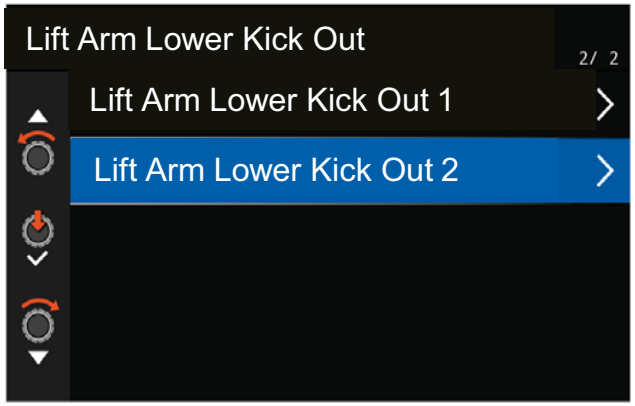
Pre-set of lift arm stop height position automatically with 2 different settings

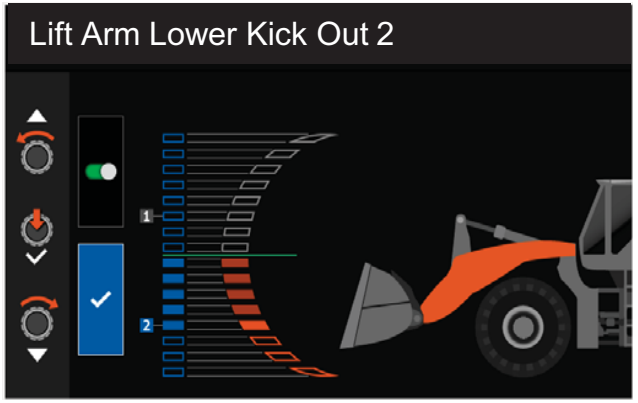
Operator could concentrate on machine driving during dump truck loading operation by automatically setting the height kick out position

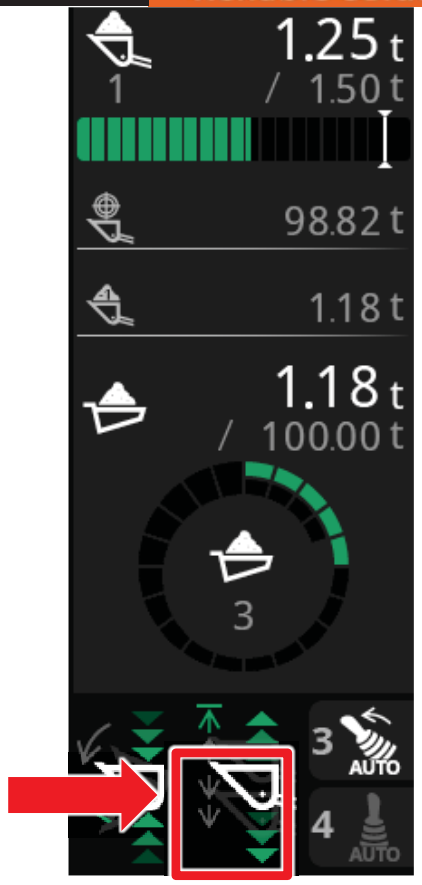
Auto leveler - Lower Kick Out -











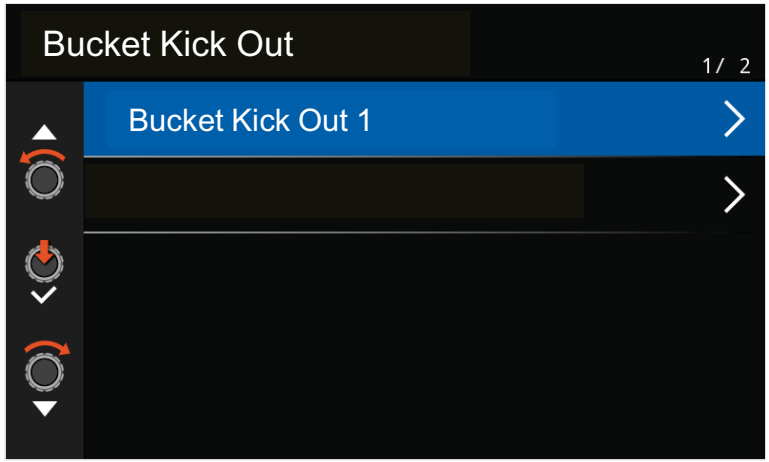
Sub monitor display during operation.

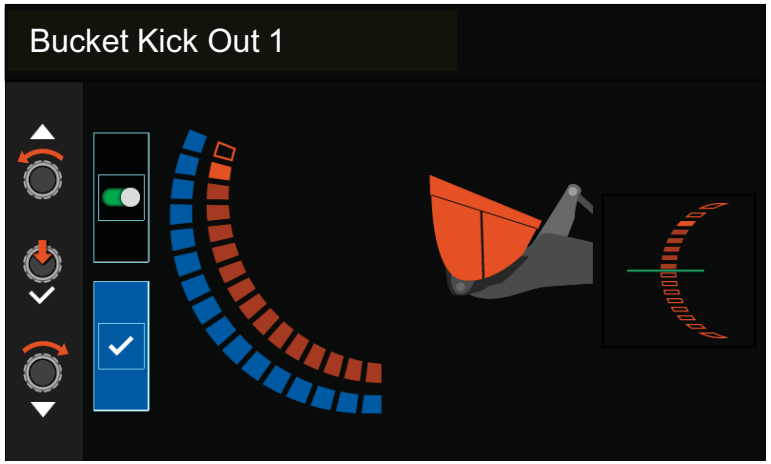
2 height position settings can be set by controller and sub monitor

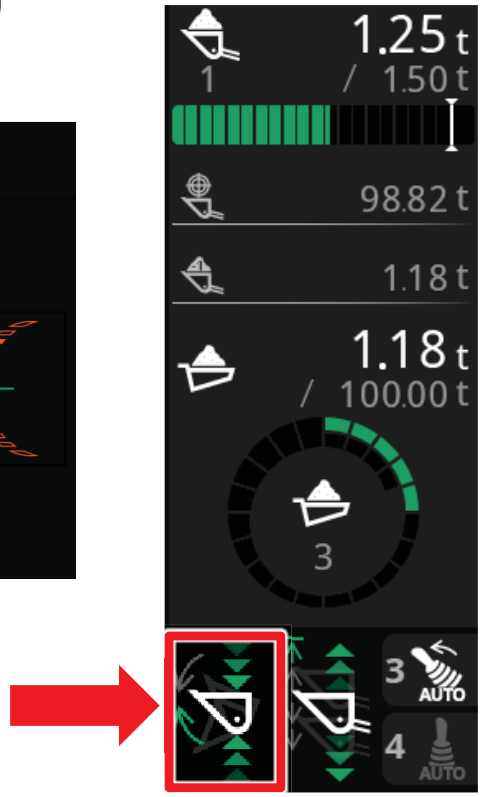
The operator can set the position where to stop automatically when the lift arm is lowered to the ground

When reversing, it is possible to concentrate on carrying without worrying about the height of the lift arm

Bucket Kick Out ON/OFF, stop angle setting



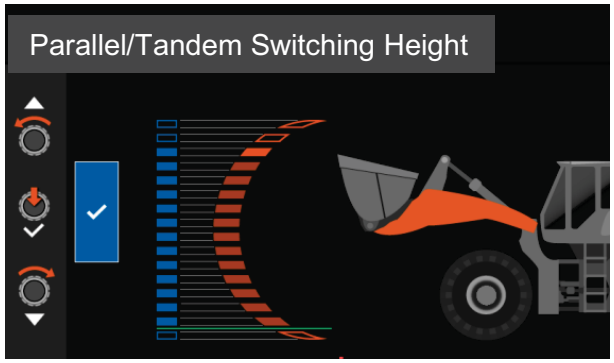




When enabled, it is displayed on the sub monitor.

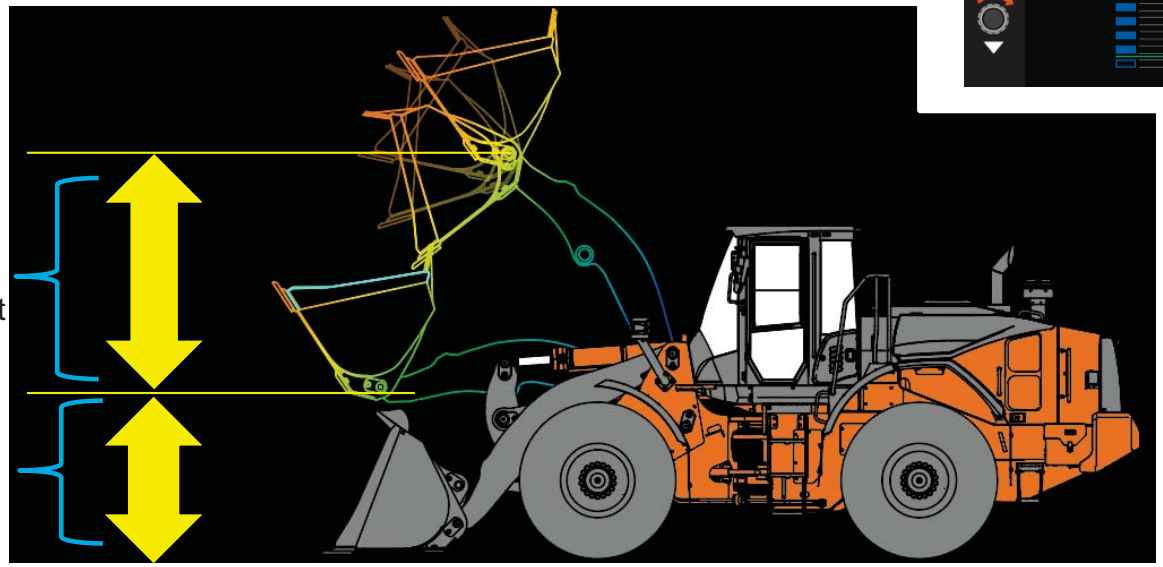
	Bucket kick out
	Tilt and dump angle can be selected by controller and sub monitor for better operability

Parallel tandem hydraulic circuit



Tandem:
Prioritize bucket cylinder movement

Parallel:
Equal priority for bucket and lift arm



Parallel movement ensures smooth digging operation.
Tandem function prioritizes the bucket movement during loading operation

Ease of operation

New STD Pitch angle sensor (Inertial Measurement Unit)

Machine performance is improved by the combination of information delivered from:

- **Pitch angle sensor (IMU)** 
- **Engine rpm (Travel Speed)**
- **F / N / R shift position**

Benefits

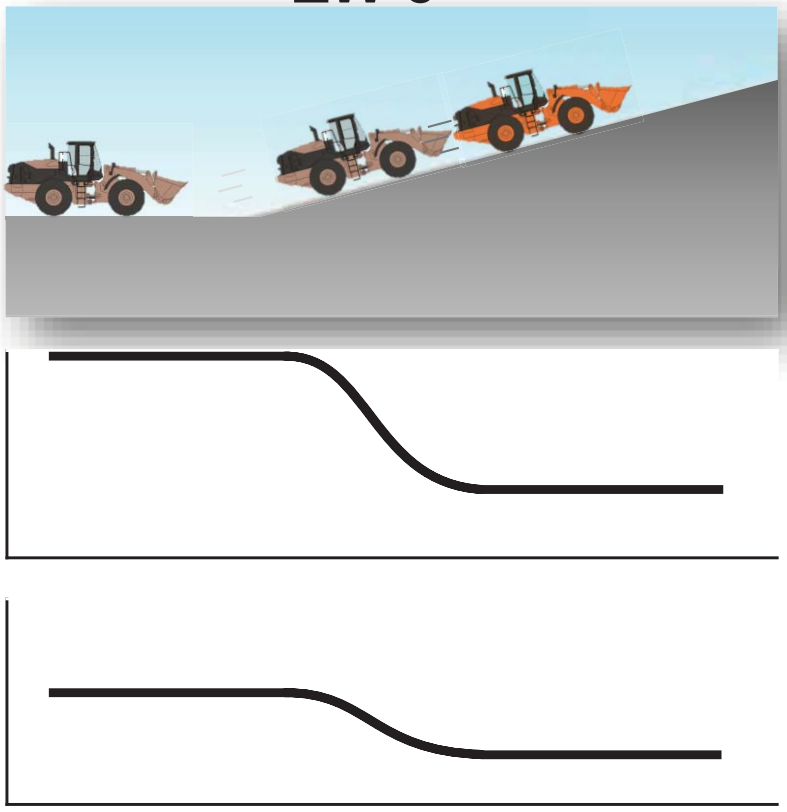
- Better acceleration when machine starts moving on a hill
- Supports ‘Auto Power up’ function by identifying the road conditions (uphill) earlier
- Prevents false alarm of “Rear obstacle detection and warning system” when stock piling on slope
- Prevents unnecessary shift change (shift hunting) Monitor’s front tipping

Improved machine performance

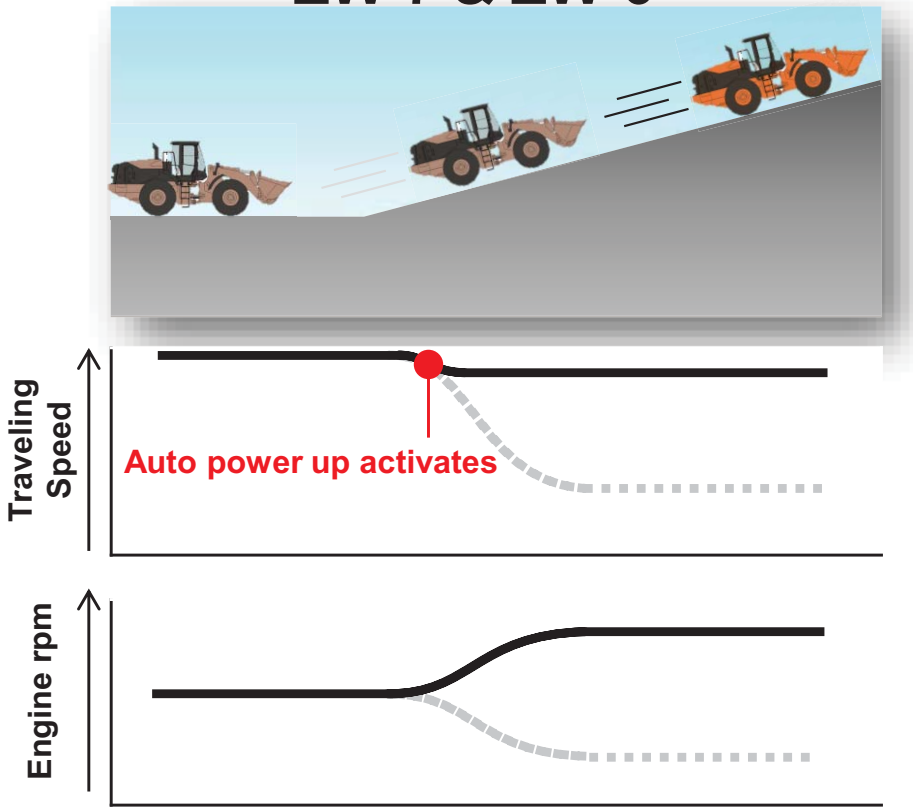
Improved STD

Auto power up function (in STD mode)

ZW-5



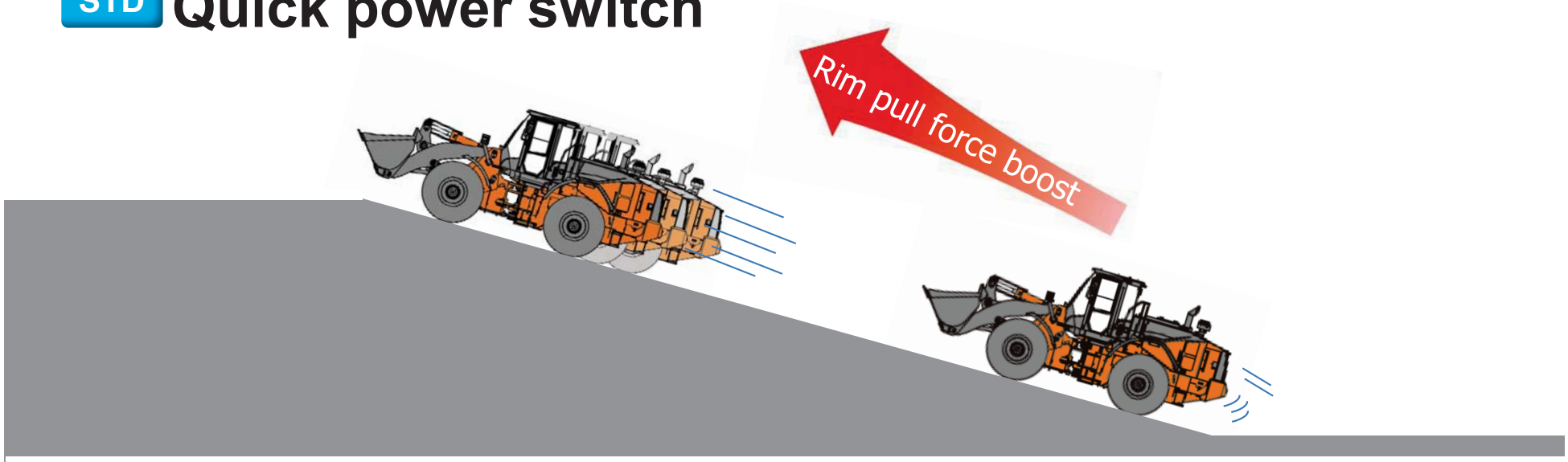
ZW-7 & ZW-6



The software increases the engine rpm automatically when the traveling speed is getting slow on an uphill grade

Improved traveling performance. Shorter uphill time resulting in better fuel economy. The IMU sensor improves ZW-7 performance with smoother auto power up activation when climbing a slope

STD Quick power switch



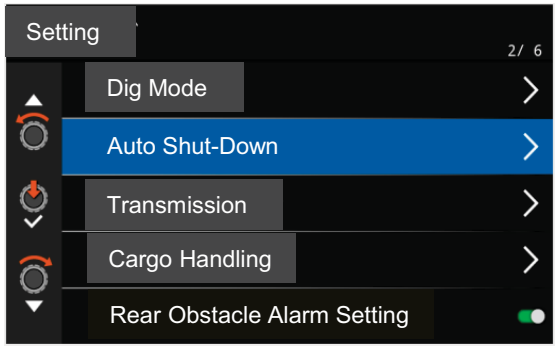
Effective

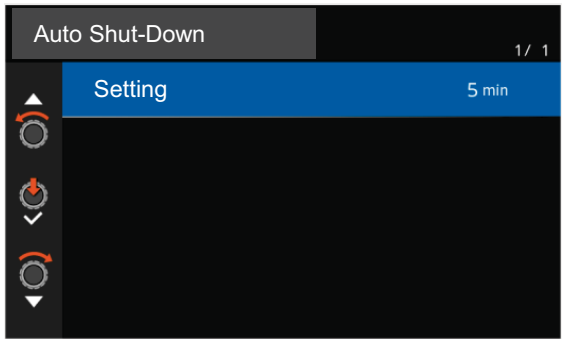
- When operator needs more traction force during digging (equivalent to P mode)
- When operator needs to accelerate faster or increase the travel speed (equivalent to P mode) on uphill driving

When Quick P is activated, the Power mode panel switch is activated.

	Operator can get temporary higher rim pull force
	Effective operation when instant power is needed. Fuel saving against Power mode when always activate

STD Auto shut-down





By MP.Dr. Setting, auto shut-down can be disabled.

Note: When the engine stops, the ignition will still be switched to ON. To re-start the engine, first switch the ignition to OFF, and then re-start.

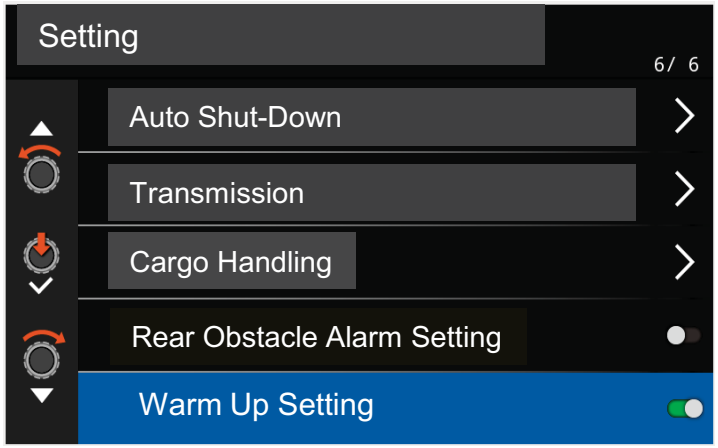
LED indicator	
OFF	ON

Engine will automatically shut down after a pre-defined period which can be adjusted by the operator

This is an effective way to save fuel, and reduce noise, exhaust emissions, and CO_2

Improved

Warm up setting



To ensure long components lifetime in cold weather conditions it's critical to increase the coolant and hydraulic oil temperature to the appropriate operating temperature. Engine speed automatically increases from low idle to 1100 min^{-1} (rpm) and enters in auto warm-up mode.

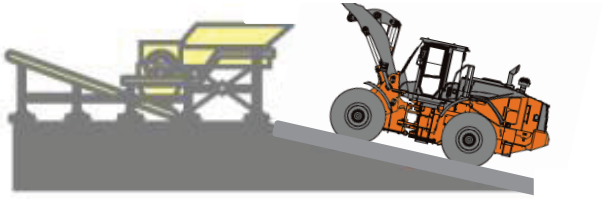
When any of the following conditions occurs, with the parking brake engaged:

1. Hydraulic oil temperature is 0 degrees or less
2. Inside temperature of cab is 5 degrees or less
3. Outside temperature is 0 degrees or less and hydraulic oil temperature is 20 degrees or less
4. Cooling water temperature is 30 degrees or less

Note: In extreme cold temperatures, below -20°C, a different setting can be selected by MP.Dr.

STD Clutch cut off

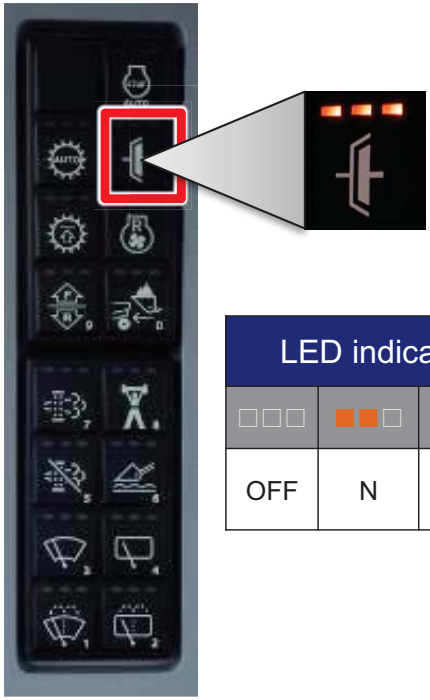
D mode: To disconnect the clutch at deep brake pedal stroke (suitable during work on a slope)



N mode: When approaching dump truck

ZW-7 & ZW-6 (Smooth)

ZW-5 (Choppy)



LED indicator		
□□□	■■□	■■■
OFF	N	D

- No indicator on main monitor nor sub monitor.

Clutch cut off can be adjusted via 2 modes through a switch which is located on the switch panel

Smooth operation

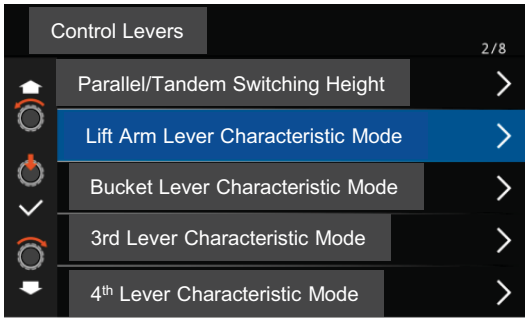
New STD Control Levers

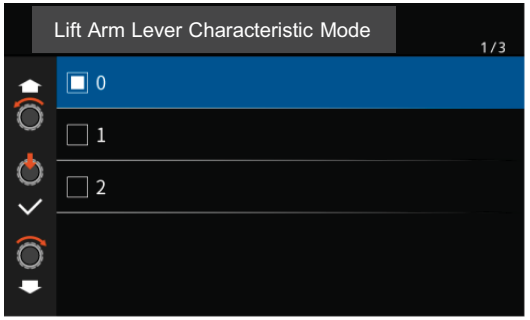
- Adjustable control of machine operation-

The maximum speed of lift arm, bucket and attachment can be adjusted based on job condition or operator's preference for better material handling.
3 Modes are available (0 (OFF), 1, 2)

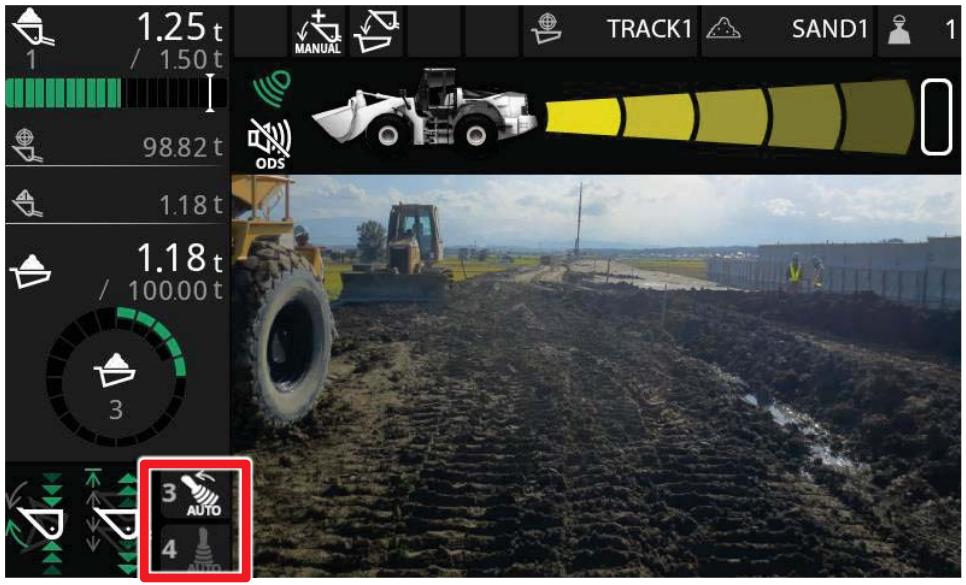
Characteristic Mode		0	1	2
Lift arm control lever	Raise	OFF	OFF	Slow operation (Till middle range)
	Lower	OFF	Slow operation (All range)	Slow operation (All range)
Bucket control lever	Tilt	OFF	OFF	Slow operation (Till middle range)
	Dump	OFF	Slow operation (All range)	Slow operation (All range)
3rd Lever		OFF	Slow operation (All range)	Slower operation (All range)
4th Lever		OFF	Slow operation (All range)	Slower operation (All range)

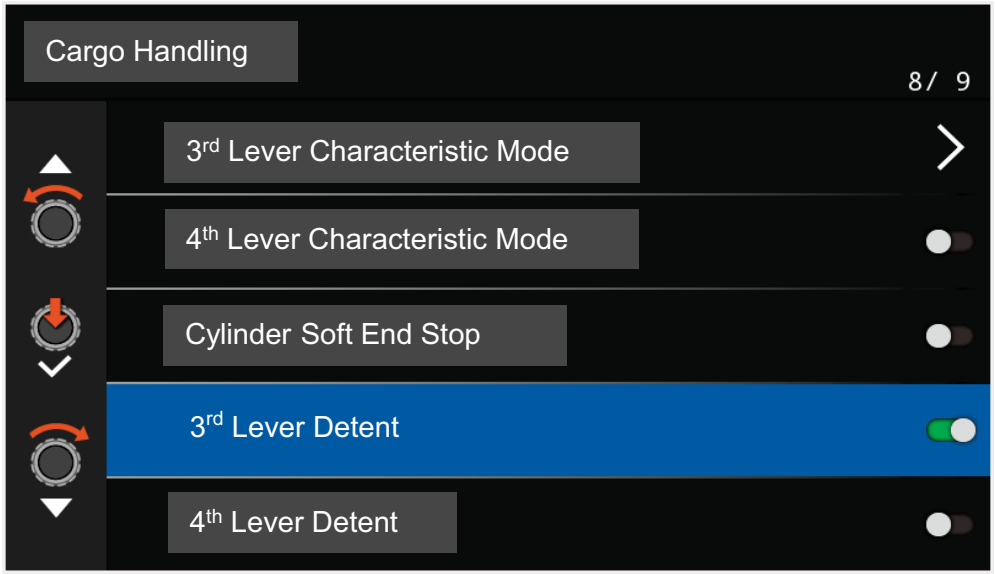
OFF : Default speed, Normal Operation speed
Slow Operation : Slow movement of each cargo handling against OFF
Slower Operation : Slower than previous setting





New STD Cargo Handling
- Detent setting for 3rd & 4th Lever -



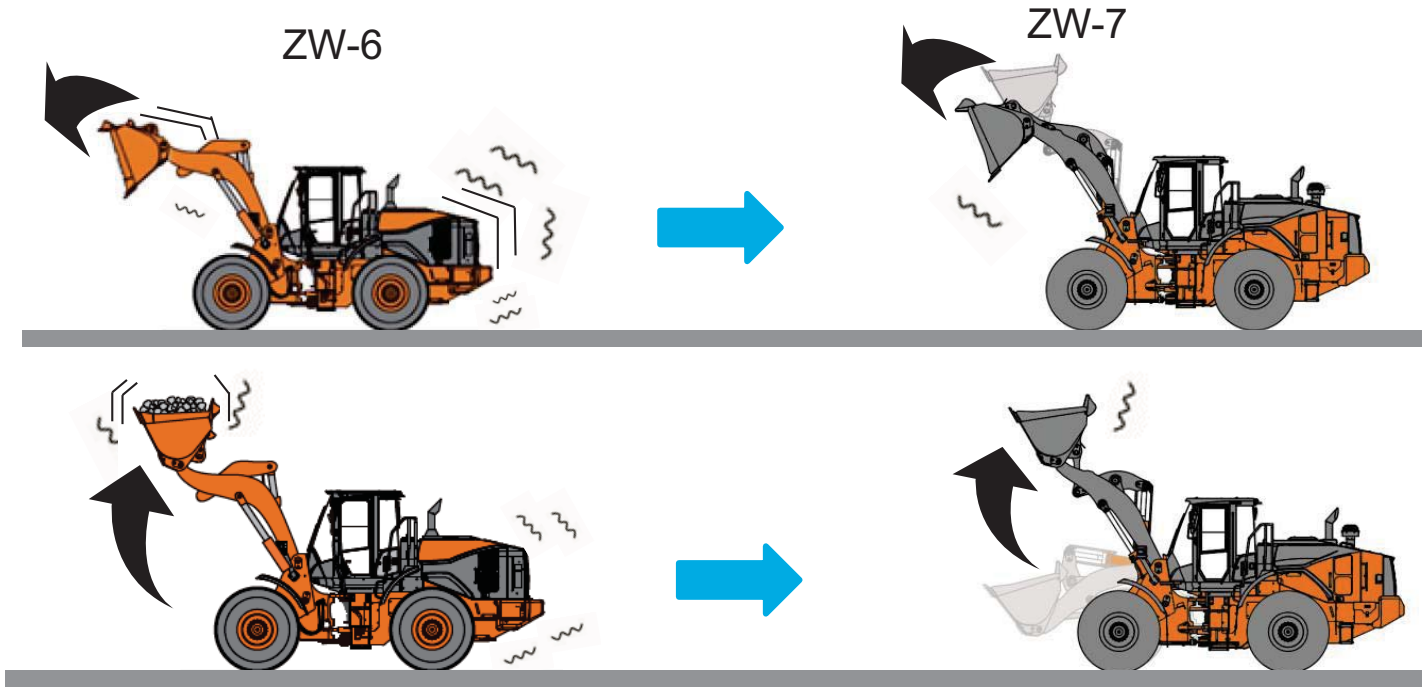


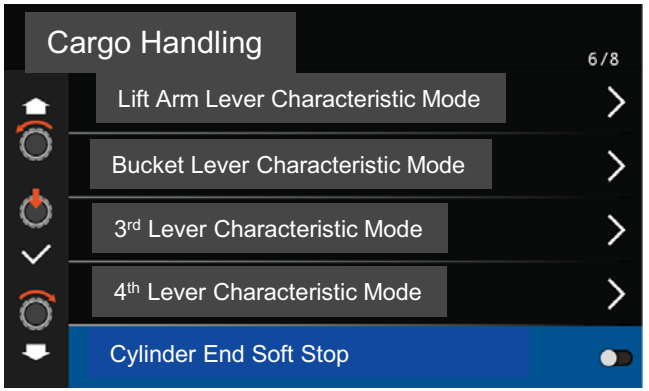
When the detent is enabled, the indicator is displayed on the sub monitor.

The detent for 3rd & 4th Lever is enabled, when the lever is held in the maximum lever position multifunction momentarily, the detent is enabled, even when the lever automatically returns to neutral. To de-activate the detent the operator has to touch the lever once again

For easier operation and improved safety

New STD Cargo Handling
- Cylinder End Soft Stop -





The operation of arm raise, bucket dump and tilt will stop smoothly near cylinder stroke end (even with full lever operation) to prevent shocks

Less machine pitching and vibrations result in higher comfort and less fatigue for the operator

Tires

L3, Michelin XHA2 (23.5R25)

Best suitable for: Building sites, infrastructural maintenance and handling of aggregates.

Tread life:	★★★☆☆
Stress resistance:	★★☆☆☆
Traction:	★★★☆☆
Fuel economy:	★★★★★

L5, Michelin XLDD2 (23.5R25)

Best suitable for: Mining and Quarry work.

Tread life:	★★★★★
Stress resistance:	★★★★☆
Traction:	★★☆☆☆
Fuel economy:	★☆☆☆☆

Several tyre patterns are available to satisfy every operators' needs

Tires

L5, Michelin XMINE D2 Pro (23.5R25)

Best suitable for: Demolition, waste management and heavy industrial applications.

Tread life:	★★★★★
Stress resistance:	★★★★★
Traction:	★☆☆☆☆
Fuel economy:	★☆☆☆☆

L2, Michelin XSNOPLUS

Best suitable for: Loose or slippery surfaces (sand, mud, snow, ice), all season usage.

Tread life:	★★☆☆☆
Stress resistance:	★☆☆☆☆
Traction:	★★★★★
Fuel economy:	★★★★☆

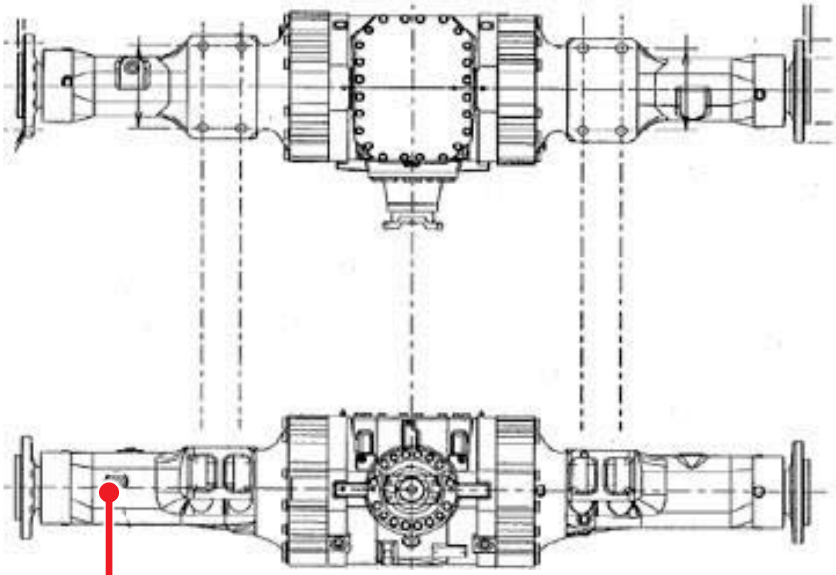
Tires

Bridgestone L3 (VJT)

Description: Suitable for general construction sites, infrastructural maintenance and handling of aggregates.

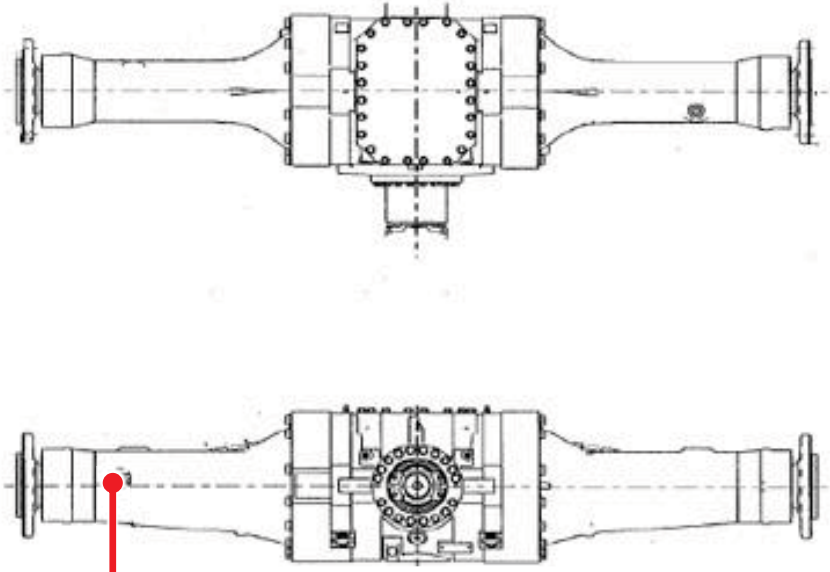
Axle Identification

Front Axle



Axle identification plate

Rear Axle

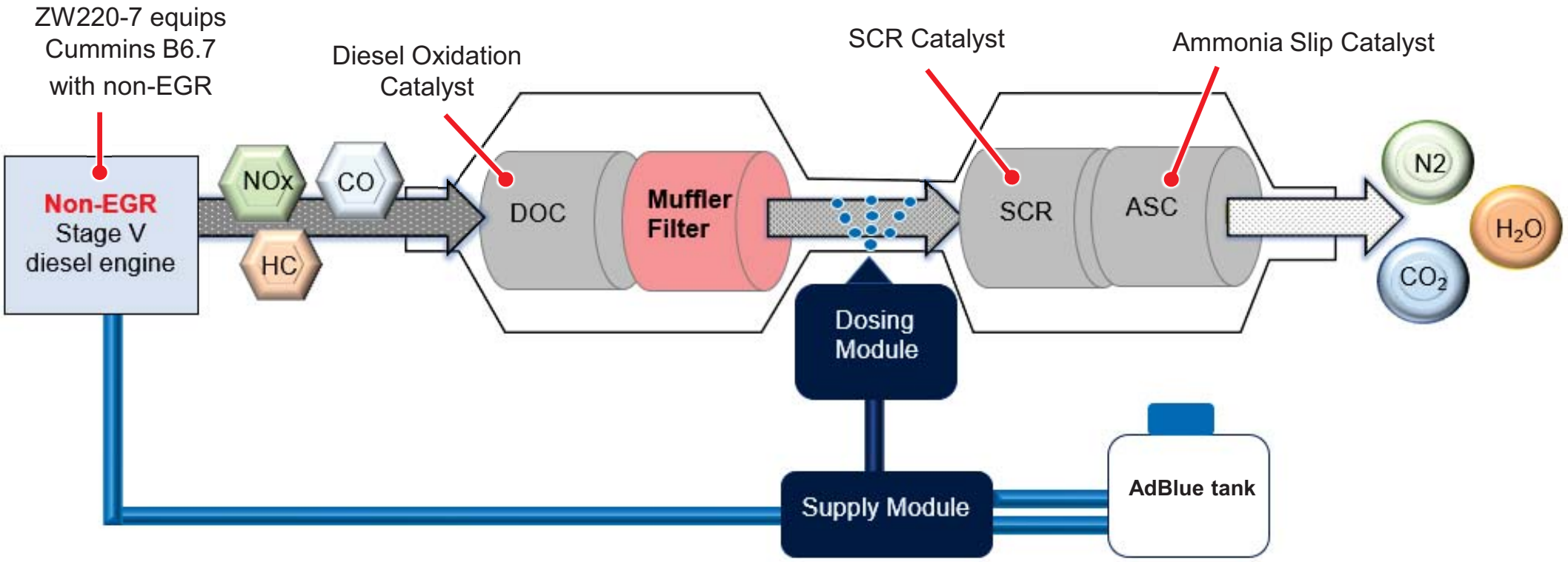


Axle identification plate

Axle Type	Front Axle	Rear Axle
TPD	AFRT150AW	ARLT150AW
LSD	AFRL150AW	ARLL150AW
	AFRL150BW	ARLL150BW

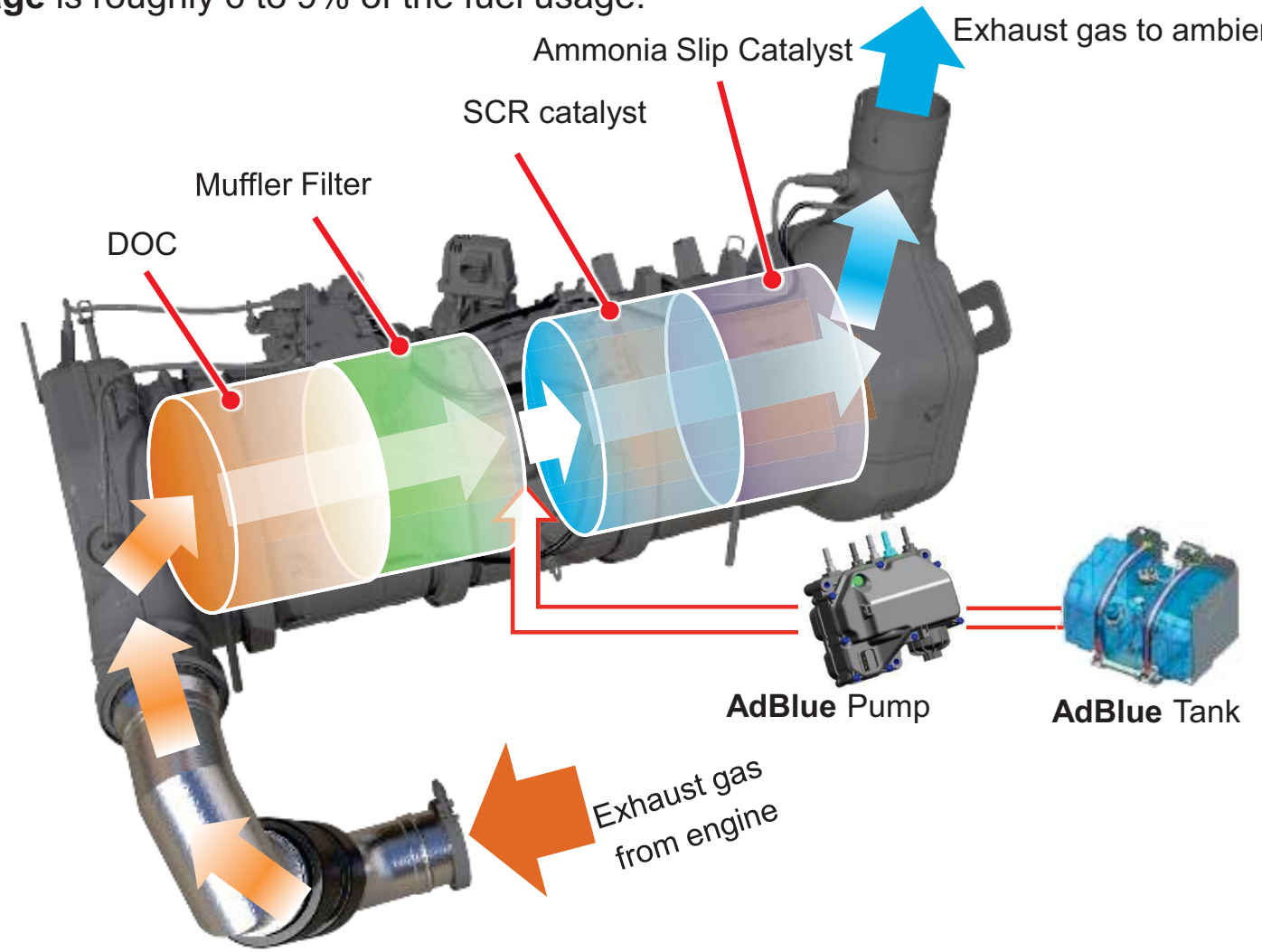
New SCR +DPF system

To meet the Stage V emissions regulation, Muffler Filter is also installed to reduce the PM and Selective Catalytic Reduction (SCR) system reduces NOx from exhaust gas by injecting **AdBlue**.



SCR +DPF system

Stage V engine emissions are met by using a combination of SCR (Selective Catalytic Reduction) and DOC (Diesel Oxidation Catalyst) and Muffler Filter with single module muffler.
The amount of **AdBlue usage** is roughly 6 to 9% of the fuel usage.



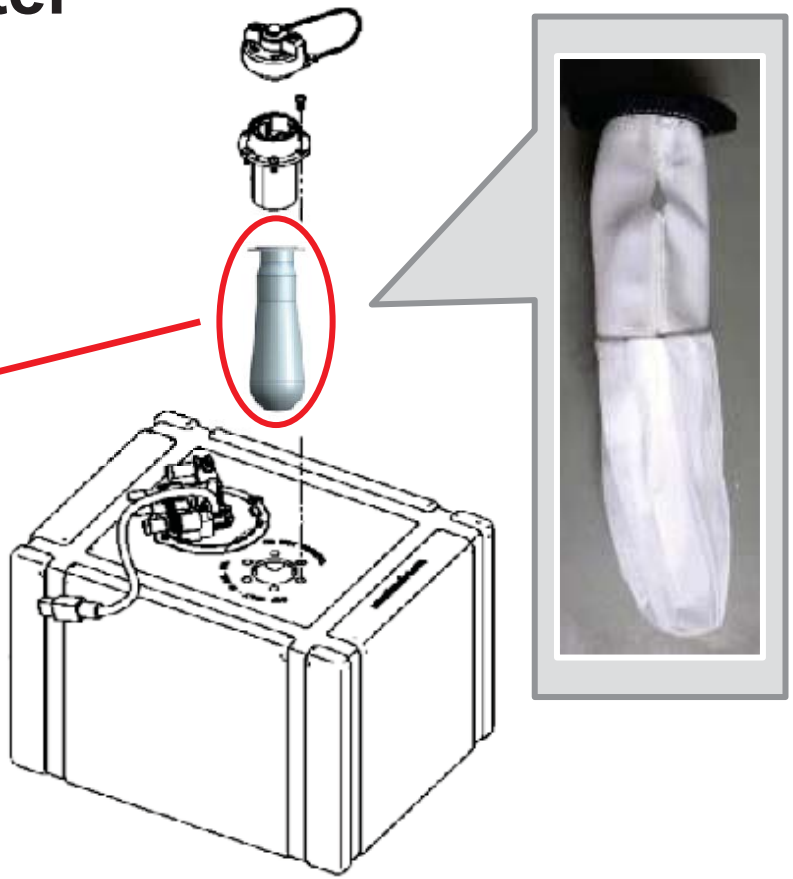
What is AdBlue?

The SCR system uses **AdBlue** (urea concentration of 32.5%)
It freezes at temperatures below -11°C and its degradation accelerates above 40°C.
Its storage requires care.

Storage temperature	Storable period
0°C	∞
10°C	75 years
20°C	11 years
30°C	23 months
40°C	4 months
50°C	1 month
60°C	1 week

Colorless, transparent, non-toxic.
(Not classified as a hazardous material or a poisonous substance.)
No loss in engine output

New AdBlue tank bag filter



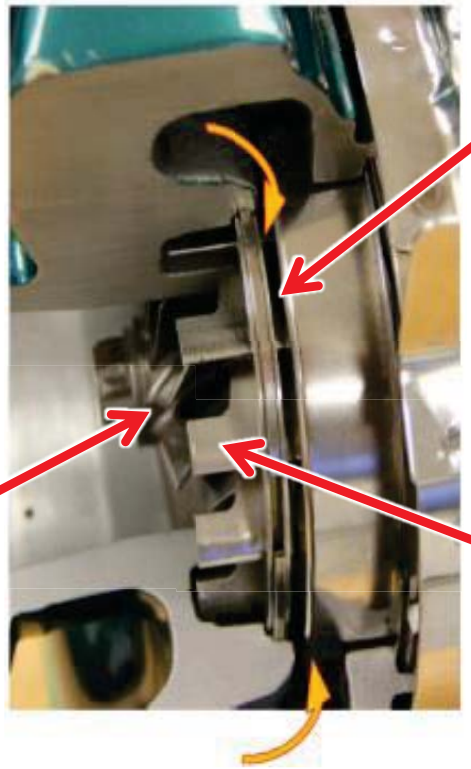
Mesh size: 23 microns
The exchange interval: 4,500 hrs or when it is clogged during refilling.

Newly installed AdBlue tank bag filter

It prevents contamination entering AdBlue tank when refilling urea water

Variable geometry turbocharger

At low engine RPM



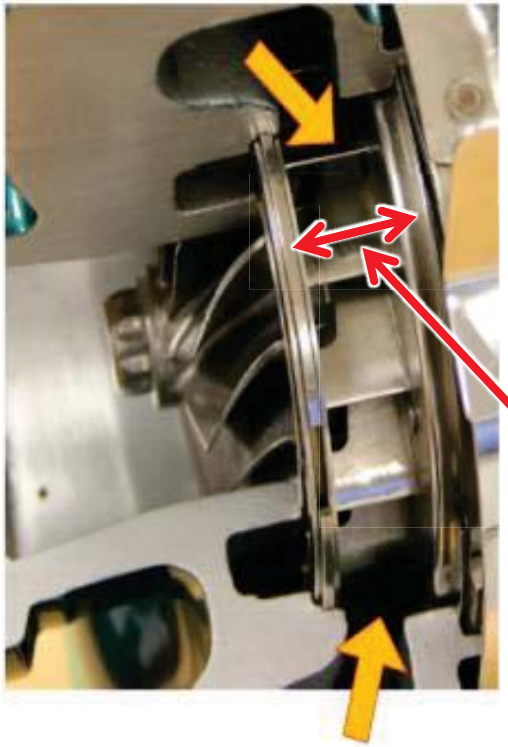
The gap is narrow > increased turbo speed > increased boost pressure

Turbine wheel

Nozzle ring

Nozzle ring

At high engine RPM

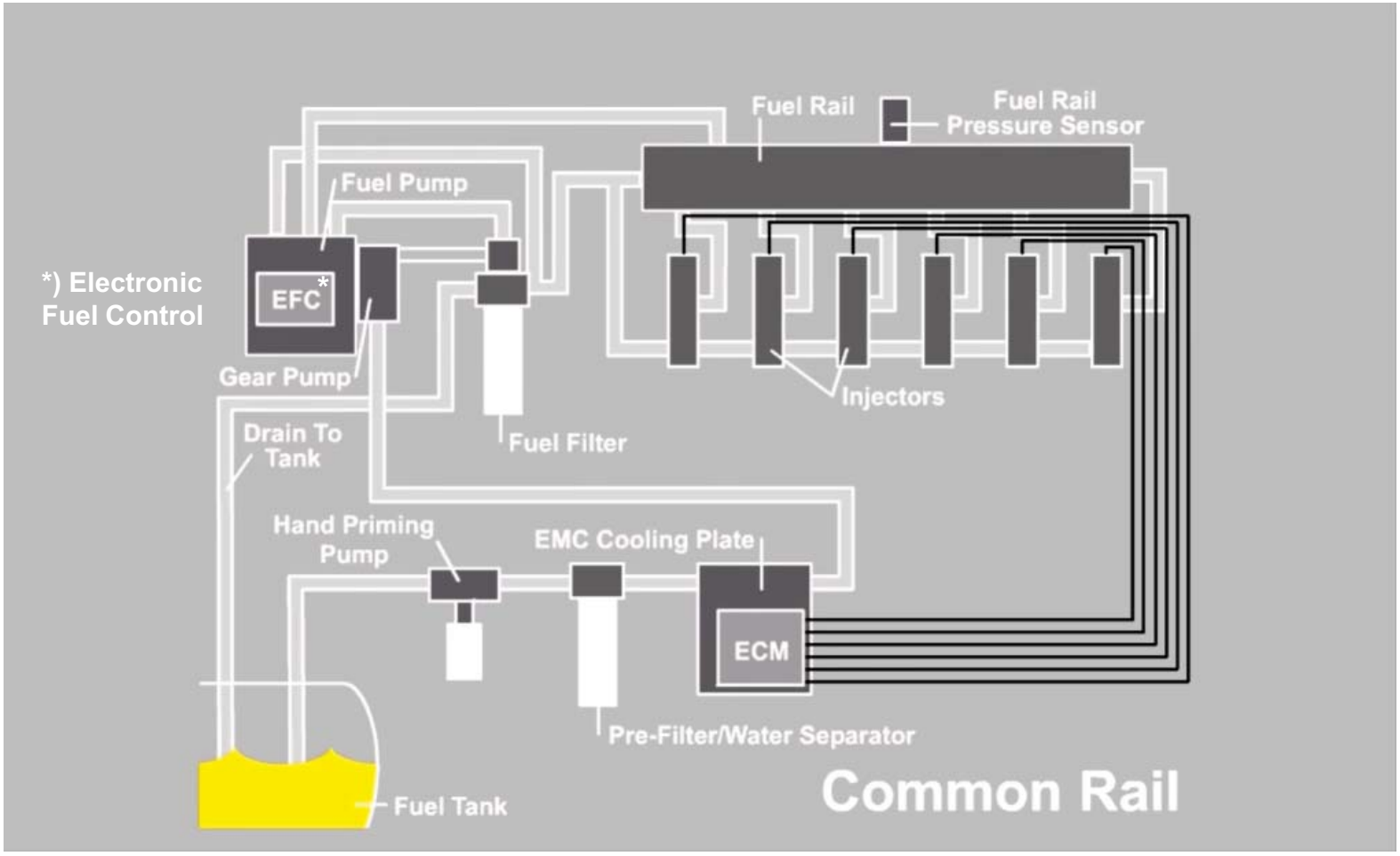


The gap is wide > decreased turbo speed > decreased boost pressure

Nozzle ring

The variable geometry turbocharger delivers an optimum air quantity under all of the engine's operating ranges

Common rail-type fuel injection system (Cummins)

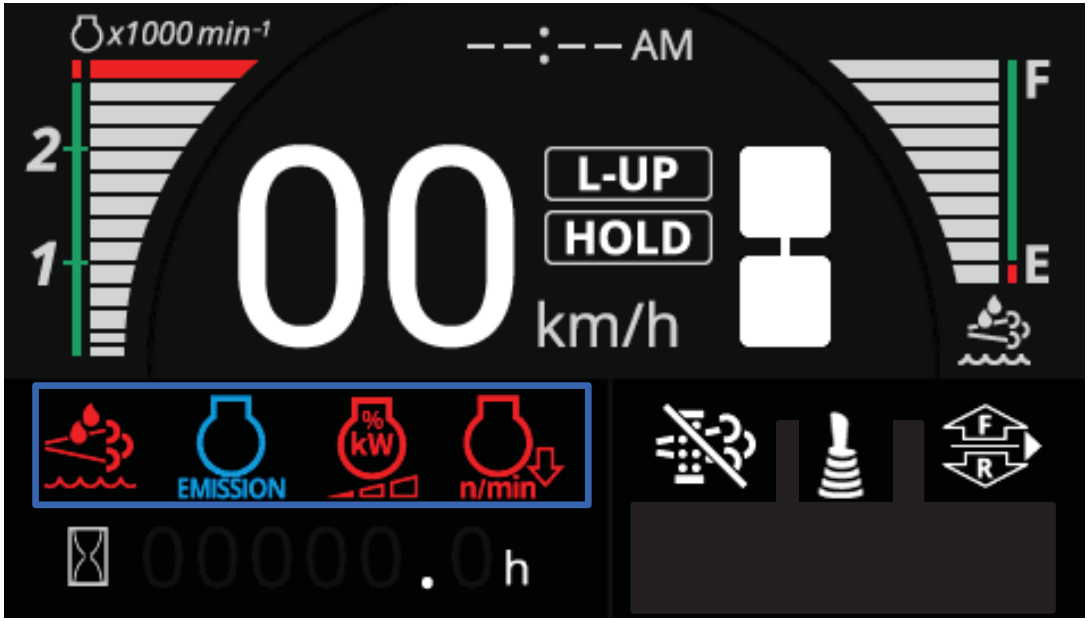


Common-rail fuel injection delivers a precise quantity of pressurized fuel to achieve efficient combustion and reduce fuel consumption and particulate matter

DH-2 Grade Hitachi Genuine Engine Oil

Hitachi DH-2 engine oil is a high-performance engine oil developed for use in engines with after-treatment devices

HITACHI
Reliable solutions



DEF/AdBlue® level is low. (without inducement condition)

DEF/AdBlue® level is insufficient or empty. (with inducement condition)

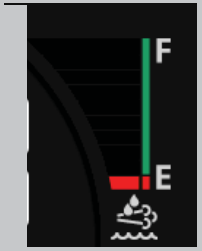
Inducement Alarm

Escape Mode Alarm

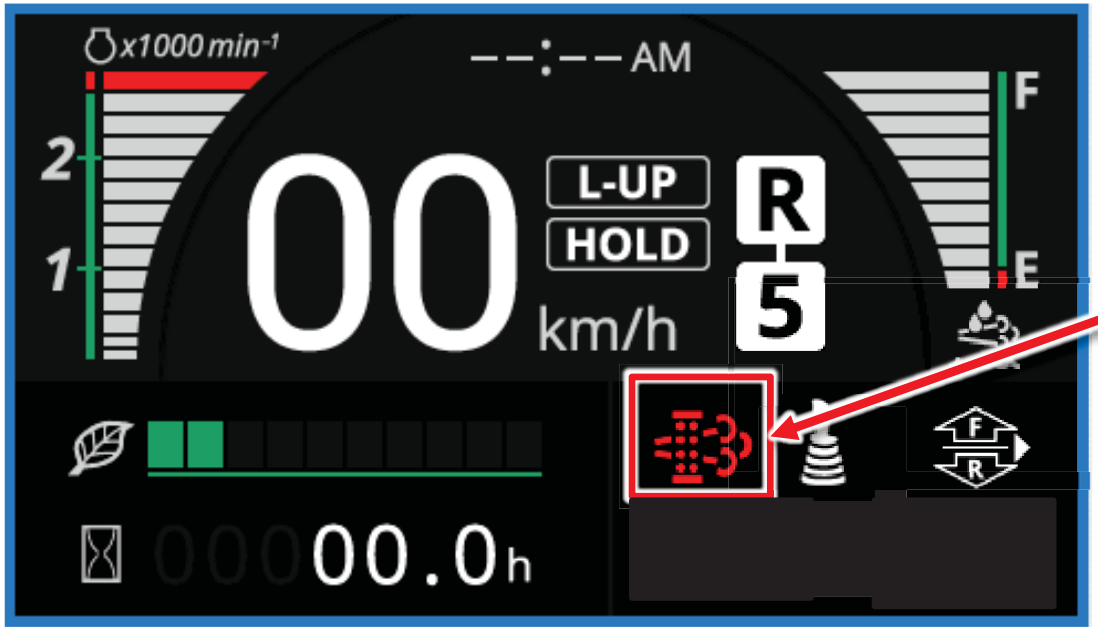
Engine Output Restriction

Engine Speed limited

Urea SCR System Abnormal Alarm

DEF/AdBlue Level Gauge	Warning lamp	Indicator	Details
			DEF/AdBlue® level is low. Refill DEF/AdBlue
	 Slow blink		DEF/AdBlue® is insufficient. Refill DEF/AdBlue®. Engine power is restricted.
	 Fast blink		DEF/AdBlue® tank is empty. Refill DEF/AdBlue®. Engine power and speed are restricted.
	 Fast blink		
	 Fast blink		

Regeneration of the SCR / DPF system



After-treatment device (DPF) is abnormally clogged. Regeneration may be necessary soon.

After-treatment device manual regeneration is requested.

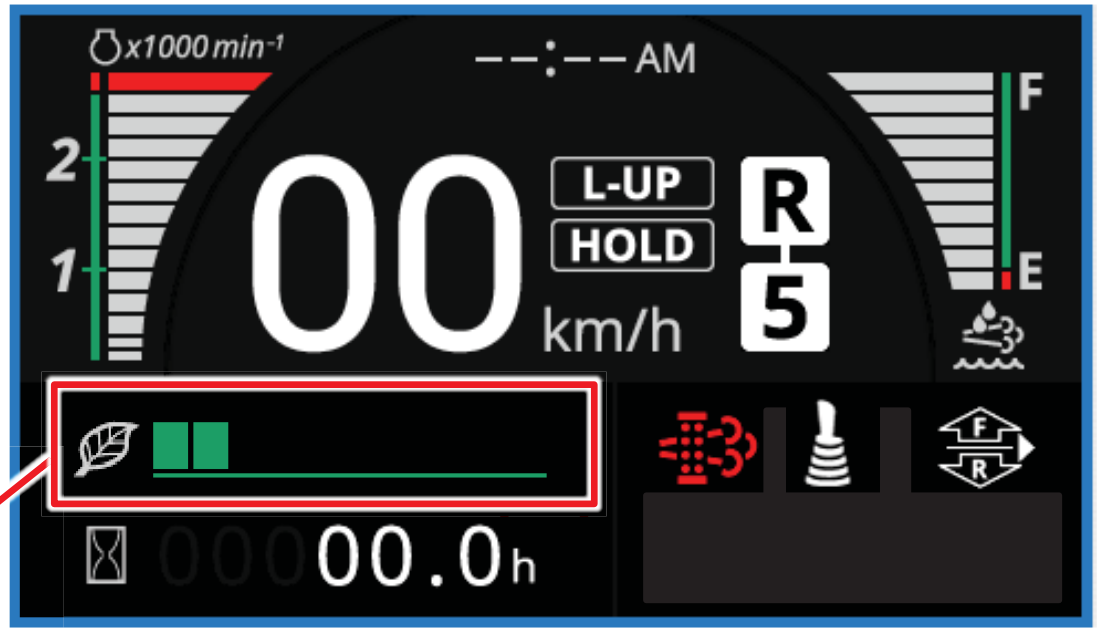
After-treatment device regeneration is inhibited. Displayed when the manual regeneration request arises while after-treatment device regeneration is inhibited.

After-treatment device regeneration is inhibited.

Auto & manual regeneration possible

Regeneration of SCR and Muffler Filter are necessary to maintain the system performance

New STD Eco gauge

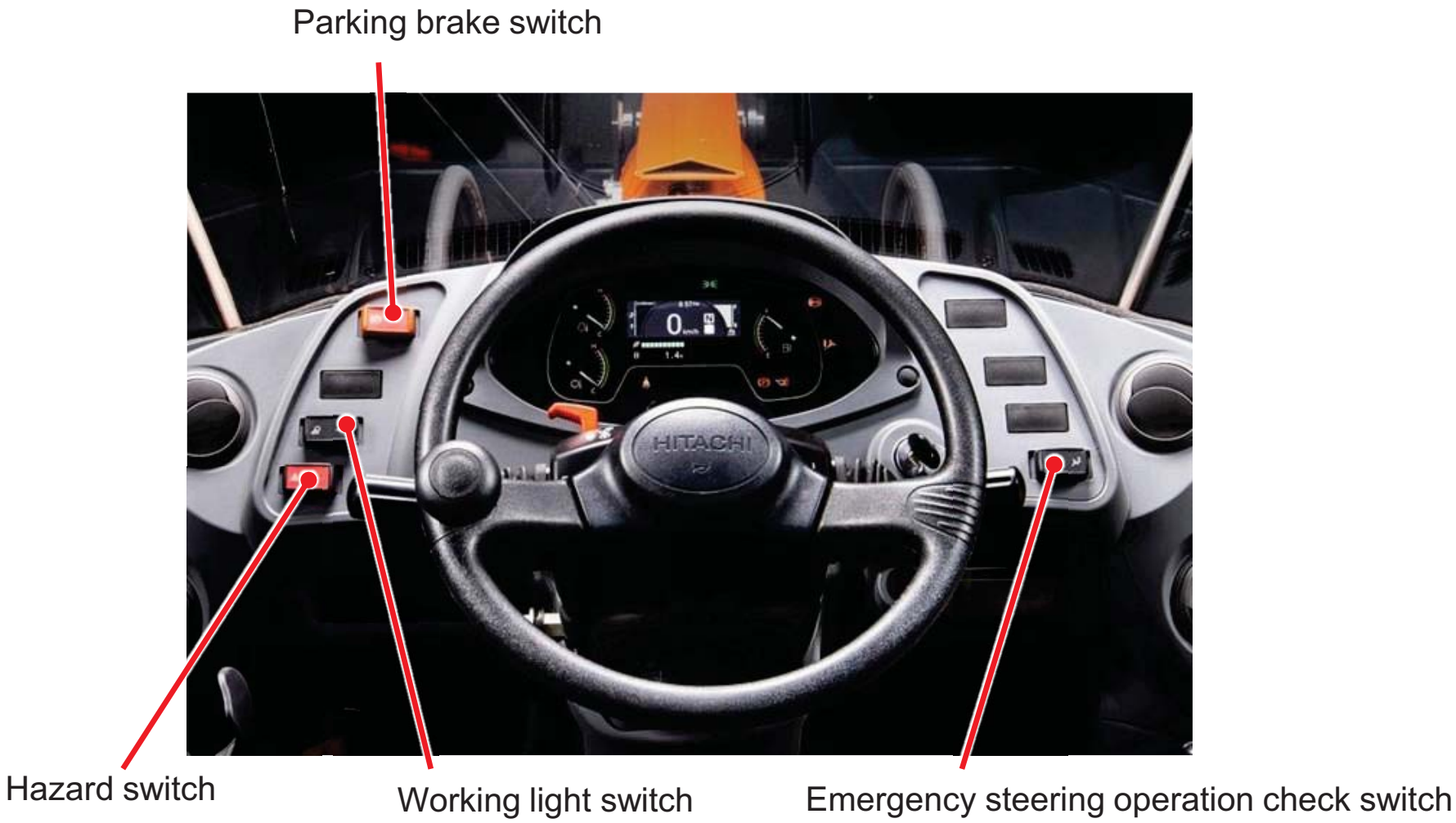


The current fuel consumption is calculated based on engine speed, main pump pressure, speed ratio and engine torque etc.

The current fuel consumption is indicated by segment display and prompts the operator for better fuel economy operation. The lower the fuel consumption, the higher the number of segments shown

Encourages eco drive and fuel saving

Front console



New Instrument display panel

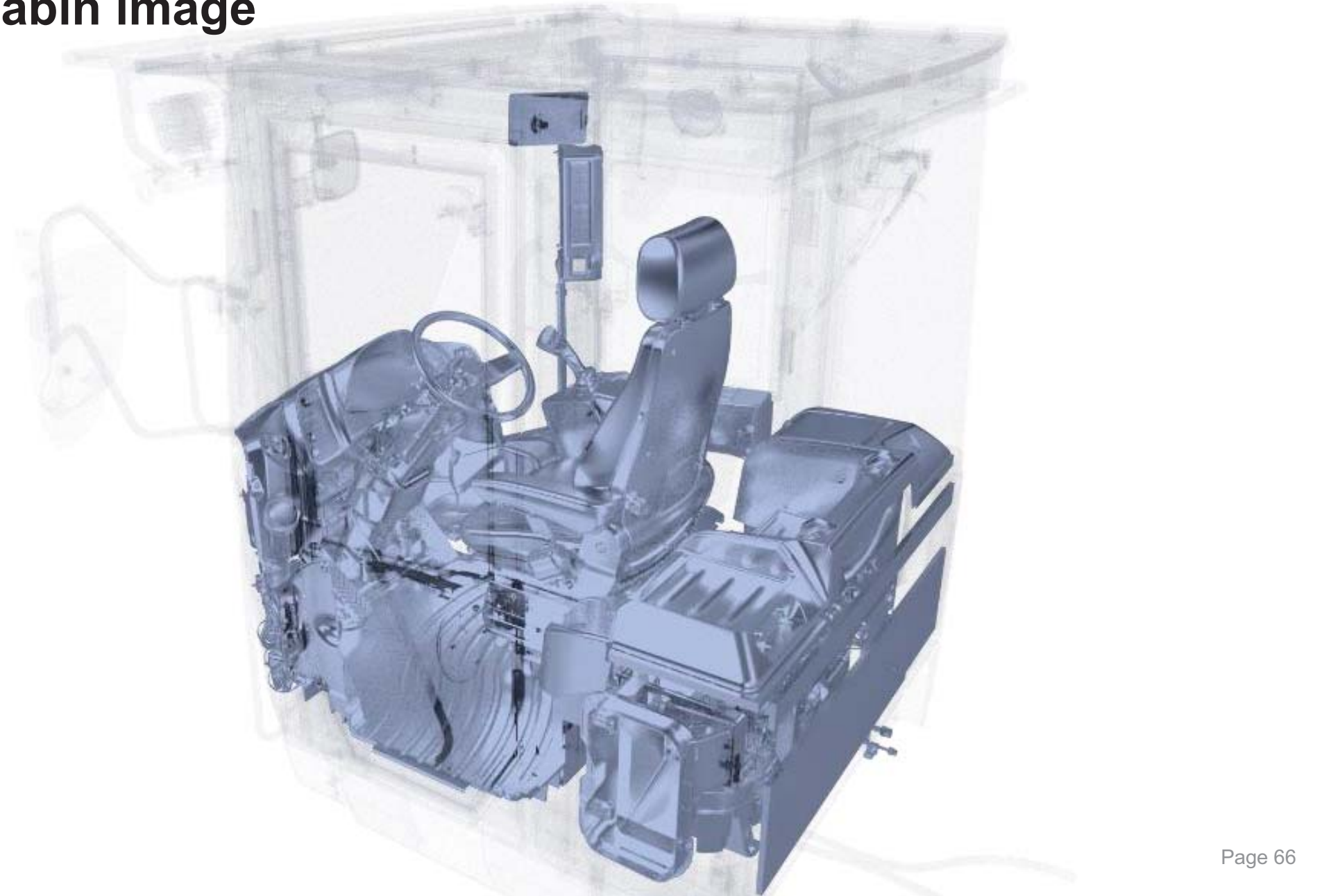
Main monitor

Sub monitor

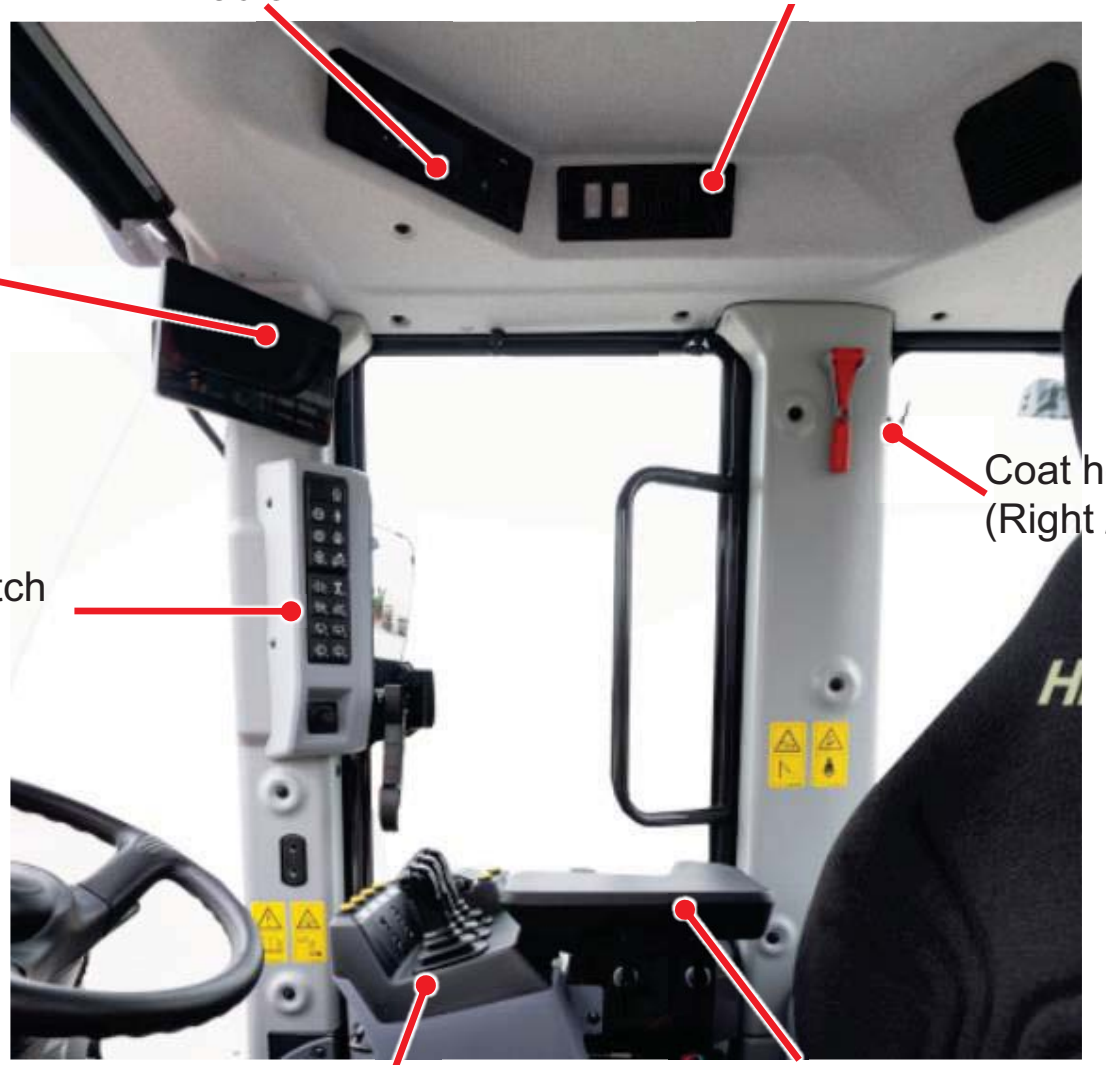
New main monitor and new sub monitor

Each function is divided between main and sub monitor

3D cabin image



Cab comfort and operability



New Instrument display panel

ZW-6

ZW-7

3.5-inch full color display

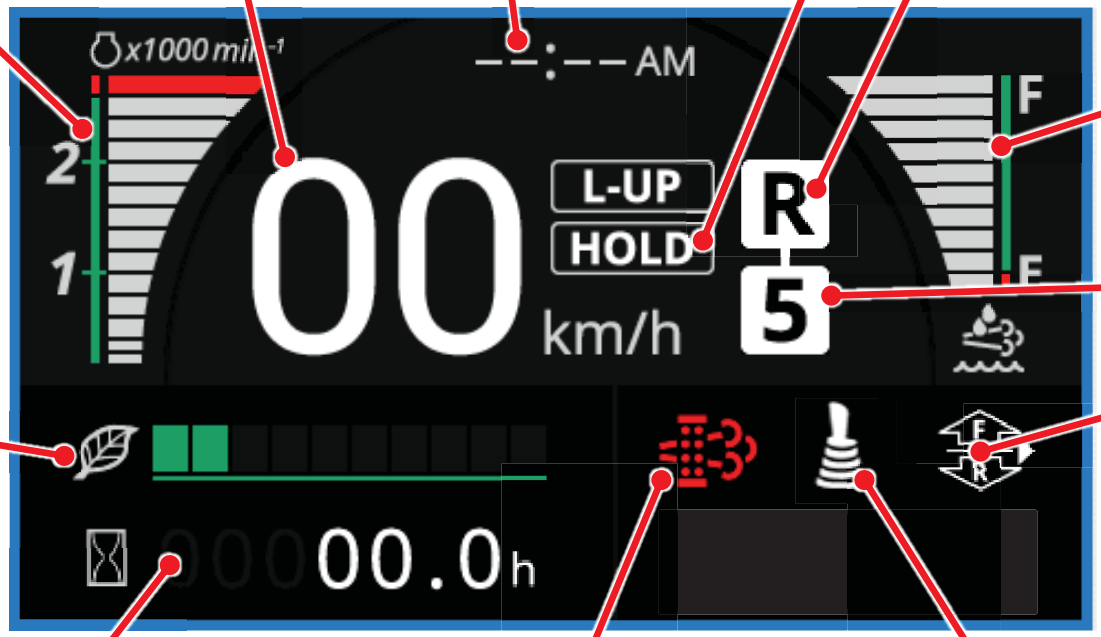
Design features

- ❑ Symmetrical design
- ❑ Full color display
- ❑ ‘Easy to see’ information
- ❑ Same color and concept design with ZX-7 series
- ❑ Wholly flattened design, lean and refined optimum placement

Multifunction main monitor

Full color LCD panel that can also be seen easily during daytime

Machine conditions and settings are all available in one location



Engine tachometer

Speedometer

Clock

HOLD display

F-N-R/Shift position indicator

DEF/AdBlue level gauge

Shift position

Eco gauge

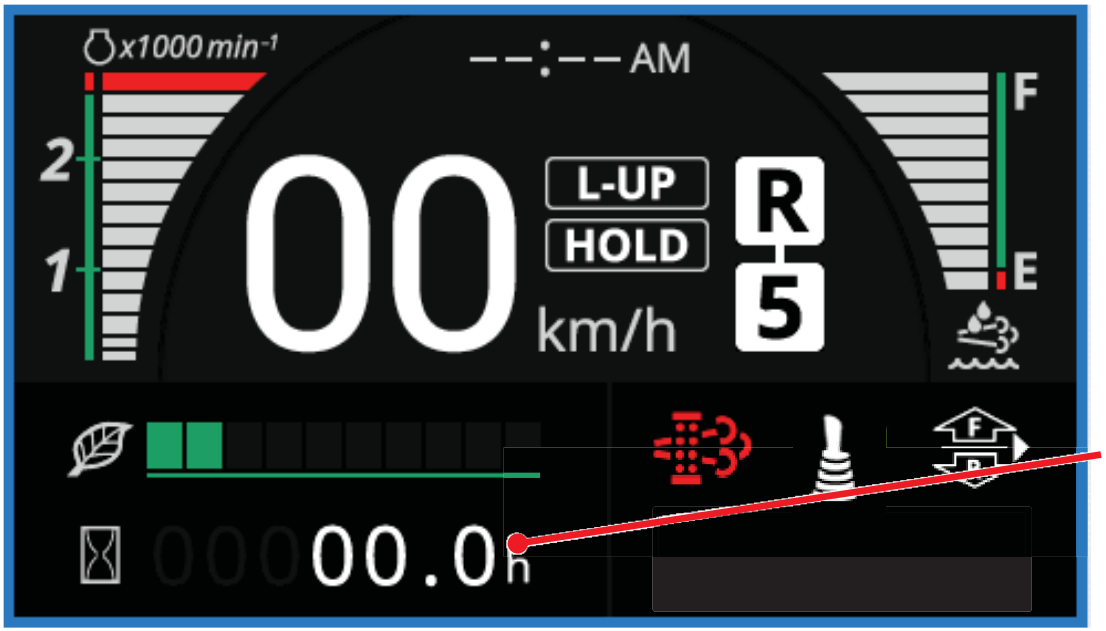
Forward/Reverse selector switch indicator

Sub Meter (selectable in monitor menu)

- Hour Meter
- Odometer
- Battery voltage

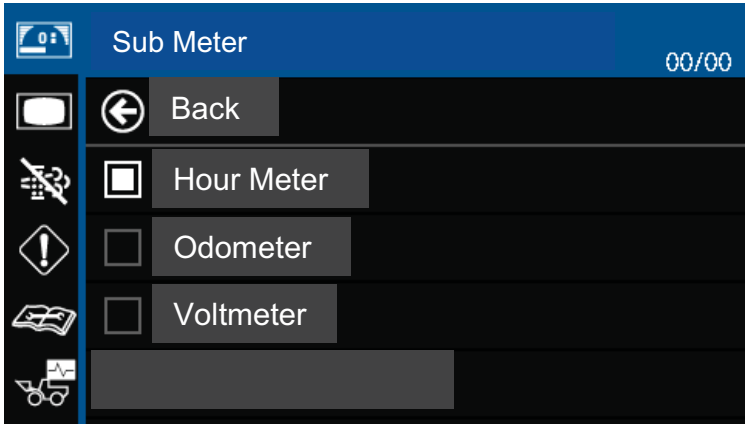
After-treatment device indicator

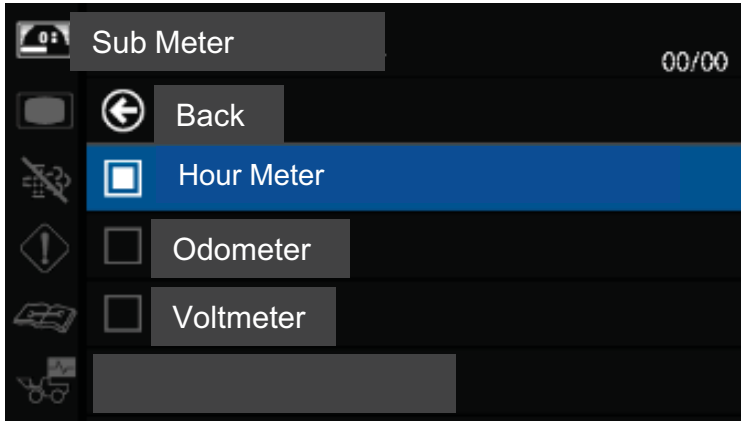
Joystick steering indicator (option)



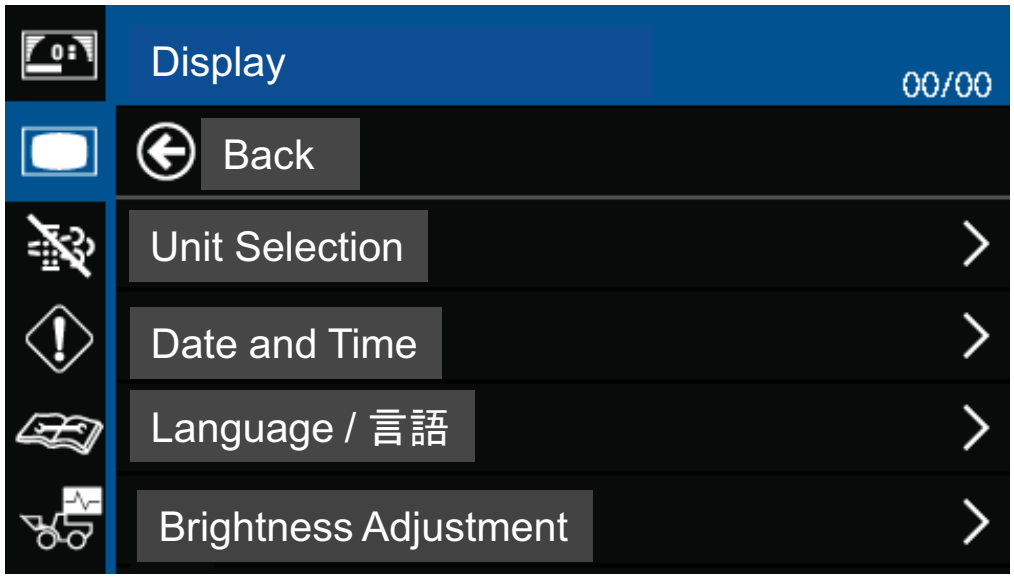
Display is selectable by Sub Meter
- Hour Meter
- Odometer
- Voltmeter

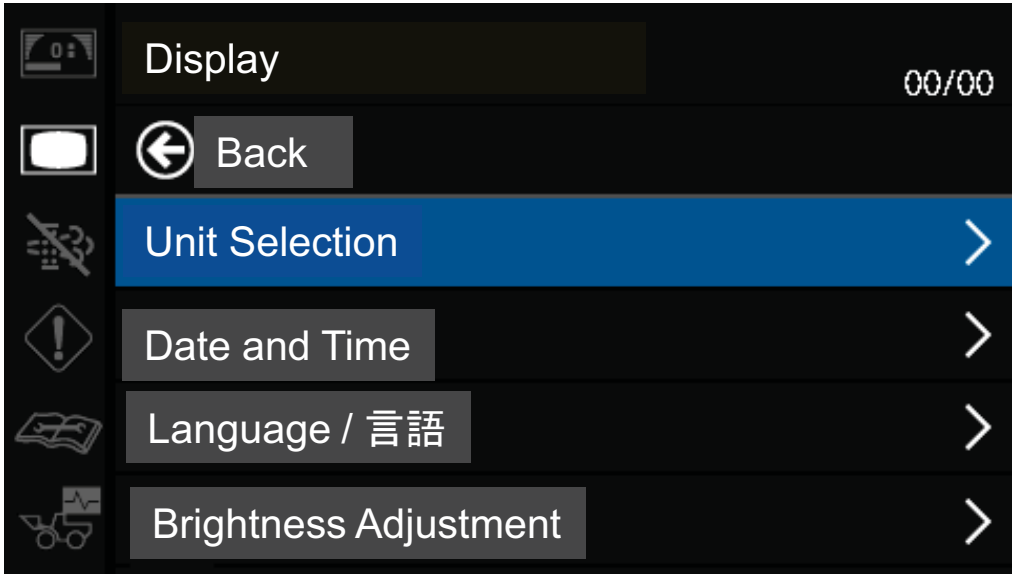
Select switch for main monitor





Display setting





In Display, the following can be selected.

- Unit Selection (Metric or US unit)
- Date and Time
- Language / 言語
- Brightness Adjustment

Language setting

The following 38 language settings can be selected in the multifunction monitor. To synchronize on sub monitor engine re-start is required.

01_English	English
02_Japanese	日本語
03_Chinese_B5	繁體中文
04_Spanish	Español
05_Italian	Italiano
06_French	Français
07_German	Deutsch
08_Dutch	Nederlands
09_Russian	Русский
10_Portuguese	Português
11_Chinese_GB	简体中文
12_Finnish	Suomi
13_ModernGreek	Ελληνικά
14_Swedish	Svenska
15_Norwegian	Norsk
16_Korean	한국어
17_Indonesian	Bahasa Indonesia
18_Thai	ภาษาไทย
19_Vietnamese	Tiếng Việt
20_Myanmar	
21_Arabic	اللغة العرب
22_Persian	زبان فارسی
23_Turkish	Türkçe
24_Danish	Dansk
25_Estonian	Eesti
26_Polish	Polski
27_Icelandic	Íslenska
28_Croatian	Hrvatski
29_Slovenian	Slovenščina
30_Romanian	limba română
31_Bulgarian	Български език
32_Lithuanian	Lietuvių kalba
33_Czech	Čeština
34_Latvian	Latviešu
35_Hungarian	Magyar
36_Hebrew	עברית
37_Slovakian	Slovenčina
38_Serbian	Srpski

New Right console

Multifunction lever

Finger type levers

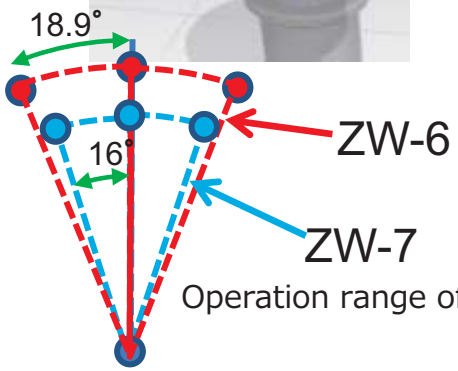
New electric pilot control lever type is installed.
Sub monitor controlled by sub monitor controller (dial + switches)

Reduces operator fatigue, seat mounted on console box

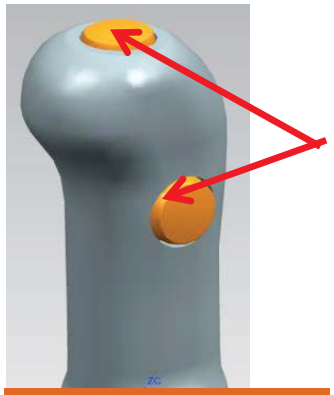
New Electric pilot control levers

‘Mirror finishing’ (polished and shiny) electric pilot type control lever

Improved grip feeling by mirror finish surface. Operability is improved by approx. 30% less lever stroke than ZW-6



Operation range of control lever

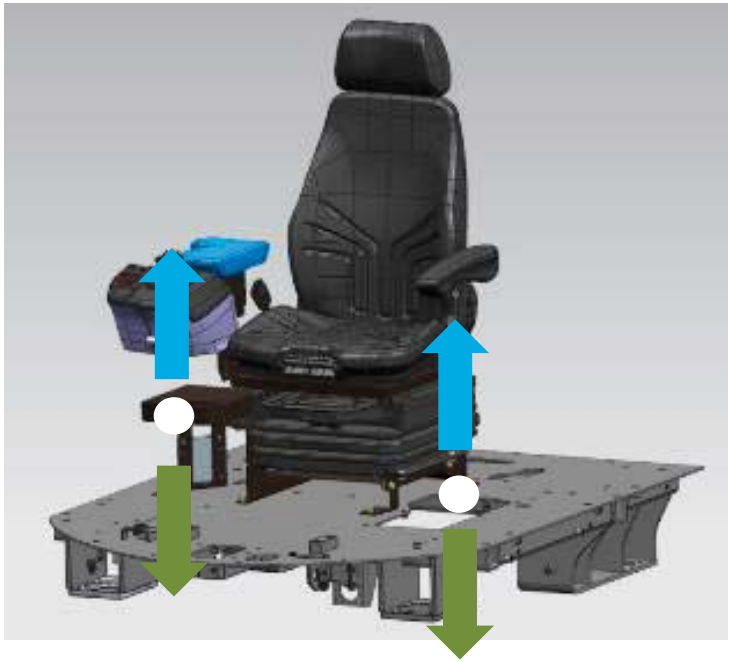


IMPROVED

Enlarged rounded type buttons

The button is improved for better operability.
Smooth activation is ensured even if pushed from an angle

New STD Suspension seat mounted right console



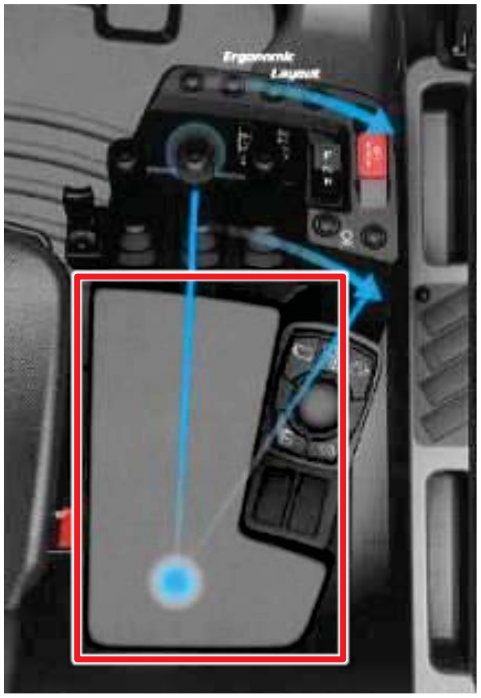
The right console moves vertically in line with the operator seat.
Provides easy operation and less fatigue to operators

Improved STD

Redesigned armrest on right console

ZW-6

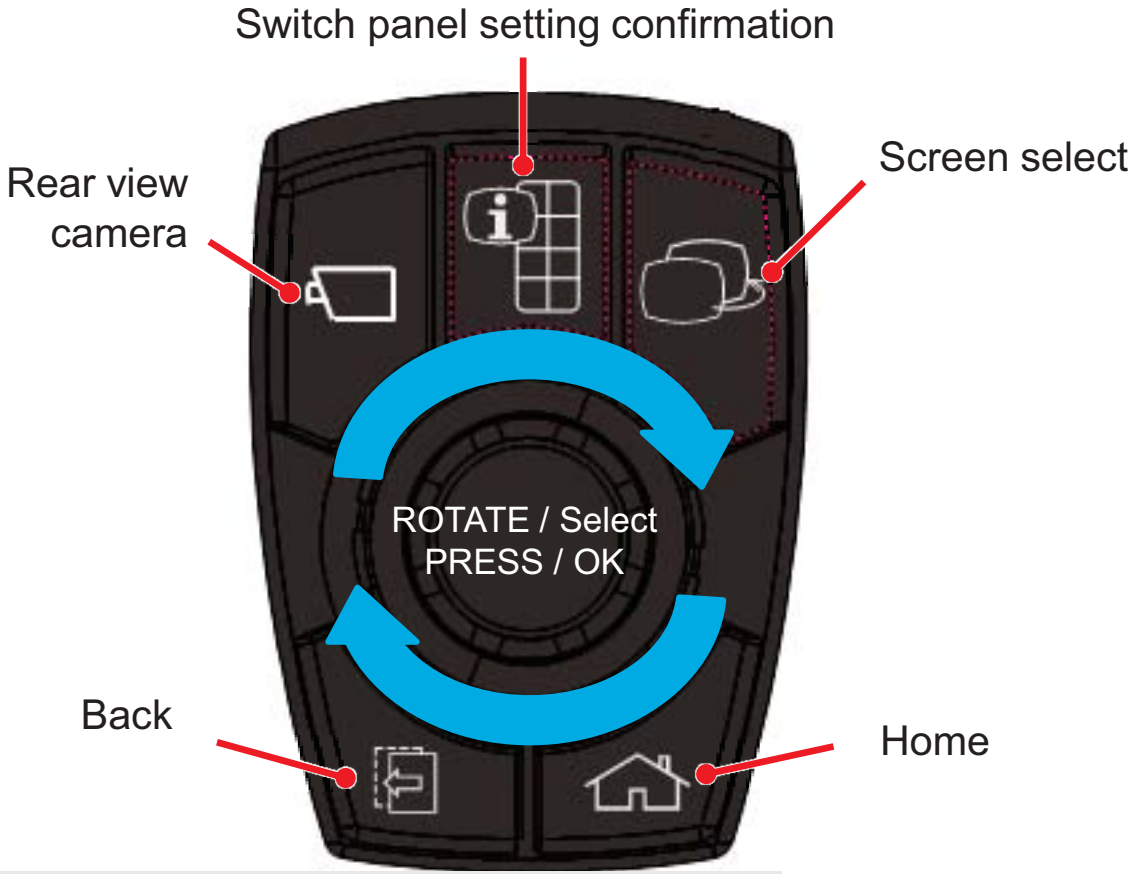
ZW-7



Redesigned armrest on right console

More than 40% upsized armrest for better operability and comfort.
Switch positions are relocated for less fatigue

New STD Sub monitor controller (dial + switches)



Sub monitor controller dial + switches

With the functional controller, you can toggle through the menu of the monitor until the desired item is shown. Push the controller to confirm your selection

New STD 8-inch LCD Sub monitor basic screen

Tip off mode

Tip off to Truck

Tip off to Pile

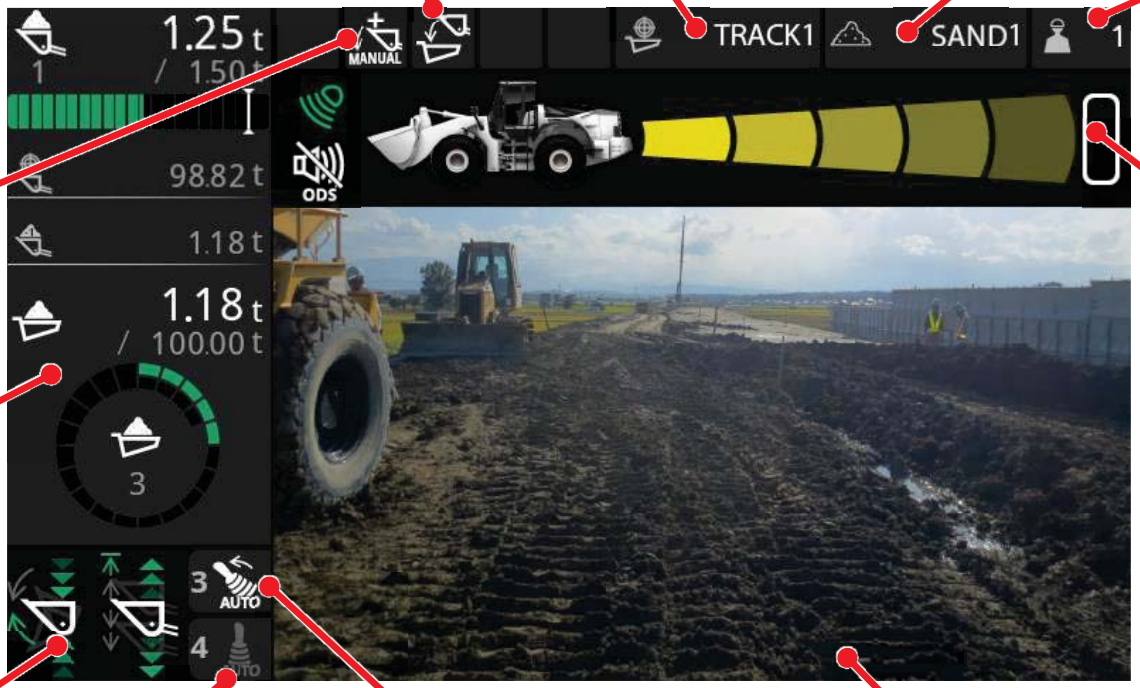
Target material

Statistical data

Operator setting

Add Auto

Add Manual



Rear obstacle detection and warning system

Payload checker

・Lift Arm/Bucket Kick Out Status

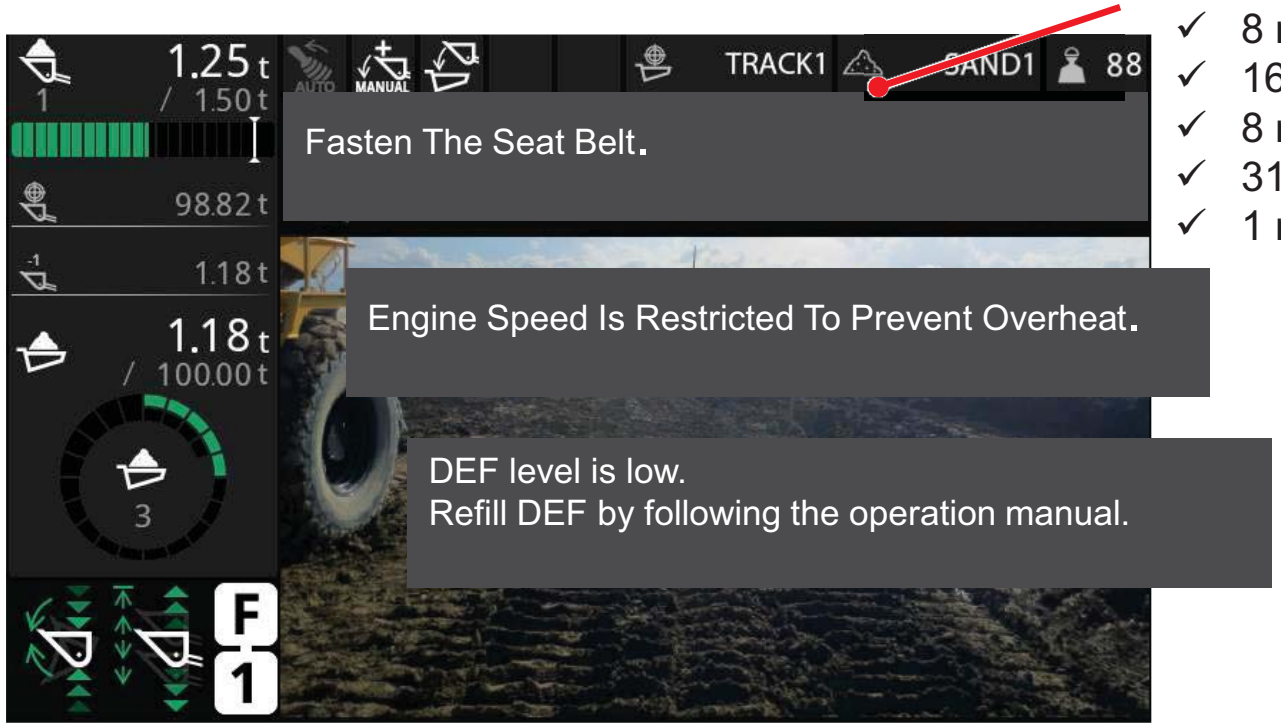
・Lift Arm/Bucket Detent Status

4th Lever Detent Status

3rd Lever Detent Status

Rear view camera

New STD Guidance and warning messages



Message pattern

- ✓ 8 messages for maintenance
- ✓ 16 messages for safety
- ✓ 8 messages for warning
- ✓ 31 messages for panel switch condition
- ✓ 1 message for software updating

More than 60 guidance and warning messages displayed depending on machine condition

New STD Panel switch

New ‘Easy to control’ switch panel placed on the right-side pillar.
Provides easy access to frequently used switches.
The use of LED indicators makes control easy whether a function is activated or not

New STD Panel switch

Auto shut-down switch

Travel mode selector switch

Clutch cut off switch

New: Maximum gear limit switch

Fan reverse switch

Forward/reverse selector switch

New: Approach Speed Control switch

After-treatment device manual regeneration switch

Power mode switch

After-treatment device regeneration inhibit switch

Ride control switch

Front wiper switch

Rear wiper switch

Front wiper washer switch

Rear wiper washer switch

New STD Panel switch

	Switch Name	LED indicator					
		□□□	□■□	■□□	■■□	■■■	□■■
1	Travel mode selector	Manual				AUTO1 (1～5 (4))	AUTO2 (2～5 (4))
2	Maximum gear limited	OFF				4th gear limit	
3	Forward / Reverse selector	OFF / ON					
4	After-treatment manual regeneration	OFF / ON					
5	After-treatment device regeneration inhibit	OFF	ON				
6	Front wiper	OFF		INT	LOW	HI	
7	Front washer	OFF/ ON					
8	Auto idle shut-down	OFF	ON				
9	Clutch cut off	OFF			N	D	
10	Fan reverse rotation	OFF	ON				
11	Approach speed control	OFF		Fast	Middle	Slow	
12	Power mode	OFF (Std mode)	ON				
13	Ride control	ON	AUTO				
14	Rear wiper	OFF	ON				
15	Rear washer	OFF/ ON					

New STD Roller type sunshade

ZW-6

ZW-7

ZW-6	ZW-7
	See-through
W 600mm x H 350mm	W 650mm x H 350mm
Pop up type	Roller type

Wider size and see-through roller type sunshade for better operability

New OPT New design sunshade film with HITACHI logo

↑View from the operator seat

** Cannot be ordered in combination with German road homologation.

Improves the view while sunlight enters the operator’s cab

STD Pressurized cabin

*Compliant with ISO10263 Standard.
Pressure difference: more than 50 Pa

Improved airtightness which minimizes dust and gasses entering the cabin

New STD Radio with DAB+

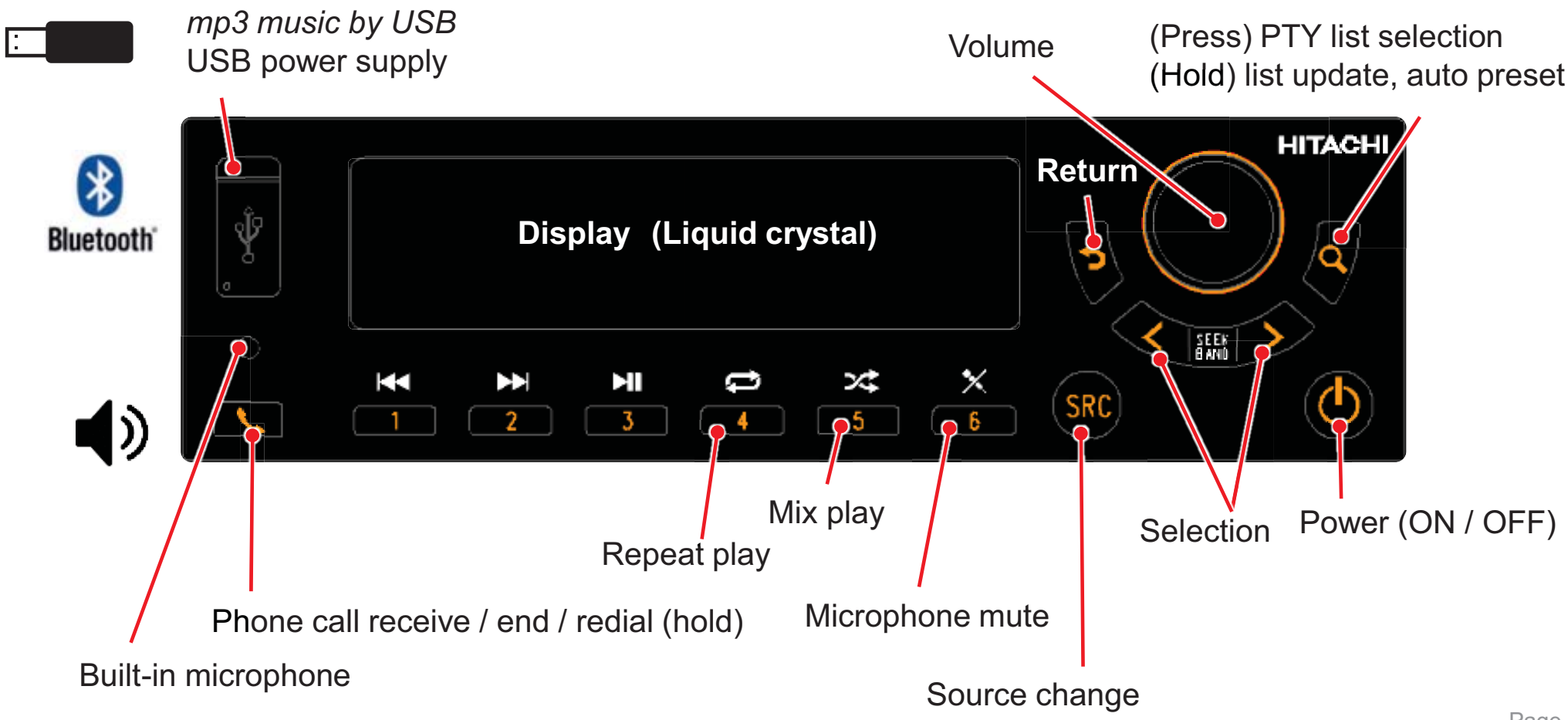
- Bluetooth® connection with a Smart-phone
- Hands-free calling
- Mp3 music via USB
- USB 5V power supply

ZW-6

ZW-7

New STD Radio with DAB+

Listen to DAB+ radio and music from portable audio players through Bluetooth® connection (Ver3.0), and hands-free calling with built-in microphone.
DAB+ information (service name, song name, and artist name) can be checked on the monitor.



STD Audio equipment

Speakers at the rear top

Acoustic equipment for optimized operator comfort

Improved STD Smartphone and Tablet holder

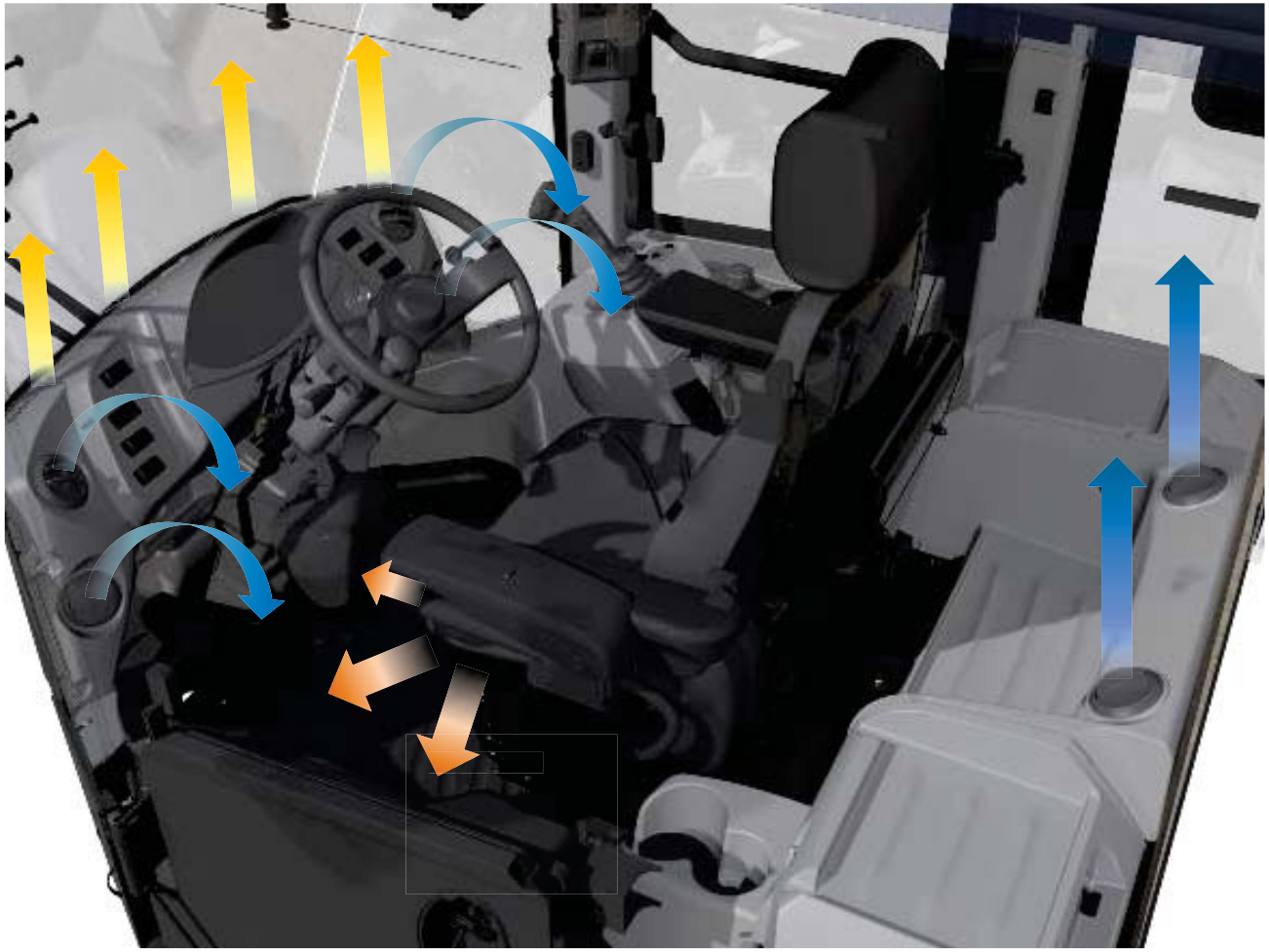
New USB power supply

Storage for a smartphone and tablet

STD Air conditioner control panel

Fully automatic air conditioning system.
The controller is located on the left top of cab

Multiple air outlets



Optimized operator comfort and ergonomics

STD Cab comfort

LED room light, connected to cab door

STD Rubber floor mat

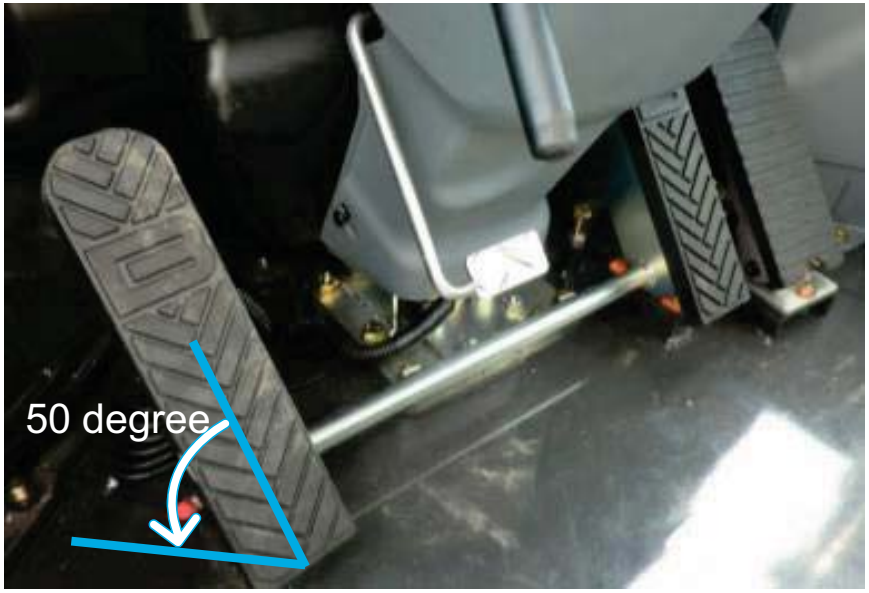
Wave pattern cabin floor

This type of cabin floor provides easy and fast removal of dirt and mud compared to other types

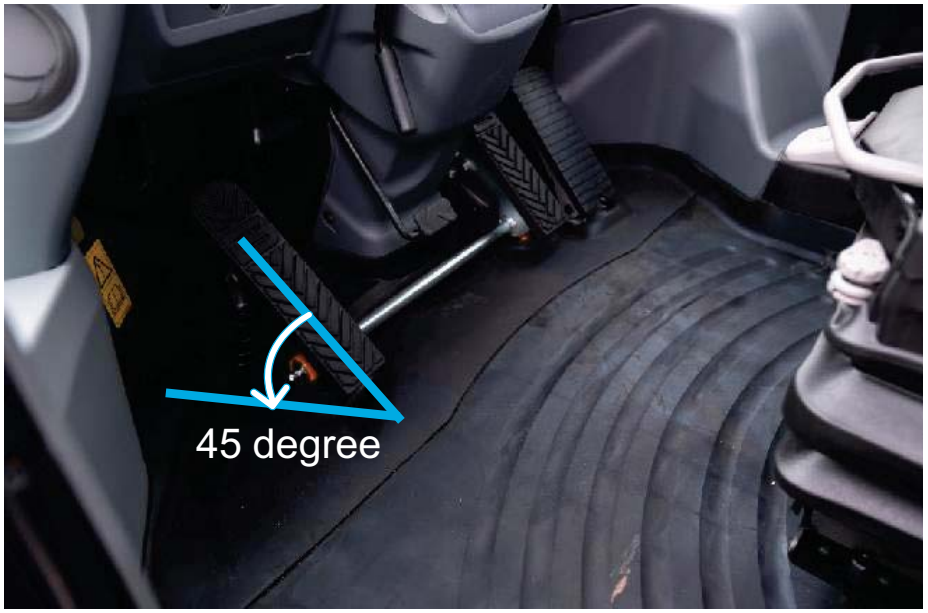
Improved

Brake pedal angle

ZW-6



ZW-7



Brake pedal angle is decreased and changed to 45 degree

Depressing the brake pedal is more easily performed and provides improved operability and comfort

STD Wiper and Washer (front & rear)

Front Wiper: Pressing front wiper switch changes front wiper operation in the order: "OFF" > "INT" > "Low" > "High" > "OFF ". Keeping the switch depressed returns it to "OFF".

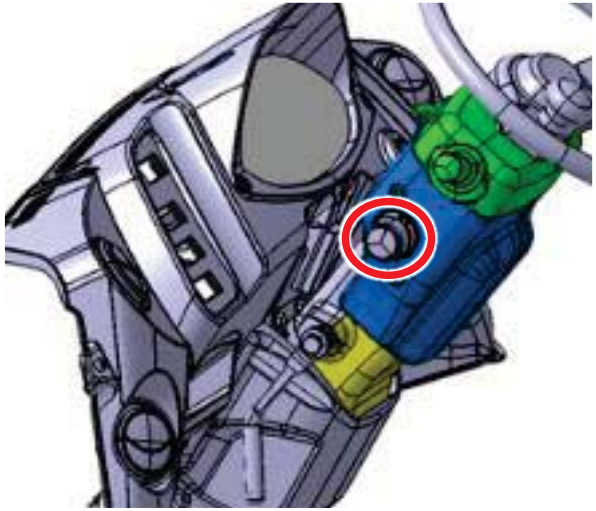
Rear Wiper: "OFF" > "ON"

Washer (Front / Rear): Washer operates during holding switch (no LED indicator)

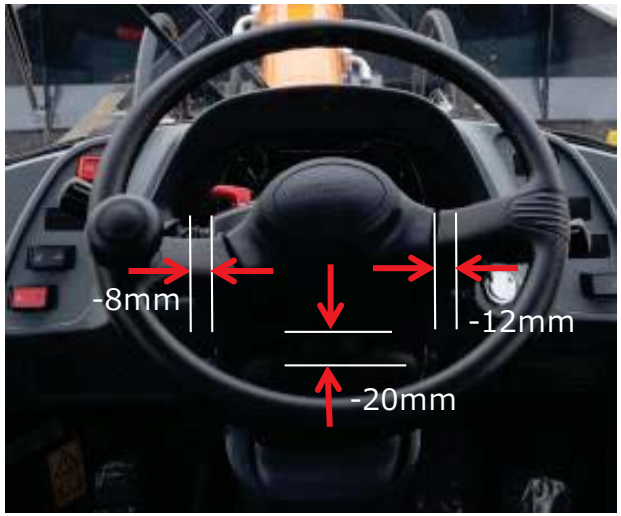
Switch Name		LED Indicator				
		□□□	□■□	■□□	■■□	■■■
1	Front wiper switch	OFF		INT	LOW	HI
2	Front washer switch	OFF/ ON				
3	Rear wiper switch	OFF	ON			
4	Rear washer switch	OFF/ ON				

Improved Narrow steering column

ZW-6



ZW-7



Steering column size reduced, and window wiper switch relocated to panel switch.

Foot space is expanded and delivers better comfort

Cabin door

Front hinged cabin door opens wide and locks on front side

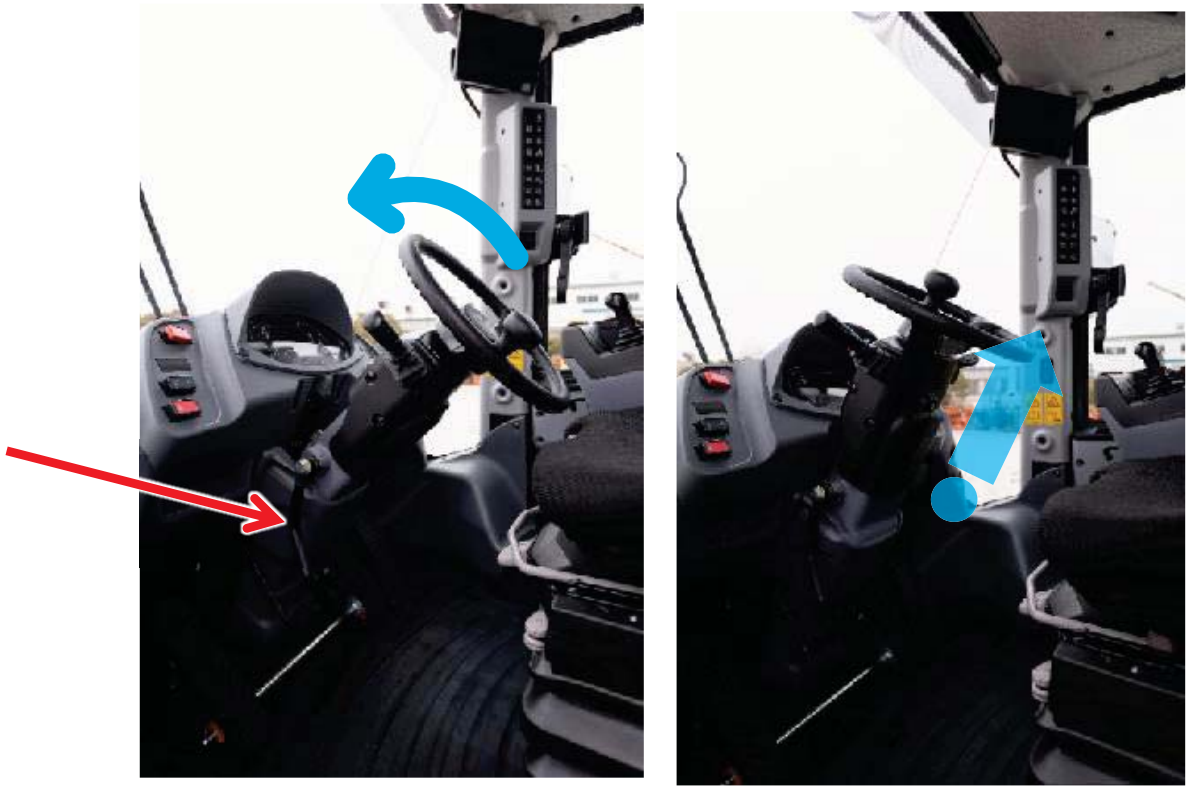
Door design delivers unobstructed access to the cabin

Cabin access

Inclined ladders have been placed further towards the front and in line with the cabin

Ladder position provides safe and unobstructed access to the cabin

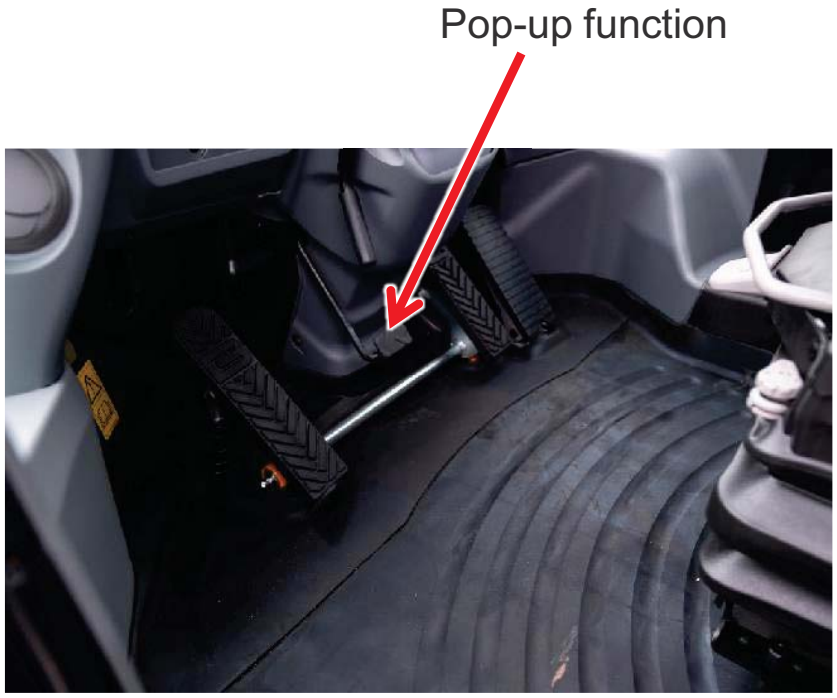
Fully adjustable steering column



Fully adjustable steering column with tilting and telescopic function

Adjustable steering column can meet every operator demand due to the different positions possible

Pop-up function



Pop-up function for the steering column.
Returning to the last position when the operator pushes the pedal again

Optimized ergonomics during entering/exiting the cabin

Wide windows

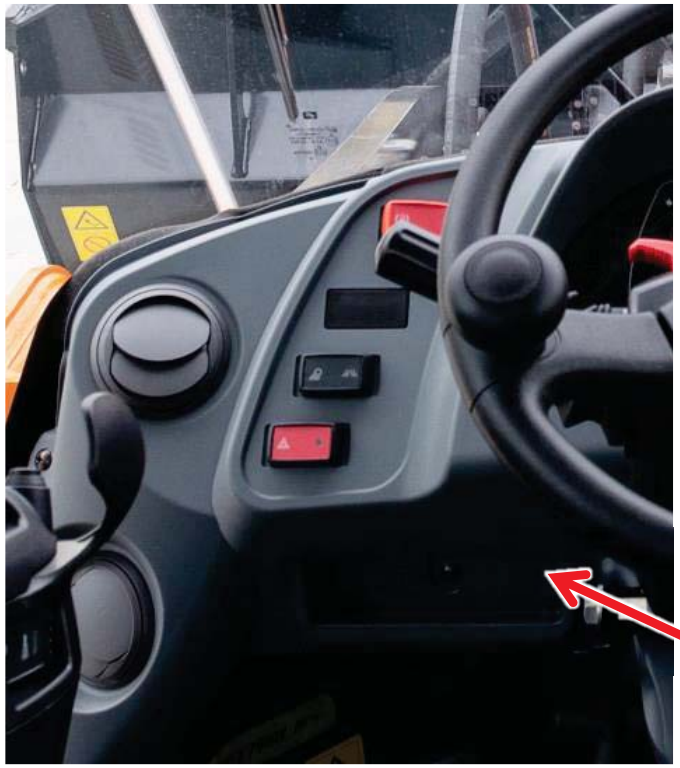
Left side

Right side

Wide window: Left side / Slide window opens vertically
Right side / Window opens with 100-degree rotation

Right side window opens in case of emergency

Storage space



Gloves compartment

Space for lunch box

Accessory tray

Multiple storage compartments

Inside the cabin there are several storage compartments to ensure that operator has all belongings close to hand

Storage space

Large-size
hot / cool box
500 ml × 4

Drink holder

Document holder

Storage space (Heater/Cooler box), drink holder and document holder

Inside the cabin there are several storage compartments to ensure that operator has all belongings close to hand

STD 12V & 24V output

12V & 24V Power sockets

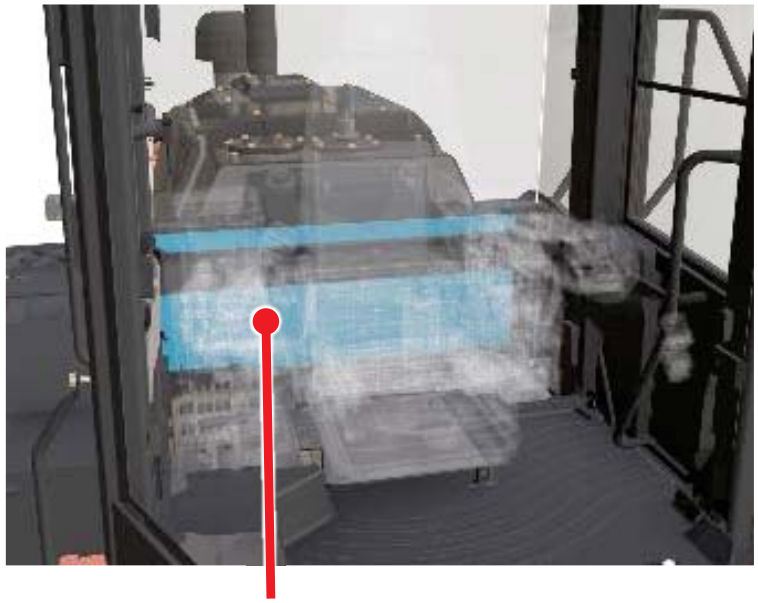
Adjustable side console (forward - backward)

Side console slide lever

Adjustable side console

Side console can be easily adjusted to meet each operator’s needs

Noise reduction inside the cabin



Additional damper and noise absorber

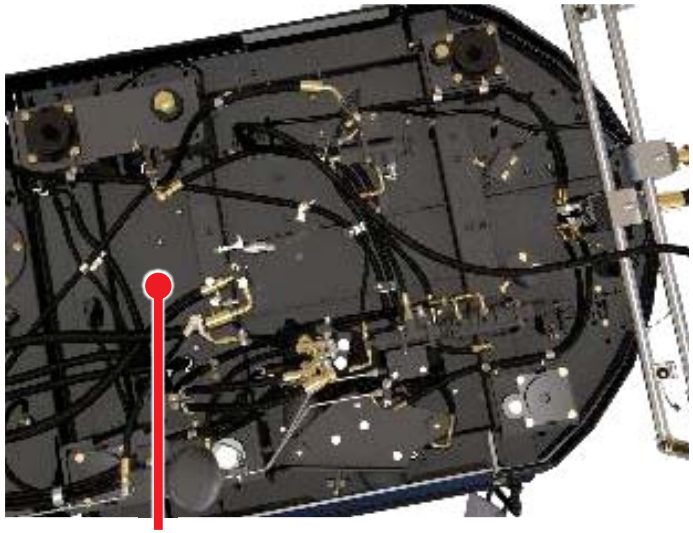
In the cab

Newly installed electric pilot control levers, reduces the noise generated from the conventional hydraulic hoses

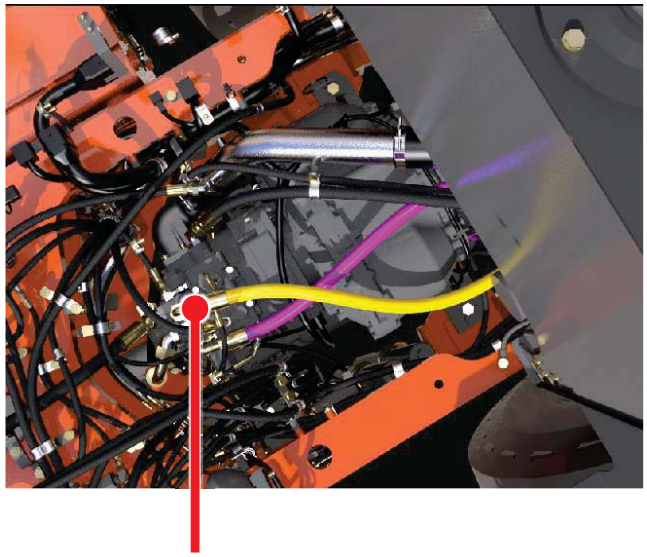
Absorption material has been used in order to deliver a more pleasant environment for operators. In addition there is less noise from hydraulic pilot valves and hoses

Improved operator comfort

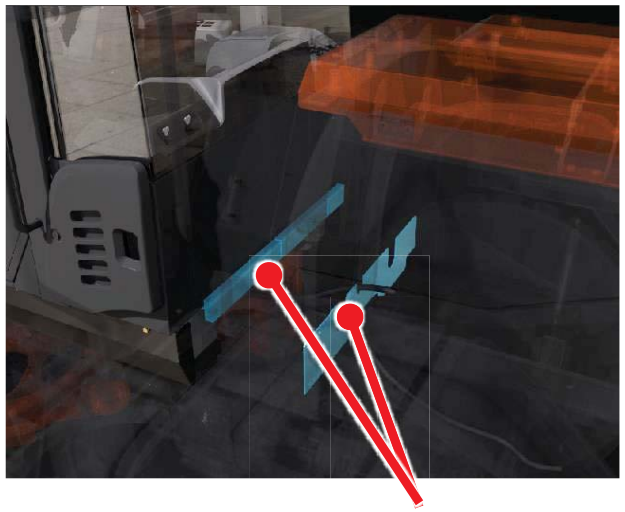
Noise reduction outside the cabin



Rubber clamps for pilot hoses and additional noise absorber under the cab floor



Main pump tail hose



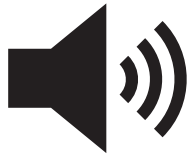
Noise absorber between Cab and Hyd. tank

Absorption material has been used in order to deliver a more pleasant environment for operators. In addition there is less noise from hydraulic pilot valves and hoses

Improved operator comfort

Noise level comparison

LpA: (Inside the cabin)
LwA: (Outside the cabin)

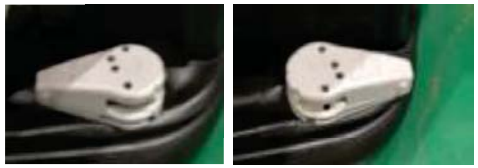


Brand	Model	Engine Emissions	LpA	LwA
HITACHI	ZW220-7	Stage V	68	105
	ZW220-6	Stage IV	68	105
Volvo	L110H	Stage IV	68	106
Cat	950M	Stage IV	69	106
Doosan	DL300-5	Stage IV	73	107
Komatsu	WA380-8	Stage V	68	106

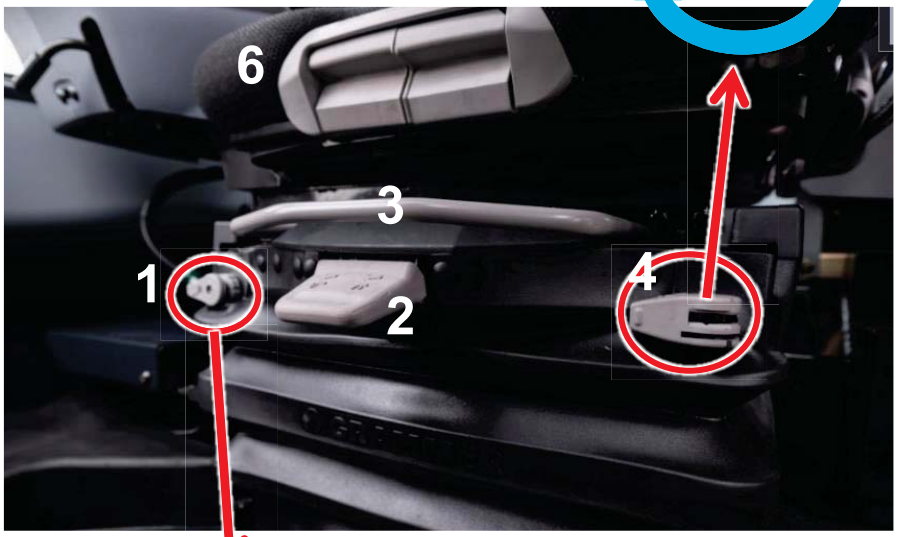
(Reference) *The vibration level of ZW-7 series on the operator's seat is the same as 6 series.

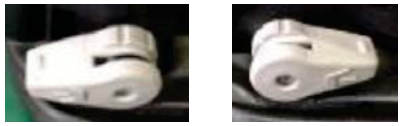
Sound level is the same however due to the lack of noise from hydraulic components the impression to the operator's ears is more pleasant

STD Seat with forward/reverse suspension



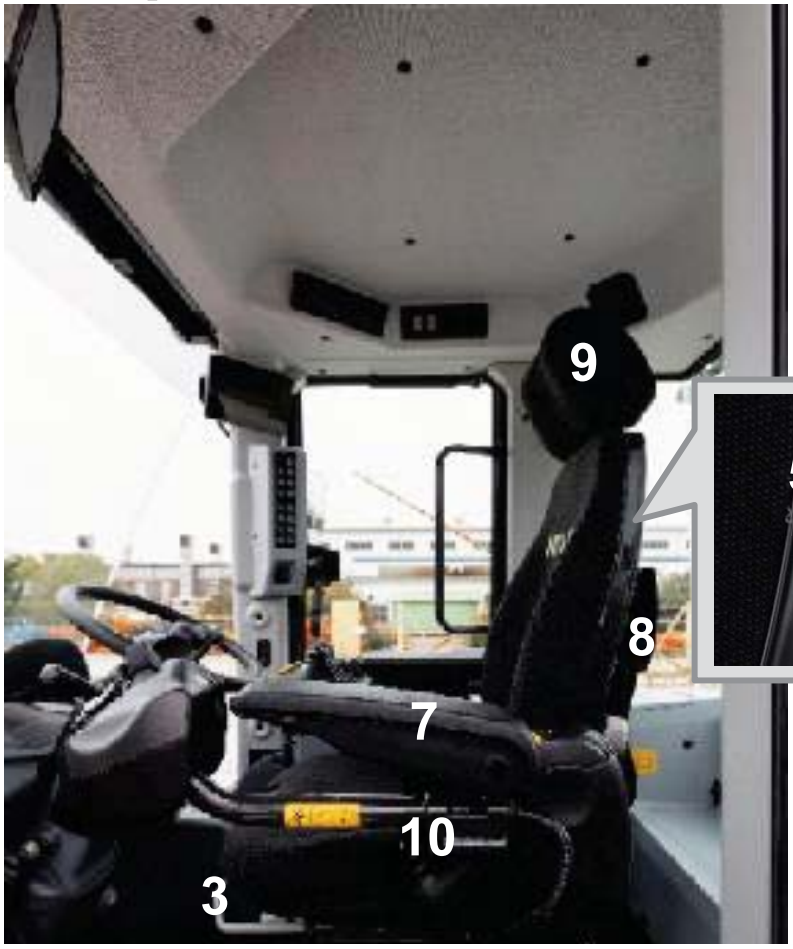
OFF (Lock) ON





Hard

Soft



1 Shock absorber adjustable
2 Height adjustment
3 Fore/ aft adjustment
4 Fore/ aft isolator lockable
5 Seat heating

6 Adjustable seat cushion depth and angle
7 Armrest
8 Document holder
9 Headrest
10 Seat belt

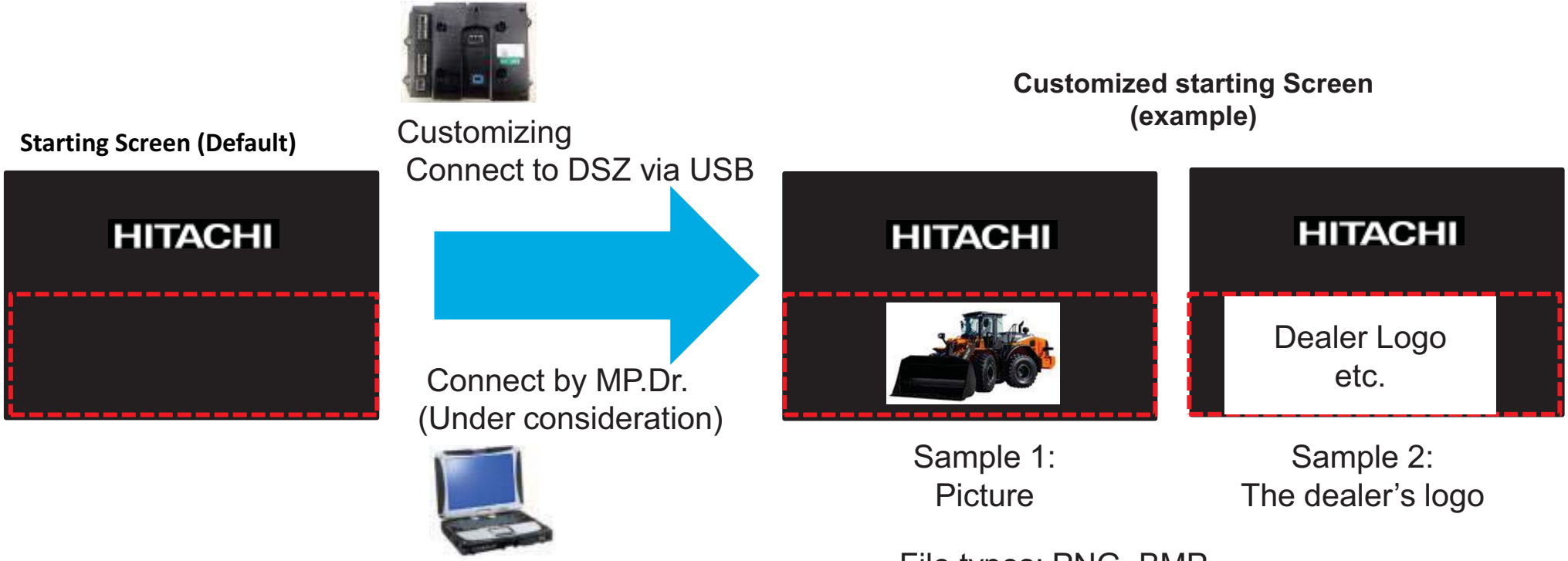
OPT Electric Joystick Steering System (JSS)

Joystick Steering System (JSS).

Loader steering can be effortless via the usage of JSS.
Steering wheel remains in place for safety and road transportation

New Start up screen customize function

Aside from default HITACHI logo, customers can customize the start up screen by applying their own logos and pictures.



The start display is customizable to include user company name or dealer's logo.

New STD Payload checker

- Payload data displayed on sub monitor
- Counts bucket load and dump truck load
- Tip off function: Displays adjusted bucket loads. Information about the bucket load is visualized in real time even if part of it is already loaded on the truck to ensure that dump truck capacity is not exceeded.
- Overloading warnings for bucket and dump truck.

To measure accurate amounts, the following are recommended:

✓ The bucket is fully rolled back during raising of the lift arm

✓ Load lifting motion is steady and smooth, with no acceleration or bounce

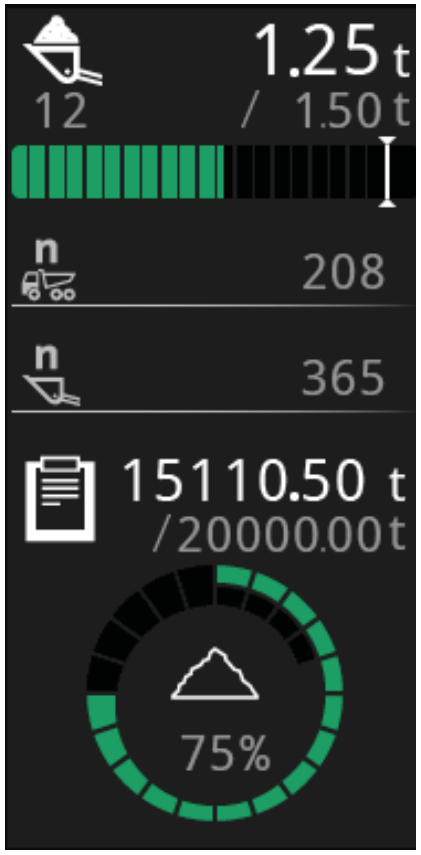
✓ The loader is on level ground

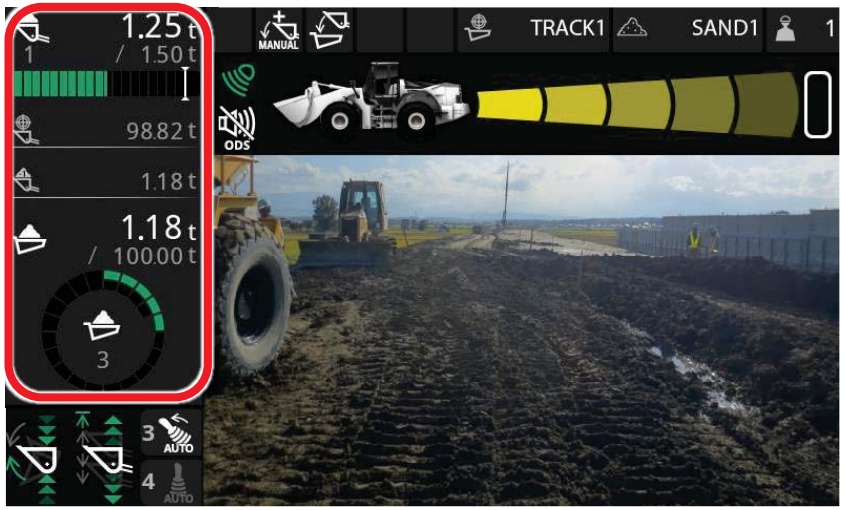
Payload measurement with tip off function can be displayed in real time on sub monitor

New STD Payload checker

FEATURES

- Tip off To Pile / Tip off To Truck
- Overload Alarm
- Operator Setting
- Material Setting
- Zero Calibration
- Auto Add / Manual Add
- Daily production totals for each day
- Daily production information via GeS





Payload measurement with tip off function can be displayed in real time on sub monitor

New STD Payload checker - Sub monitor main screen-

Tip off mode

Tip off to Truck

Tip off to Pile

Target load

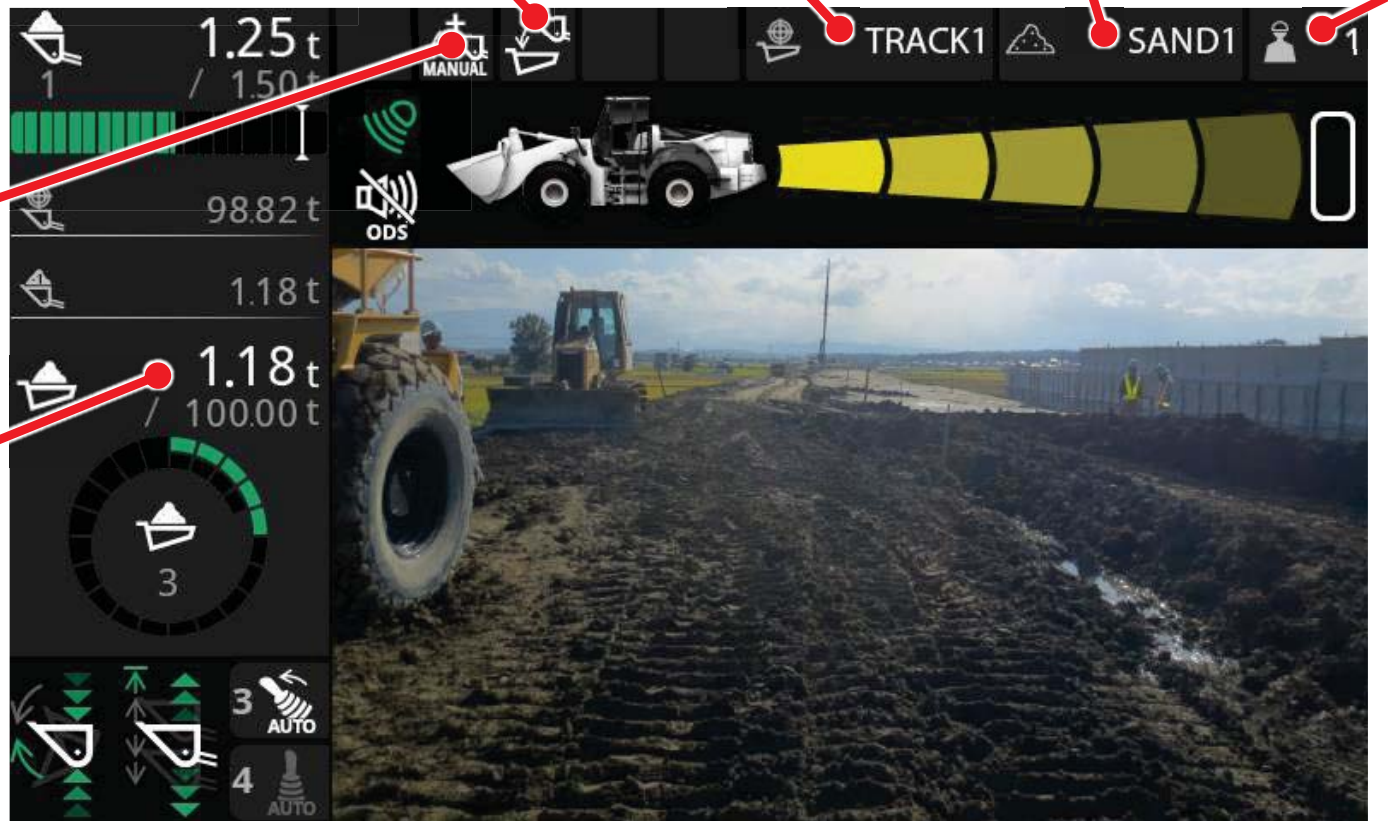
Material

Operator setting

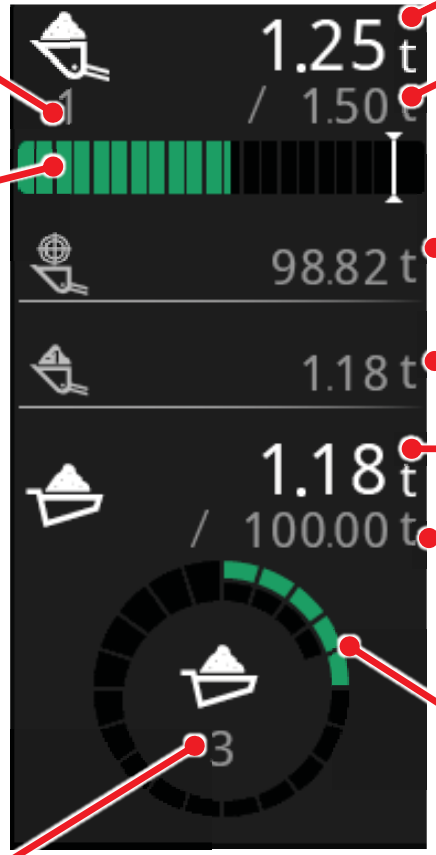
Add Auto

Add Manual

Payload checker



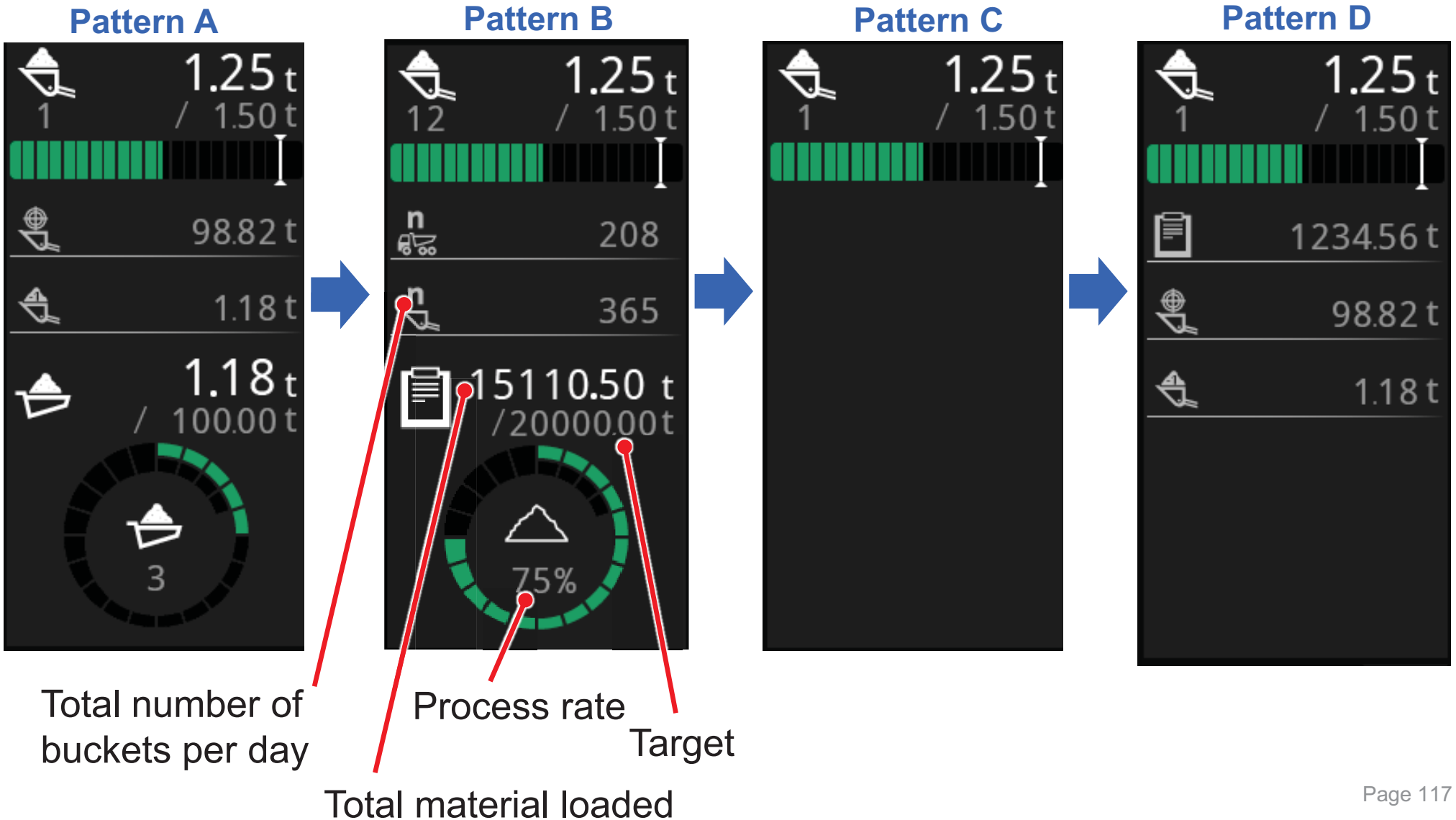
New STD Payload checker



Bucket loads
Operating load
Number of bucket loads
Remain load/ Overload
Bucket level gauge
Previous bucket loads
Dump truck total loads
Dump truck target loads
Dump truck level gauge
Number of dump truck

New STD Payload checker – screen pattern selection -

Monitor design can be selected from 4 different patterns.



New STD Payload checker - Tip off measure function -

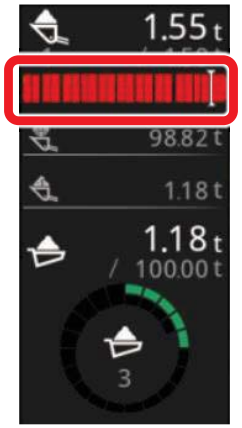
Tip off mode is a function to adjust bucket load.
It is mainly used for final loading on dump truck and assists in achieving the target total load of dump truck and avoids overloading. Tip off has 2 modes “Tip off To Pile” and “ Tip off To Truck”.
Manual aid is required for the Tip off.

1. Add load: To confirm the bucket load.
2. Truck clear: Push when dump truck is fully loaded.
3. Tip off: To activate the Tip off mode.
4. Cancel: Cancel the load scale and start the measurement again.

Payload measurement with tip off function can be displayed in real time on sub monitor

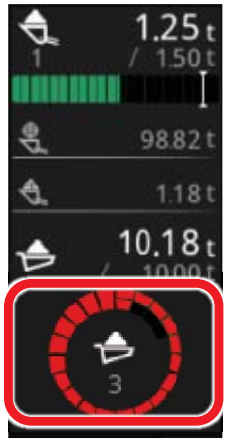
New STD Payload checker – Overload warning-

Bucket overload warning



Bucket level gauge has 20 levels, and the load gauge increases (green) in 5% increments.
When the load gauge exceeds 20 levels (filling rate 100%), the bucket is overloaded, and the gauge color turns red.

Dump truck overload warning

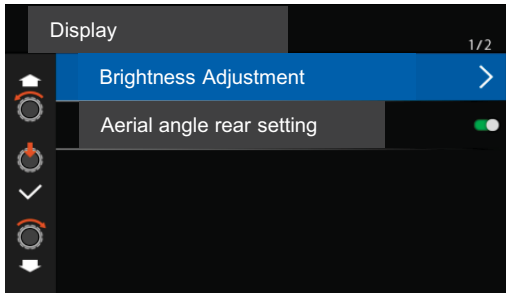


When dump truck amount exceeds 20 levels (filling rate 100%), the dump truck is overloaded, and the gauge color turns red. The maximum scale of the level gauge is 22 (110%). When the filling rate is 110% or more, the maximum scale is displayed.

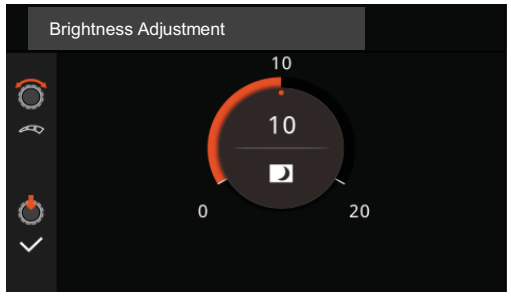
Brightness adjustment of monitor display

Brightness level can be adjusted from 0 to 20.

Sub monitor

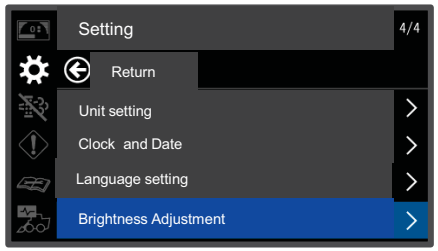


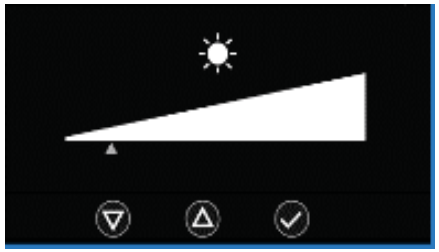
in daytime mode



in night mode

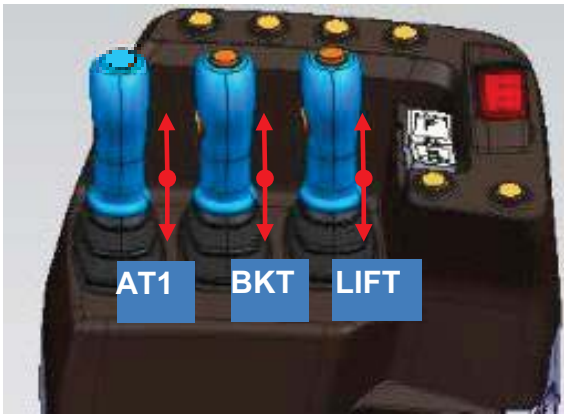
Main monitor



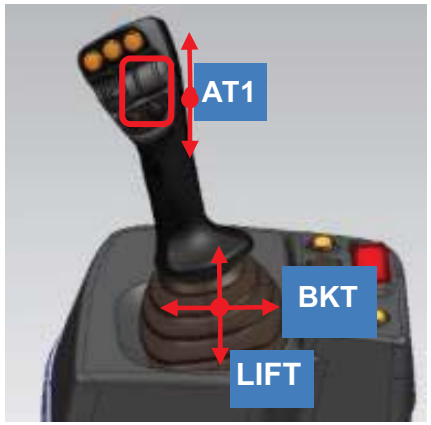


Also night mode can be set.

Control levers for 3 spools



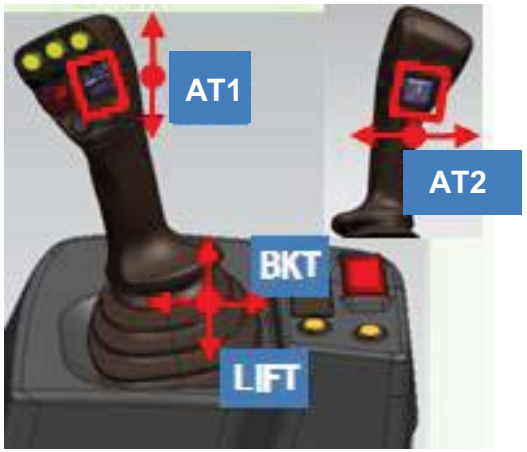
LK108: 3 spools control valve with 2 levers, auxiliary lever (inside) and piping for the use of hydraulic attachments
LKQ108: is available for Quick coupler configuration



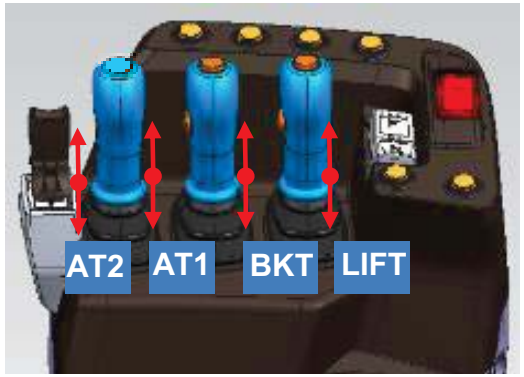
LK007: 3 spools control valve with MF lever for the use of bucket and hydraulic attachments
LKQ007: is available for Quick coupler configuration

Multiple control levers are available to satisfy each operator's needs

Control levers for 4 spools



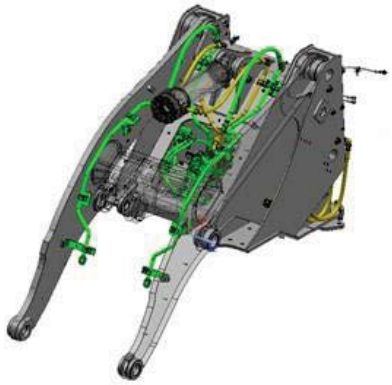
LK013: 4 spools control valve with MF lever, auxiliary lever for the use of hydraulic attachments
LKQ013: is available for Quick coupler configuration



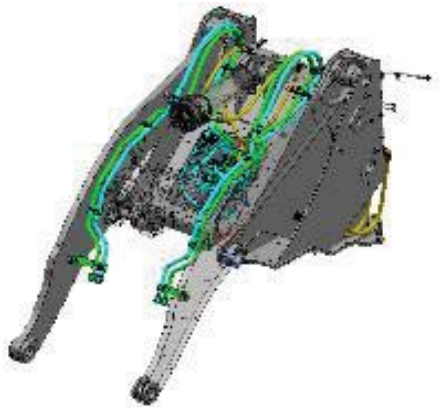
LK114: 4 spools control valve with finger type levers, auxiliary lever (inside) for the use of hydraulic attachments
LKQ114: is available for Quick coupler configuration

Multiple control levers are available to satisfy each operator’s needs

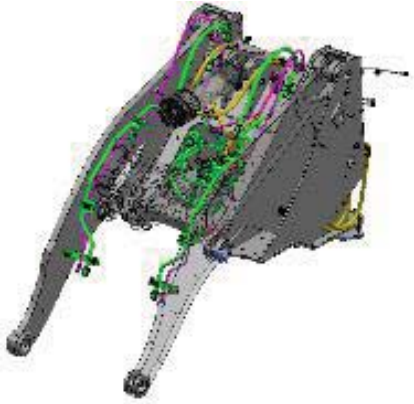
Lift Arm Type & Front Piping



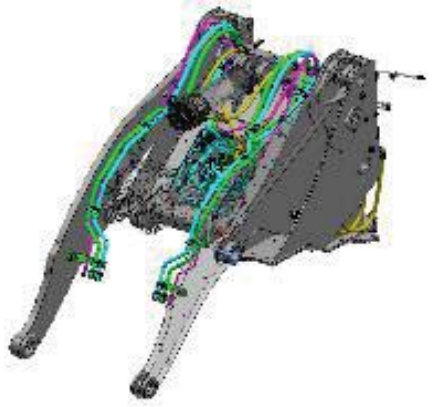
Standard Lift Arm & 3rd Piping (AP3)
Ref control levers: LK108 & LK007



Standard Lift Arm, 3rd and 4th Piping (AP4)
Ref control levers: LK013 & LK114

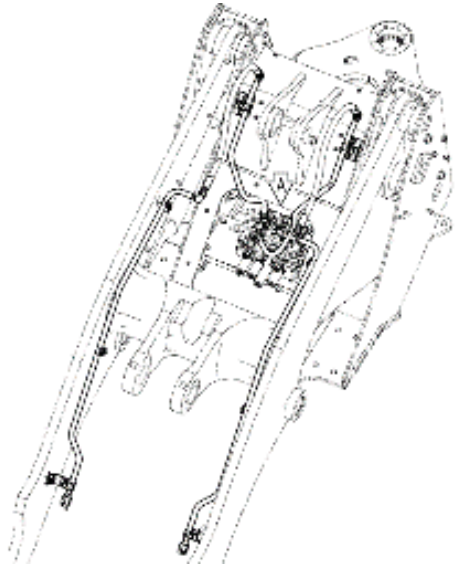


Standard Lift Arm, 3rd piping (AP3) & QC piping
Ref control levers: LKQ108 & LKQ007



Standard Lift Arm, 3rd & 4th piping (AP4) & QC piping
Ref control levers: LKQ013 & LKQ114

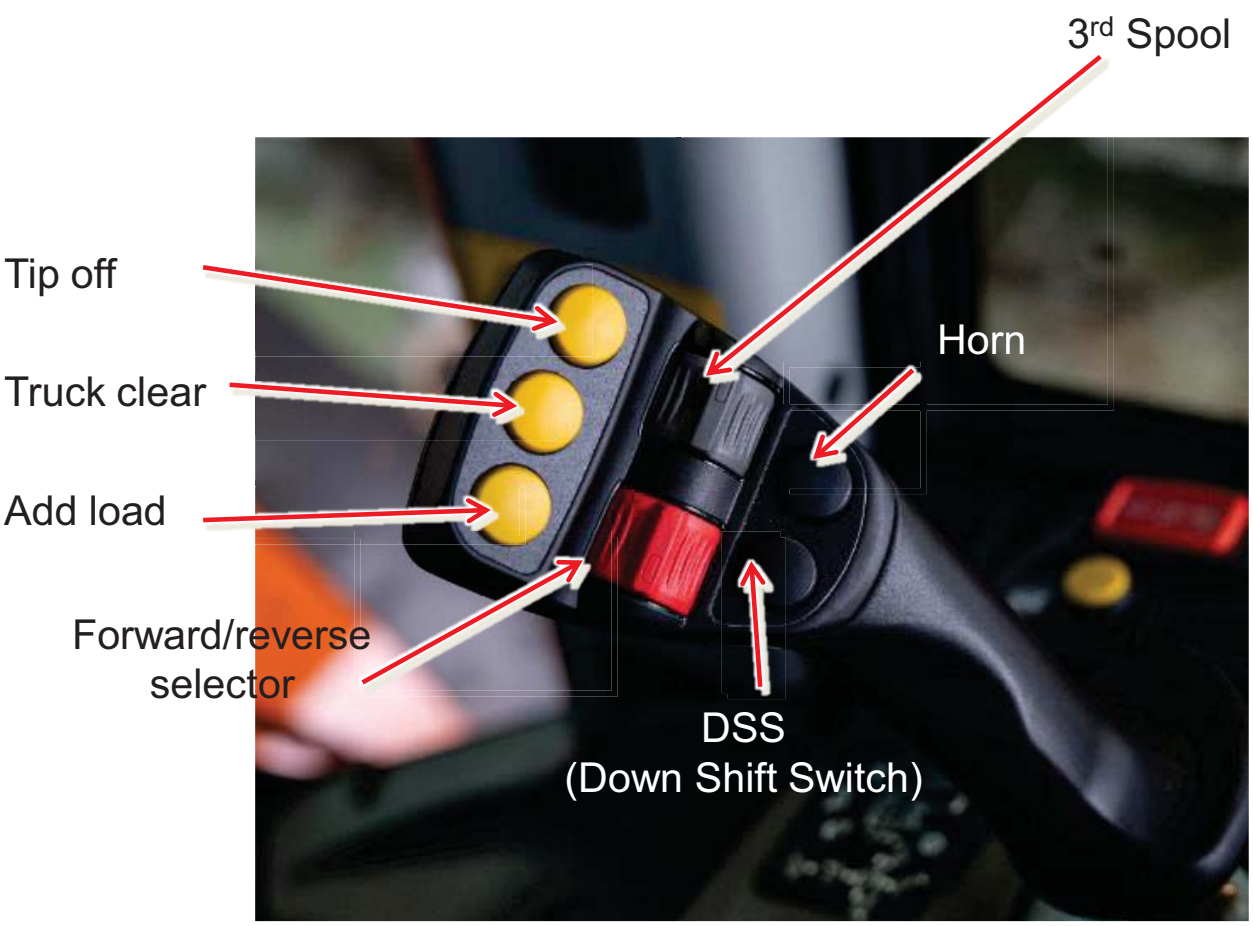
High Lift Arm Type & Front Piping

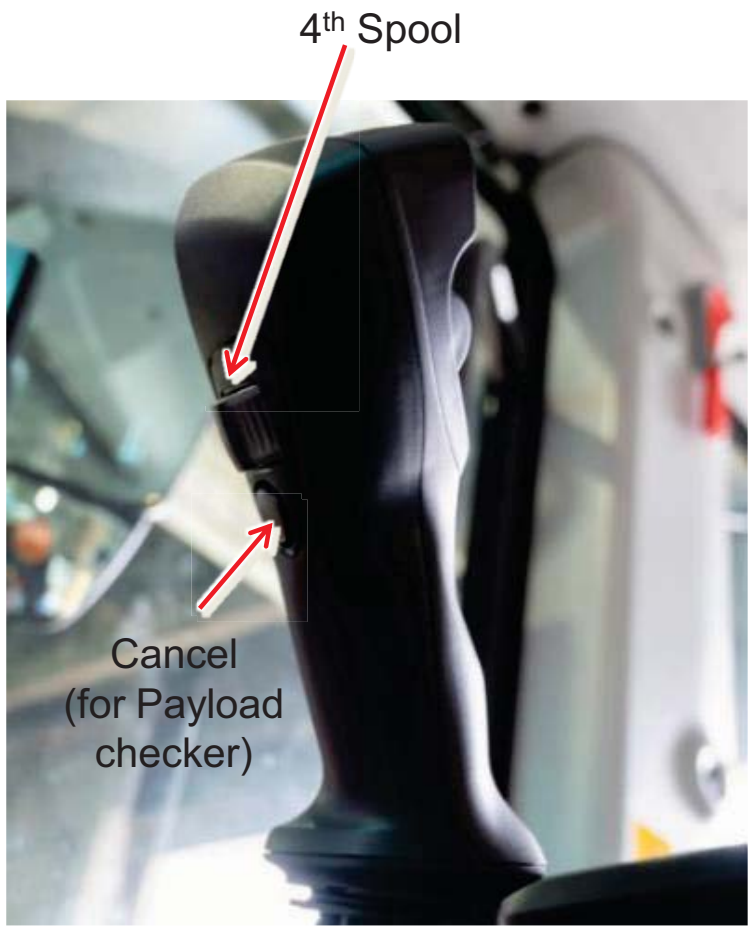


High Lift Arm & 3rd Piping (AP3)
Ref control levers: LK108 & LK007

Function switches

Multifunction switches

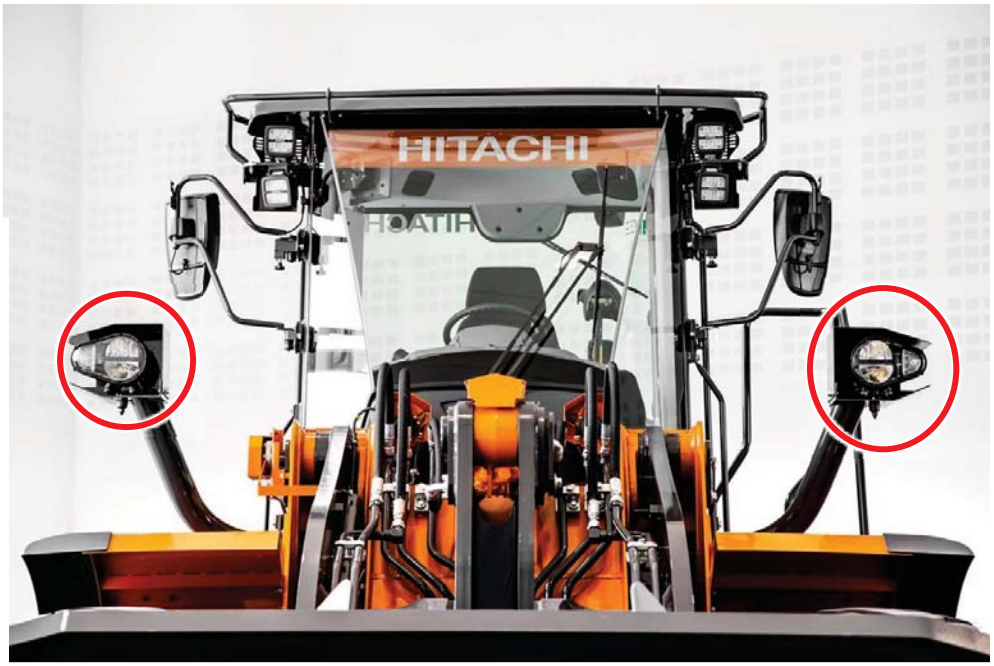




Cabin comforts

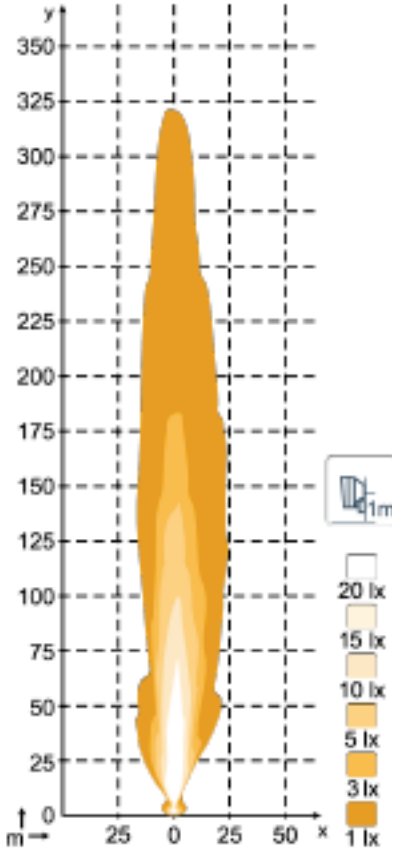
Tough rubber radio antenna

STD LED headlights

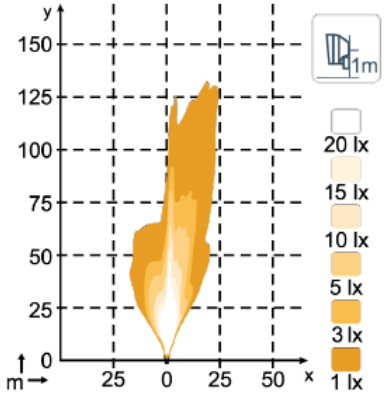


Vibration: 15.3 Grms 24-2,000Hz
Power consumption :High Beam 34W,
Low Beam 17W

High Beam RHT



Low Beam RHT

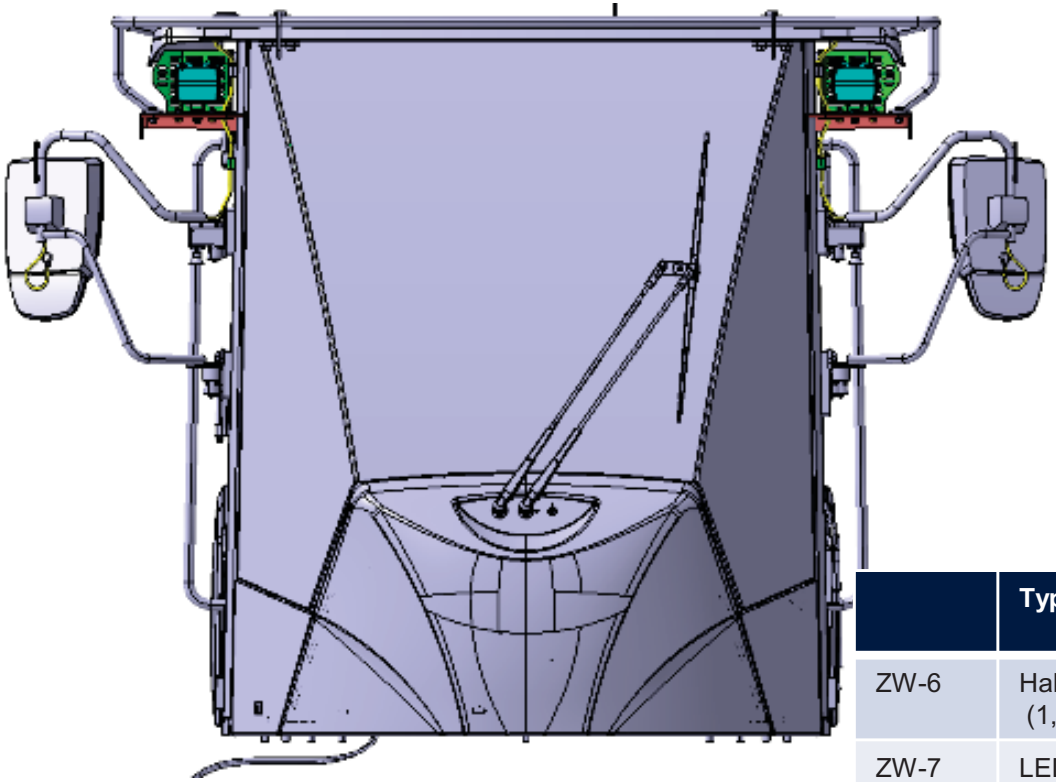


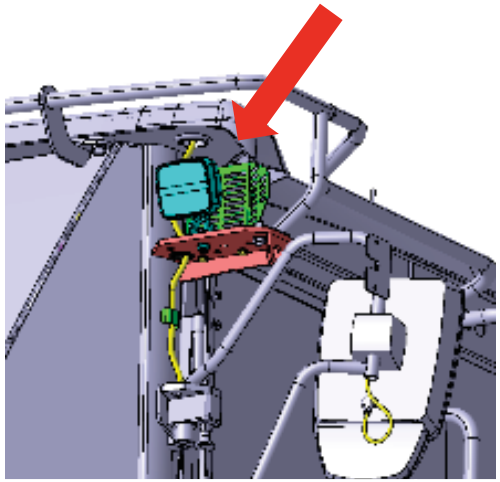
High brightness and unbeatable in its durability, LED headlight is equipped with integrated quake dampening, withstanding shocks of 60G and vibration of 15.3 Grms* at 24–2,000 Hz

*Root mean square acceleration (G_{rms})

STD LED working lights

Standard Cab working lights are LED (1,200 lm/pc)





	Type	Service life	Power consumption	Vibration
ZW-6	Halogen (1,400 lm)	1,200 hrs (bulb itself)	70W/ unit	8.57 Grms 18,600 Hz
ZW-7	LED (1,200 lm)	40,000 hrs	20W/ unit	8 Grms 24-2,000 Hz

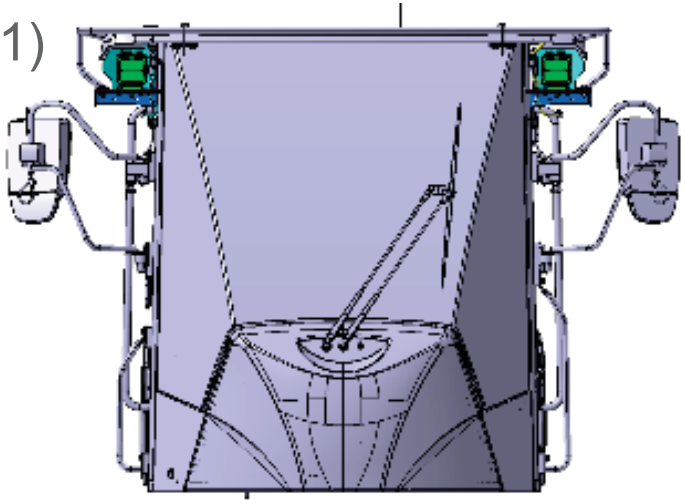
LED working lights deliver better operating conditions in dusty or low visibility environments. Power consumption is lower, and lifetime is longer compared to Halogen type

OPT LED working lights

As optional selections, the following can be selected:

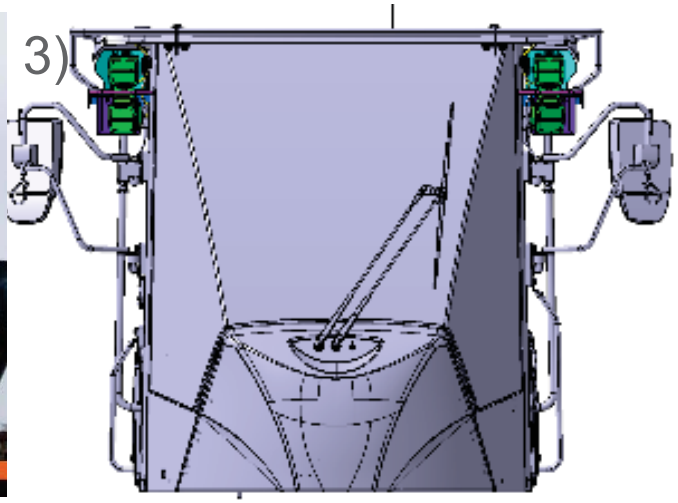
1) 2 front on cab & 2 rear LED working lights (High brightness; 4,200 lm/pc)
2) 4 front, 2 rear on cab & 2 rear LED working lights (1,200 lm/pc)
3) 4 Front & 2 rear on cab & 2 rear LED working lights (High brightness; 4,200 lm/pc)

1)



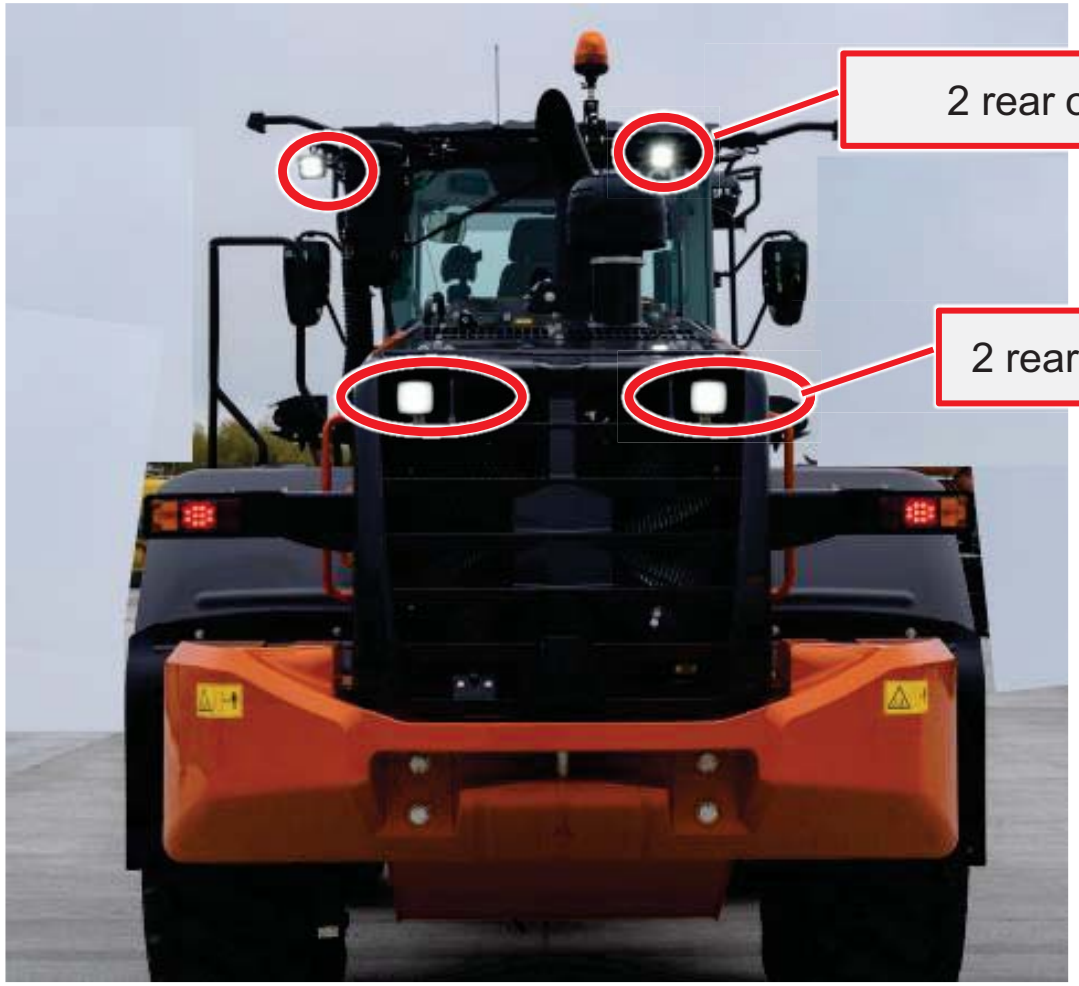
2)

3)



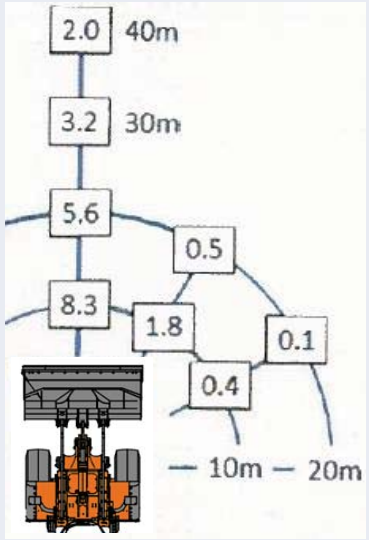
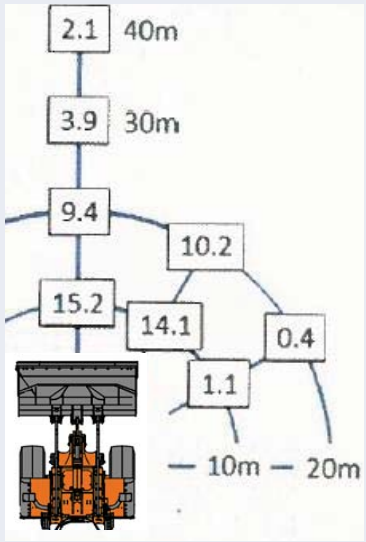
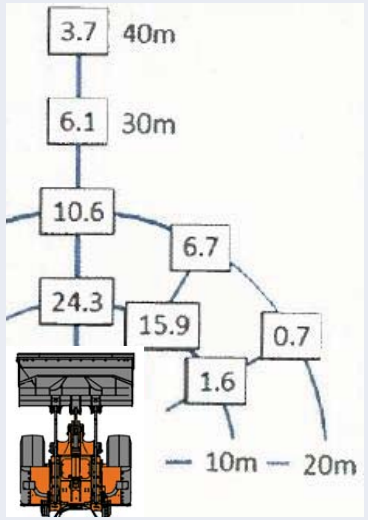
	Type	Service life	Power consumption	Vibration
ZW-7	LED (1,200 lm)	40,000 hrs	20W/ unit	8 Grms 24-2,000 Hz
	LED (4,200 lm)		50W/ unit	15.3 Grms 24-2,000 Hz

LED rear working lights

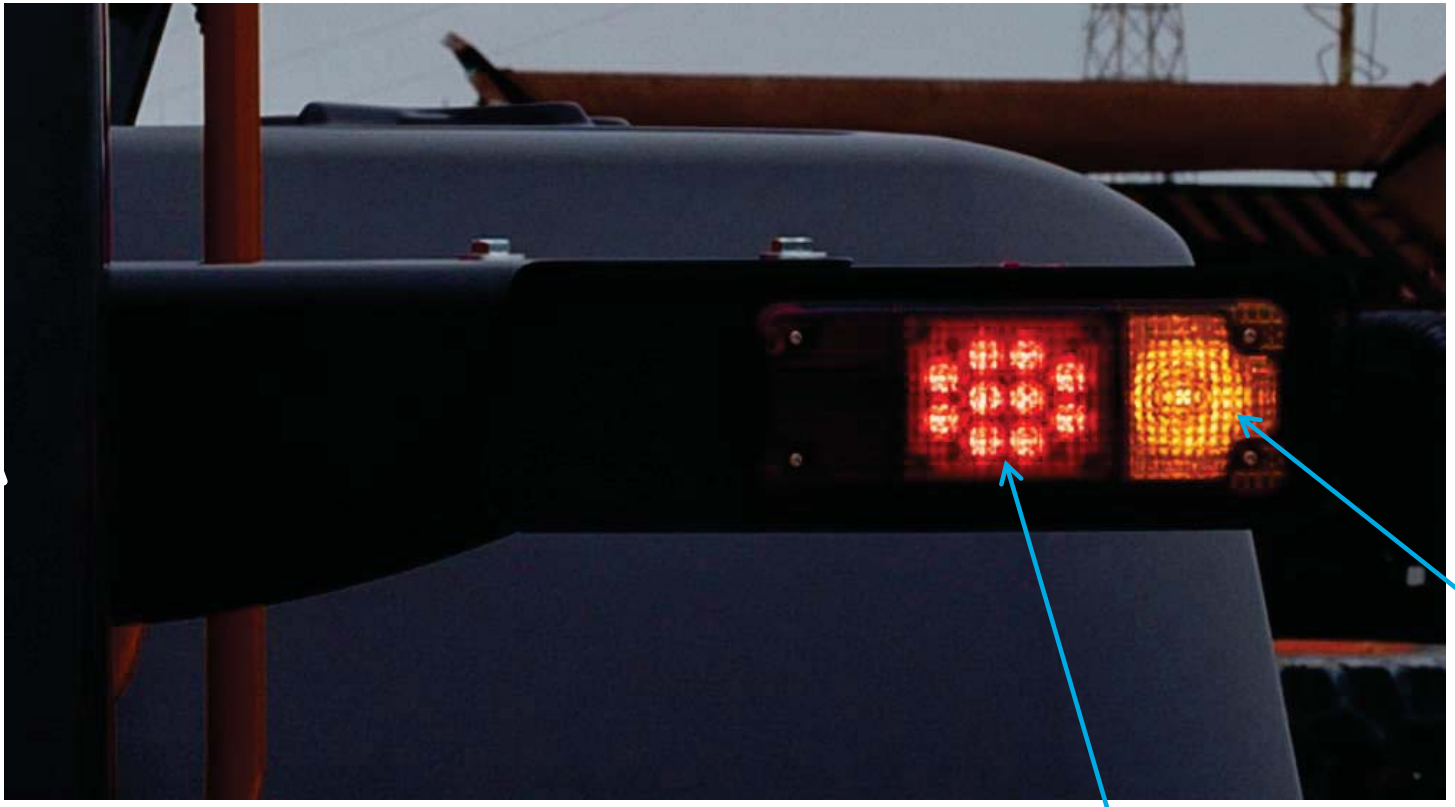


LED lights deliver better operating conditions in dusty or low visibility environments

LED working lights

	ZW-6	ZW-7	
	Halogen	LED (1,200 lm)	LED (4,200 lm)
Each spec is illuminance (lx)			
Test in HCM factory (distance to wall is approx. 40 m)			

LED rear conventional lights



Provides better visibility on dusty job sites

Improved STD Outside (Heated, 2) electric adjustable mirrors with retractable bracket

Rear view mirror heater switch

The operator can adjust the angle of rear view mirror via the switch.

OPT Rotary light switch

The switch is located on the top right of the cab.

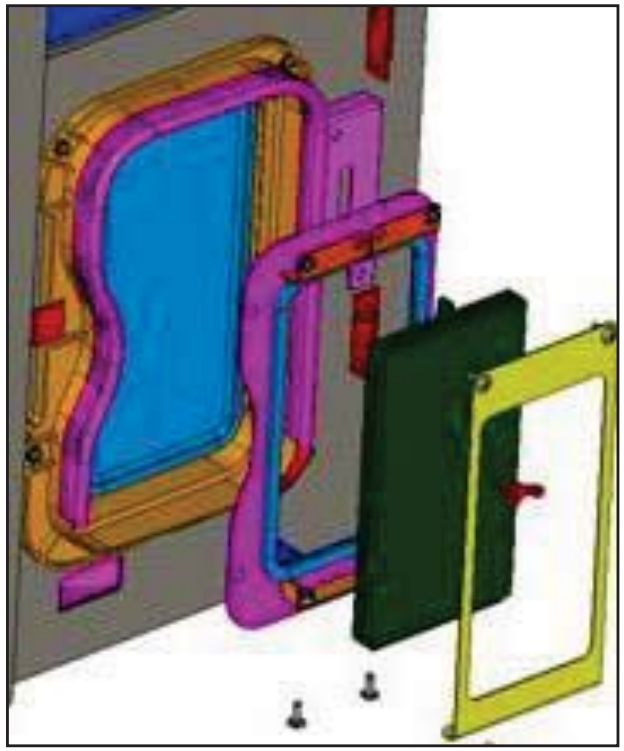
Pre-cleaner

Standard (Sy-Klone)

Option (Turbo II)

To reduce the frequency of air filter cleaning and extending air filter life, Turbo II and Sy-KLONE pre-cleaners are available. Sy-KLONE is included in the standard machine configuration

STD Air conditioner with double intake filter



Additional protection for the operator on dusty job sites

New OPT Pre-cleaner for air conditioner

and coming soon

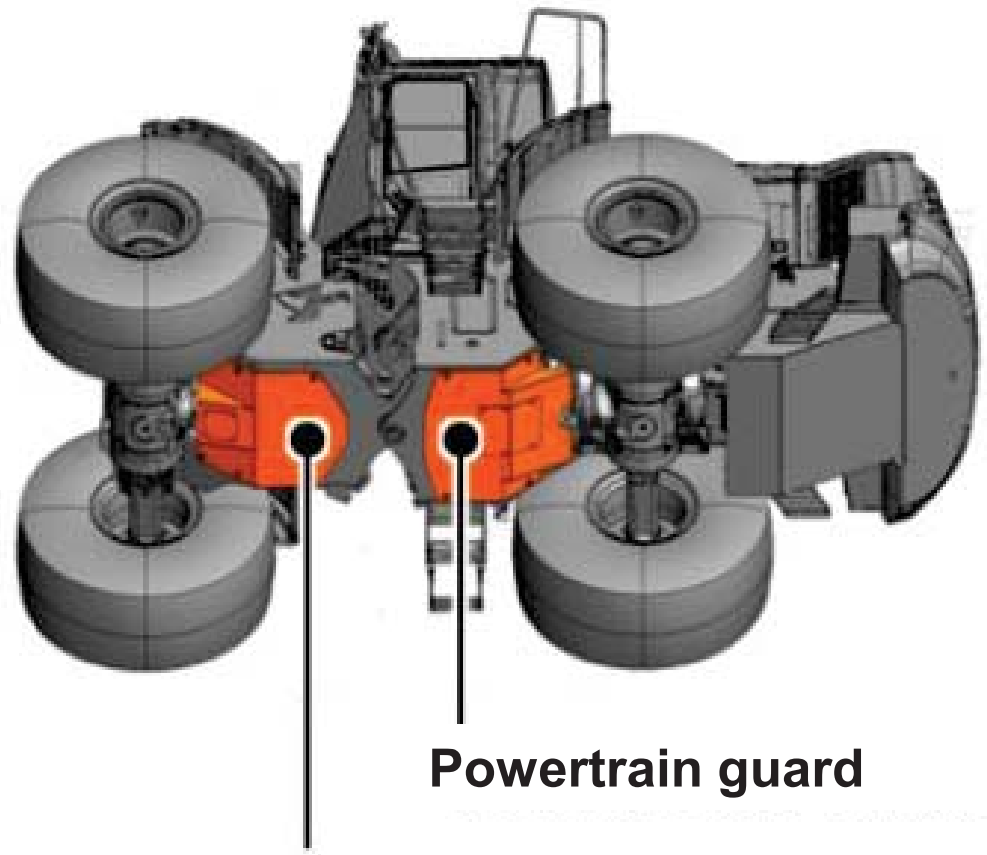
The pre-cleaner prevents dust from entering the operator's cabin. It is especially effective on dusty job sites. Outside air is cleaned by passing through the pre-cleaner before flowing into the air conditioner filter, which is installed on the inside cover.

Pre-cleaner features:

- ✓ Compact size: 505 mm x 223.2 mm
- ✓ Could be installed in combination with Aerial Angle®
- ✓ Motor long life interval 12,000 hr.
- ✓ Electro Magnetic Compatible approved

Prevents dust entering operator's cab

OPT Belly guard



Protects machine powertrain and driveshaft from damage

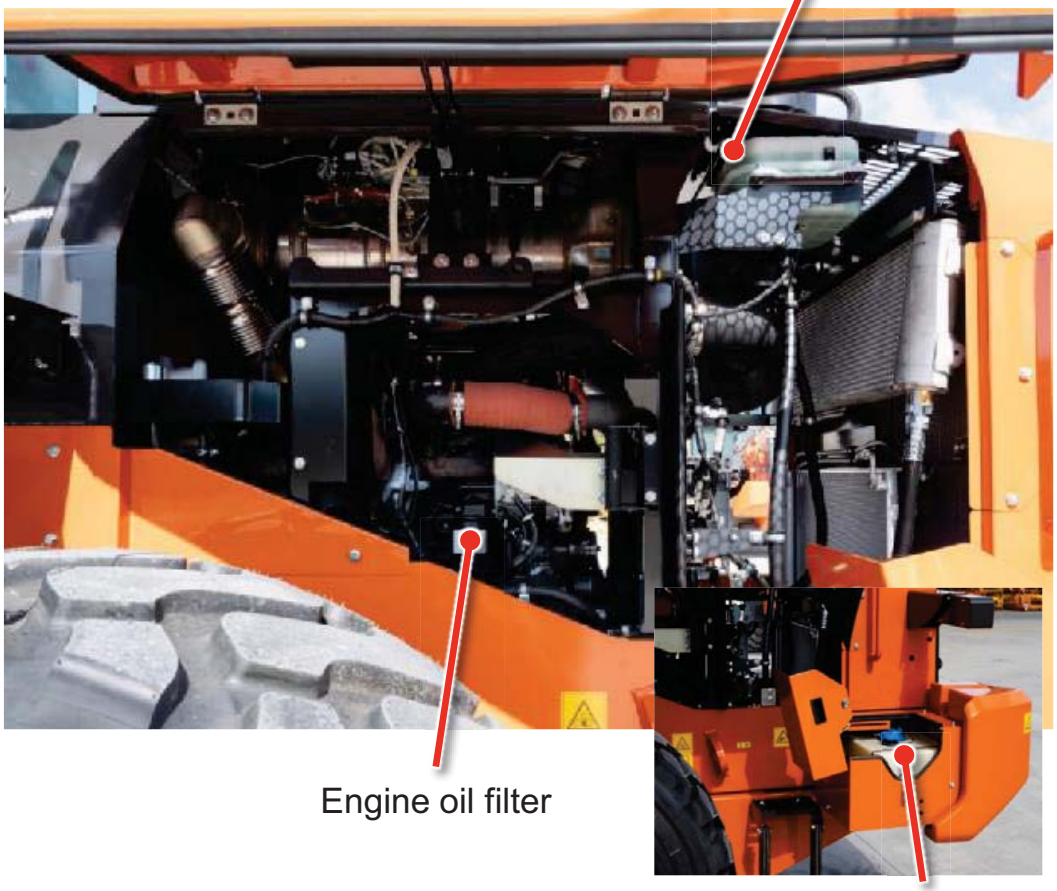
Wide open engine covers

Engine covers can open wide, providing easy access to the engine compartment

Engine compartment, left side

ZW-6

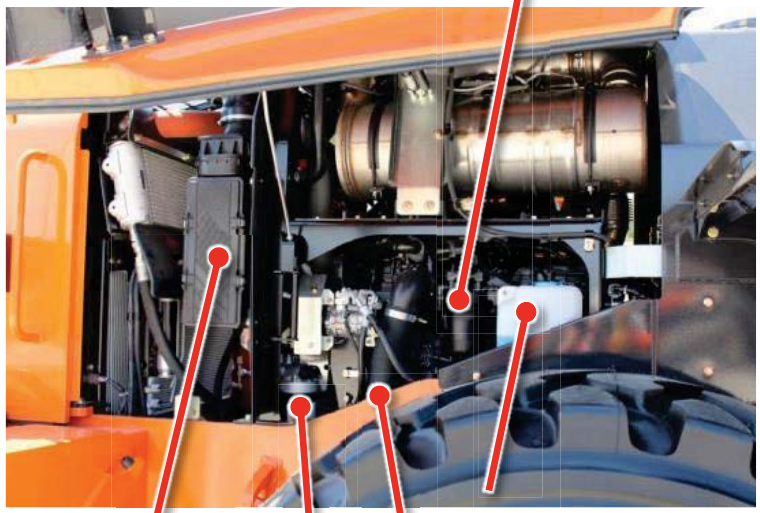
ZW-7



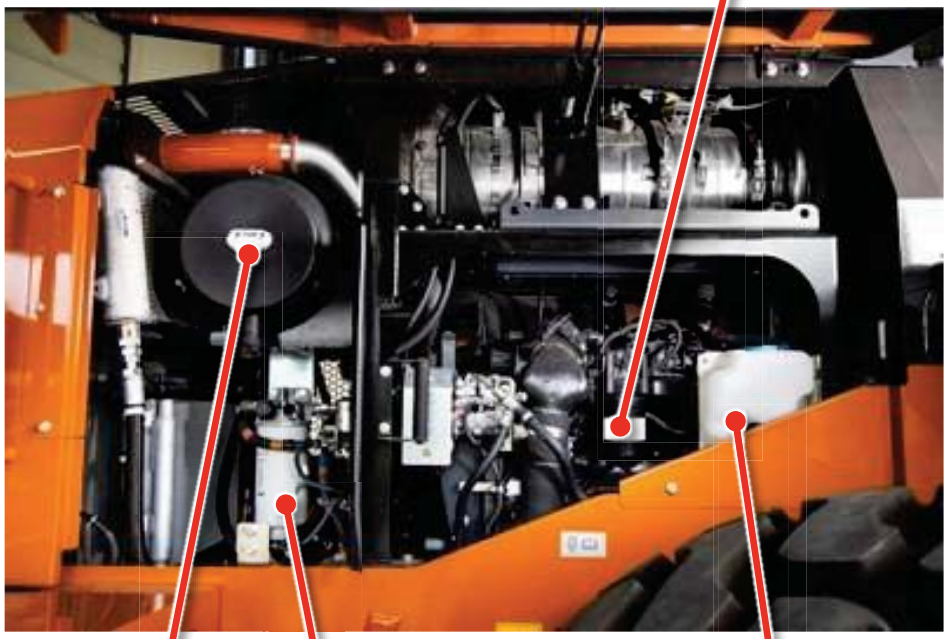
Ground accessibility

Engine compartment, right side

ZW-6



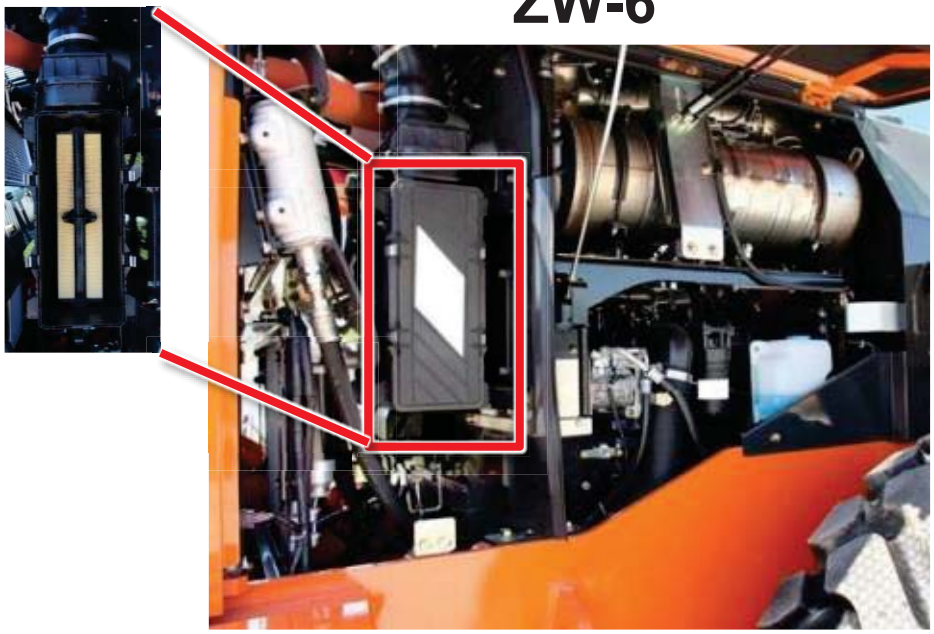
ZW-7



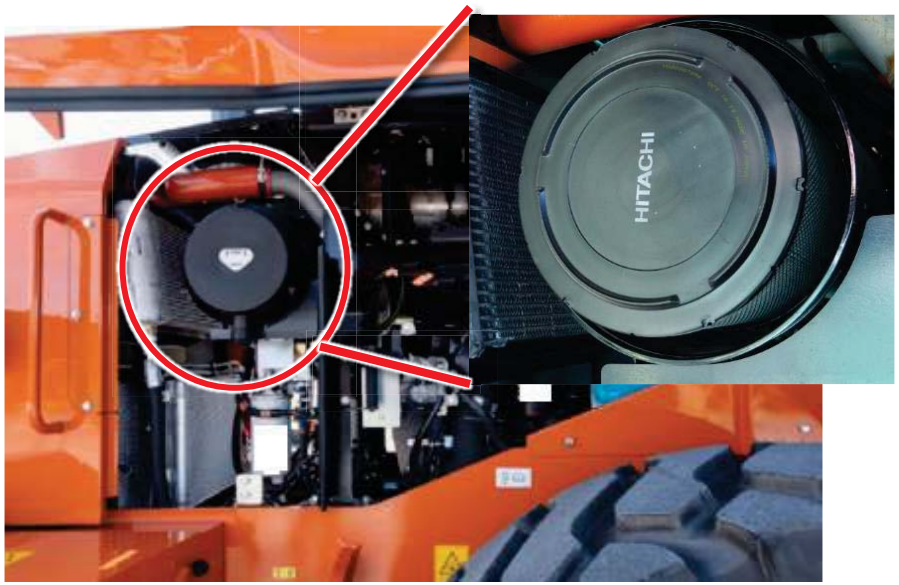
Ground accessibility

Improved Cleanable air cleaner (outer)

ZW-6



ZW-7

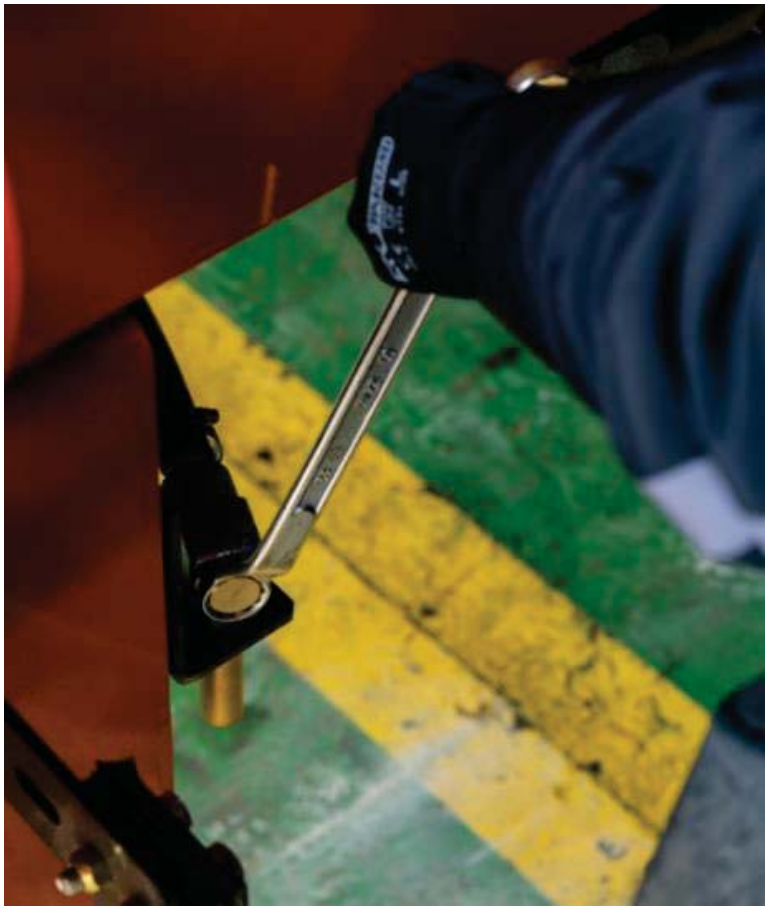


Cleanable air cleaner filter (outer)

Low running costs

Engine oil drain point

Engine oil drain point



Ground accessibility

Toolbox

Ground accessibility & space for frequently used tools

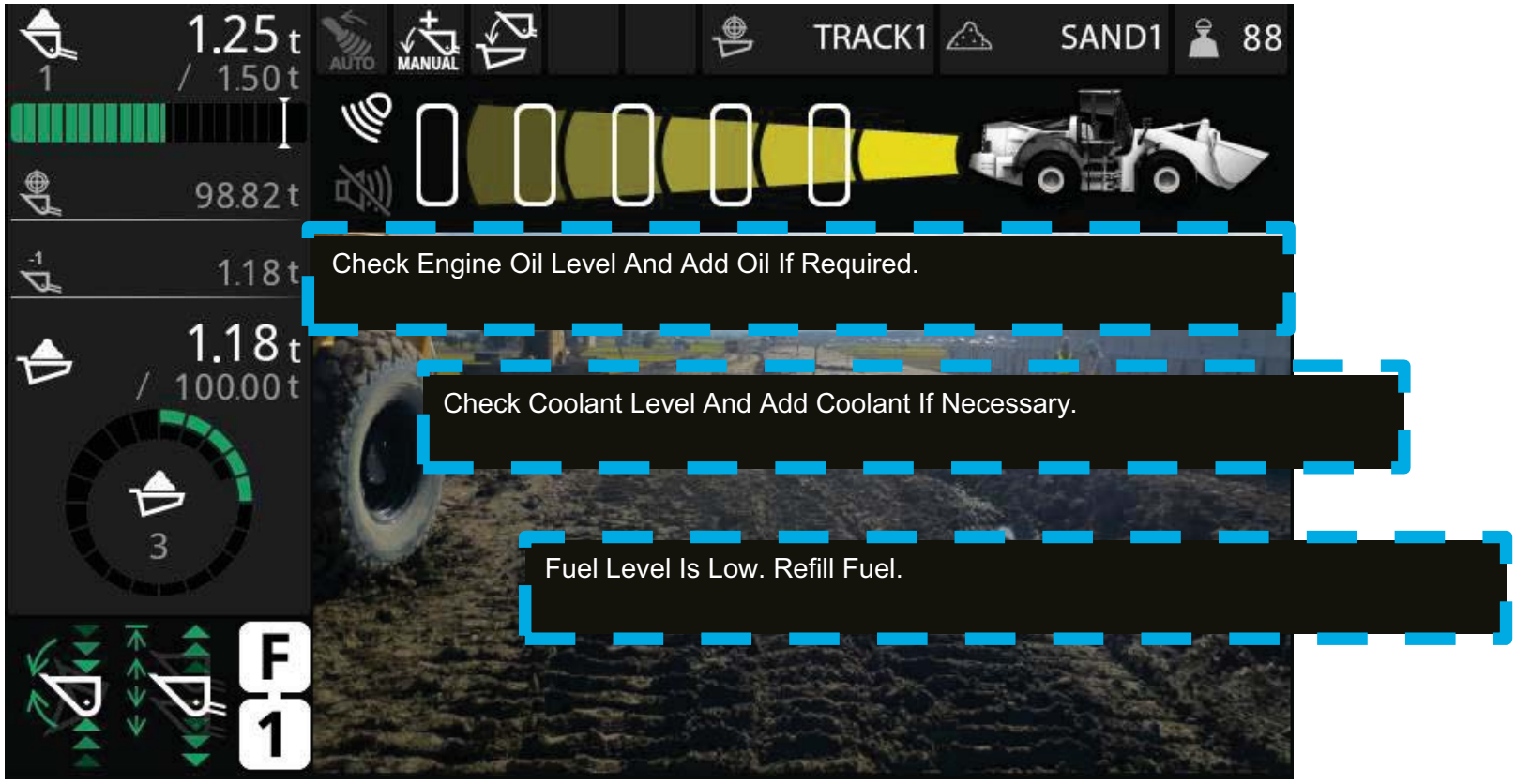
Maintenance interval

Unit: Hour

	for ZW220	ZW-7	ZW-6	ZW-5	ZW-1
Greasing	Around bucket	500	500	500	500
	Others for front	500	500	500	500
Consumables	Engine oil	500	500	500	500
	Engine oil filter	500	500	500	500
	Hydraulic oil	4,000	4,000	4,000	4,000
	Hydraulic oil filter	**2,000**	1,000	1,000	1,000
	Fuel main filter	**1,000**	500	500	500
	Fuel pre filter	**1,000**	500	500	500
	AdBlue Supply module filter	4,500	4,500	-	-
Muffler filter (DPF) cleaning		**4,500**	-	4,500	-
AdBlue tank filler filter		**4,500**	-	-	-
A/C filter (inside/outside) cleaning		100	100	100	100

Hydraulic oil filter and fuel main filter interval are extended for lower TCO

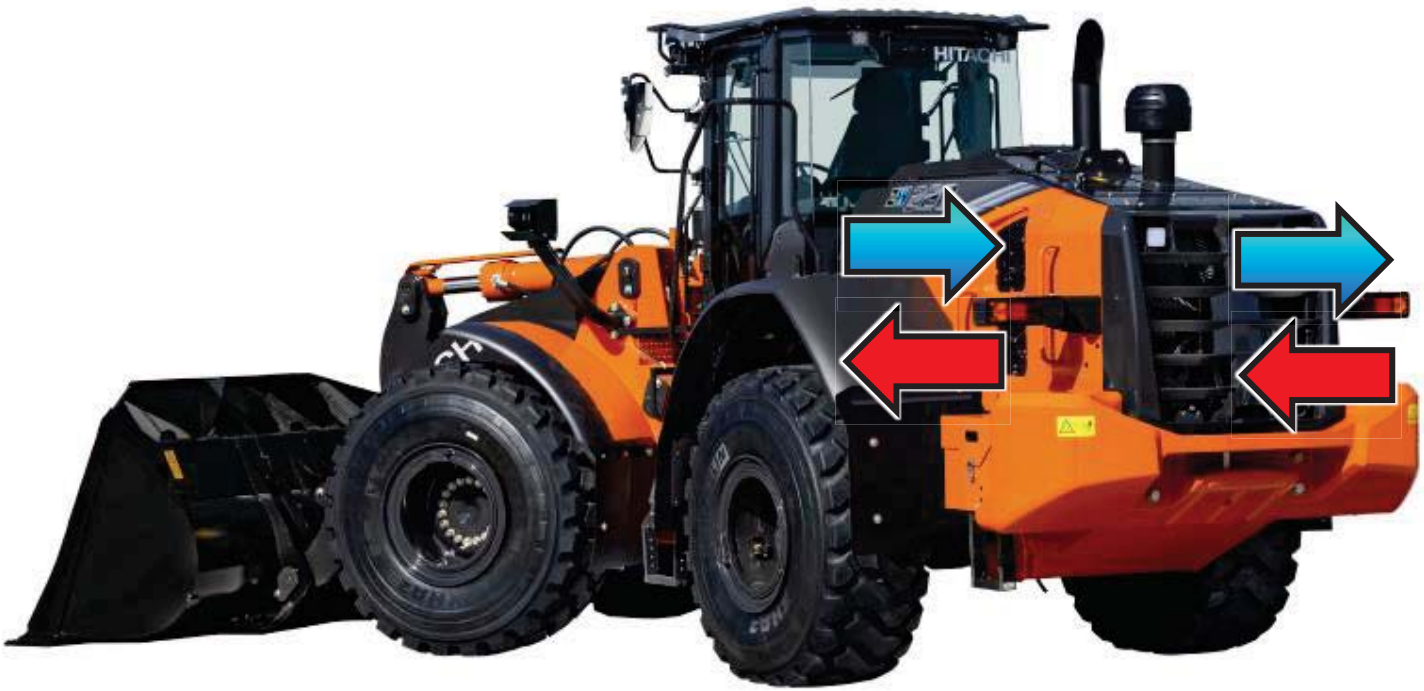
New Maintenance notice



The sub monitor indicates the maintenance timing.
Scheduled maintenance helps to reduce machine downtime

Improved STD Automatic reversible cooling fan

Dust is quickly removed by the automatic reverse rotation of the cooling fan to prevent radiators clogging. The improved function automatically adjusts rotation timing.
A sensor receives the water temperature level and adjusts the intervals to 20’ or 30’ accordingly.



Normal air flow

Reversible fan operation

Improved STD Automatic reversible cooling fan principle

ZW-6

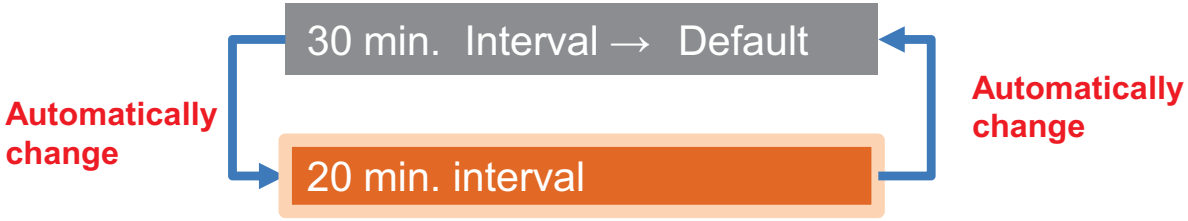
Interval of automatic reversible fan

30 min. interval

20 min.
45 min. } Selectable by MP. Dr.

ZW-7

Interval of automatic reversible fan



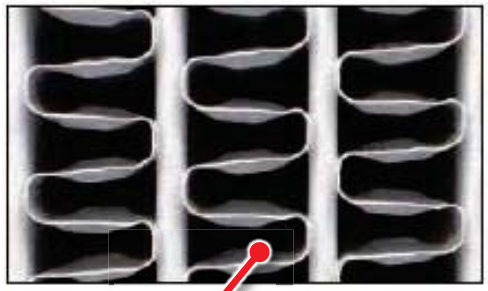
The automatic rotation interval is automatically changed by water temperature.

20 min.
45 min. } Selectable by MP. Dr.

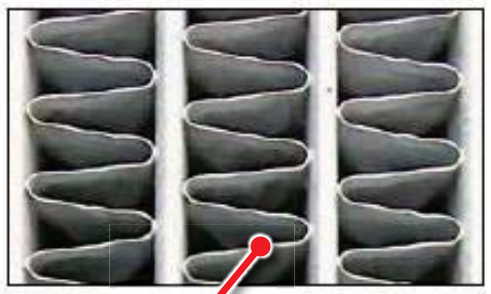
Radiator clogging is identified by increased water temperature and rotation intervals become shorter automatically

STD Anti Clogging Radiators (wide fin pitch)

- Effective on sites where radiators are frequently clogged with fine dust
- Adoption of a rectangular fin with a wide fin pitch reduces clogging and suppresses overheating



Wide fin pitch radiator

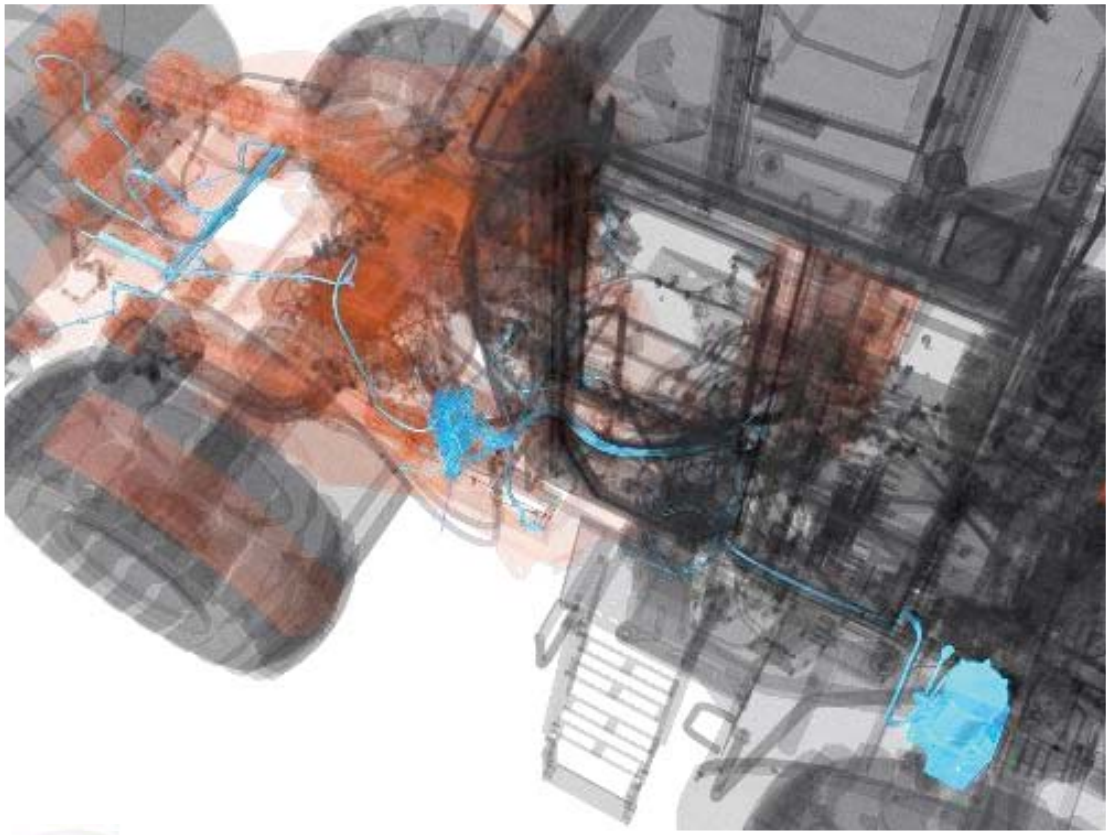


Normal fin pitch radiator

Avoid overheating even on job sites where radiators are frequently clogged

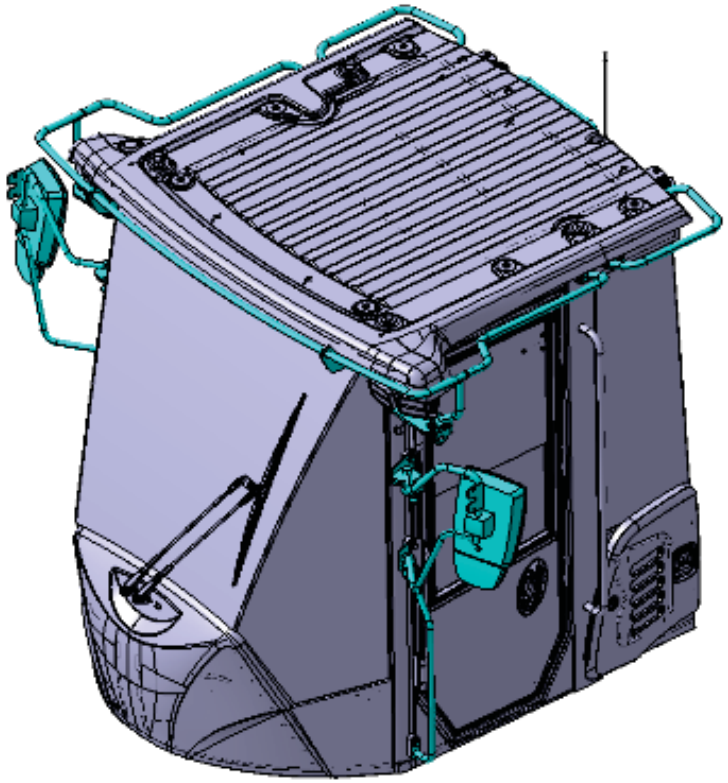
OPT Auto lubrication system

Auto lubrication system provides grease to hinge pins automatically for better serviceability. The lubrication tank is located on the left side of cab deck. New type LX-4 progressive distributor is used on ZW-7 series.



Auto lubrication system

New STD Cab top rail



Newly installed cab top rail provides safe access to clean the front and rear windows

New STD Cab window cleaning foot plate

Newly installed cab window cleaning foot plate delivers better and safe access to the front window for easier cleaning and wiper maintenance

Emergency evacuation hammer

Handrail for safety

STD ROPS - FOPS compliant cab

ZW features an ISO-standard ROPS & FOPS-compliant four pillar reinforced structure cab to protect the operator with a seat belt on.

Note:

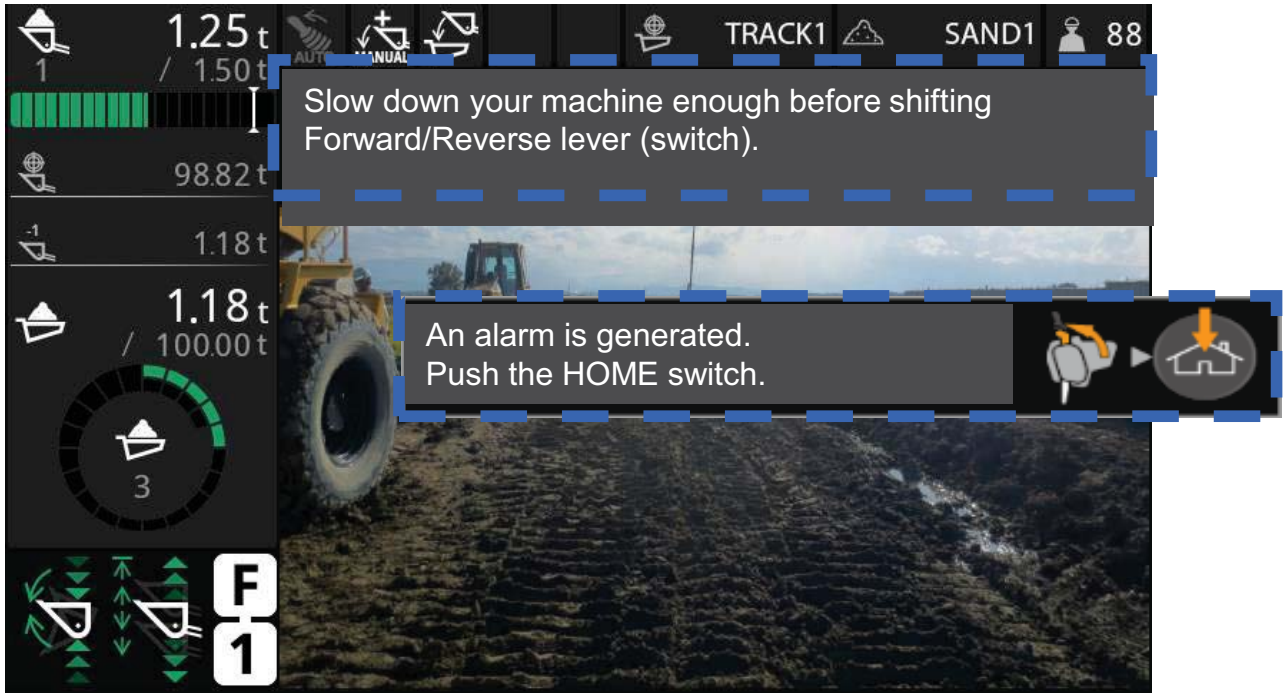
1. Machine may not be able to comply with ROPS when heavy options are installed, and the operating weight exceeds the permissible weight indicated in the cabin.
2. It is important for the operator to use the seat belt provided. In case of a roll-over it will keep the operator within the safe zone provided by the ROPS structure.

	Name	Standard	Details
Structure for protecting against falling and flying objects	**FOPS**	EN ISO 3449:2005	**Falling Objects Protective Structures** This standard specifies laboratory tests for measuring the structural characteristics of, and gives performance requirements in a representative test for falling-object protective structures (FOPS) intended for use on ride-on earth-moving machines such as wheel loaders.
Structure for protecting against rolling over	**ROPS**	EN ISO 3471:2008	**Roll-Over Protective Structures** This is a standard for earth-moving machinery, including wheel loaders, which sets requirements for a structure that is intended to ensure that in the event of a roll-over a deformed cab will not penetrate the deflection-limiting volume (DLV) simulating the presence of an operator.

Optimized operator protection

HITACHI
Reliable solutions

New STD Guidance display

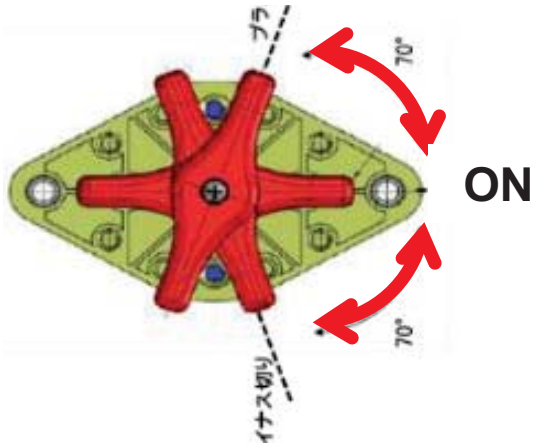


Guidance messages or panel switch status is displayed according to the machine operation status

Provides the operator with clear understanding of machine condition

Improved STD 2-way battery disconnect switch

Turning the switch to “+” (plus) side enables power shut-down without resetting the communication function for vehicle data and the clock. After the switch is turned to the plus side, the communication terminal of the vehicle can be used for three days.
Turn the switch to the “-” (minus) side to prevent battery discharge during long-term non-operating periods or during welding.



Disconnect Switch

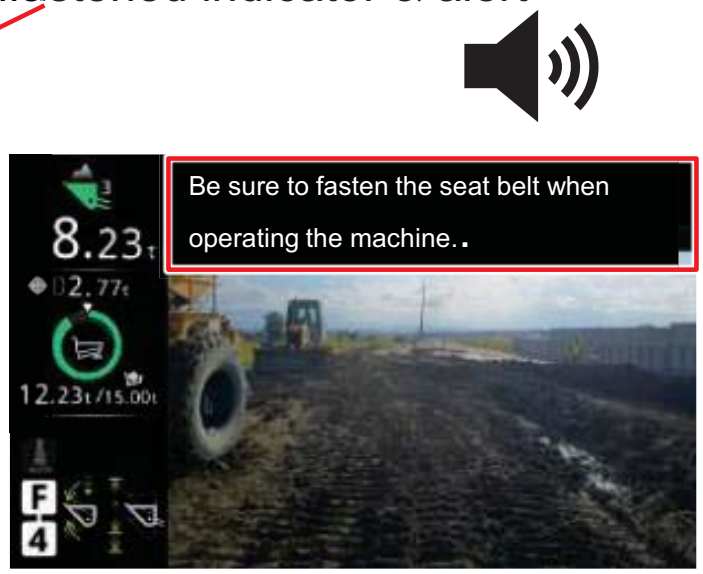
During turning on this lamp, (10-min after Key-off), do not disconnect the switch.

Partial disconnection

Complete disconnection

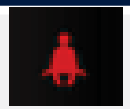
Without resetting communication/monitor data, battery discharge can be prevented.

New STD Seat belt reminder



To encourage seat belt use, the main monitor displays a warning indicator for 5 seconds each time the engine is started. Message “Fasten The Seat Belt” and/or “Be sure to fasten the seat belt when operating the machine” is displayed on the sub monitor

New STD Seat belt reminder

	Engine	Parking brake	Unfastened indicator on main monitor	Alert
Condition1	Not started Key On	-		No alert
Condition2	Started	Locked		No alert
Condition3	Started	Released	(blink) 	Sounds 3 times in a row continuously until seat belt has been fastened

STD Emergency steering

Emergency steering operation check switch

When the supply of hydraulic oil is stopped due to engine trouble, etc., and steering operation cannot be performed, steering operation can continue for a certain period by activating the emergency steering

For safety operation

HITACHI
Reliable solutions

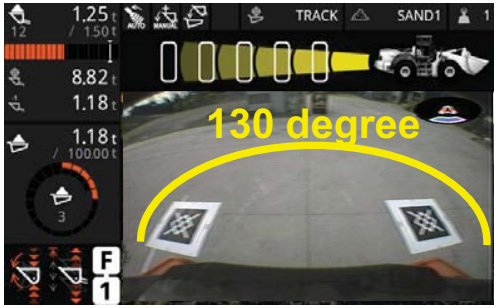
STD Control lever lock

Control lever lock switch prevents the machine from being operated accidentally. As per example if the operator moves the bucket and/or lift arm control lever when getting in or out of the machine. When the control lever lock switch is placed in the UNLOCK position, the front control lever becomes operable

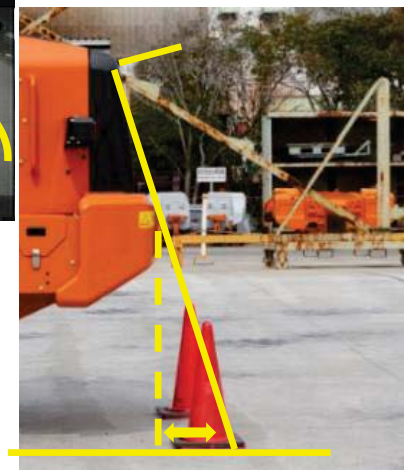
Rear view monitor visibility

ZW-6 and ZW-7's rear view camera has a broadened visual range, so that the operator can see the area right below the counterweight.
Moreover, it is possible to view both the operation status icons and the rear view monitor display simultaneously, without the hassle of having to switch between displays.

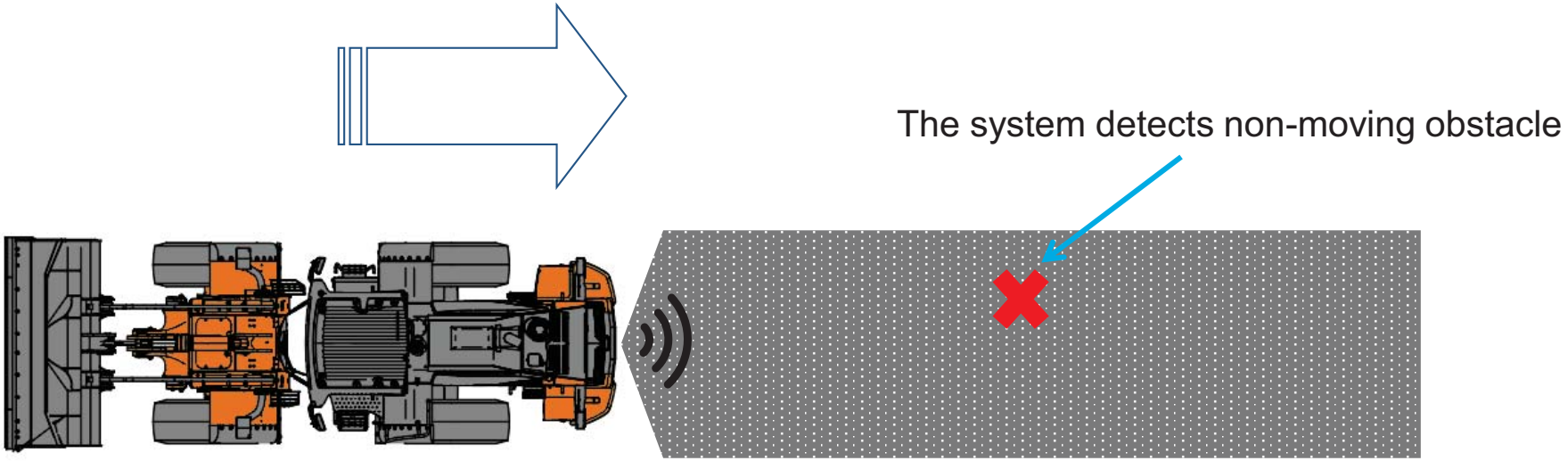
ZW-6



ZW-7



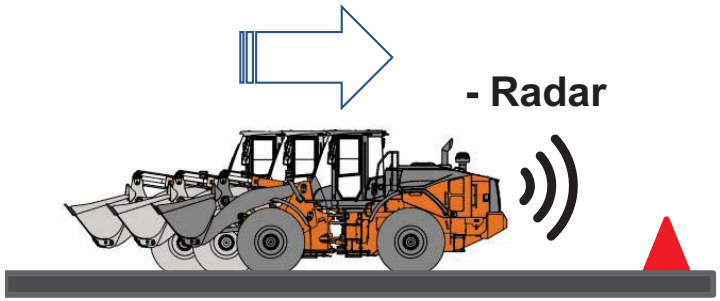
Rear obstacle detection and warning system



* Rear obstacle detection and warning system is a supporting system, please note that it may vary depending on the environmental conditions and object, detection not guaranteed.

HITACHI
Reliable solutions

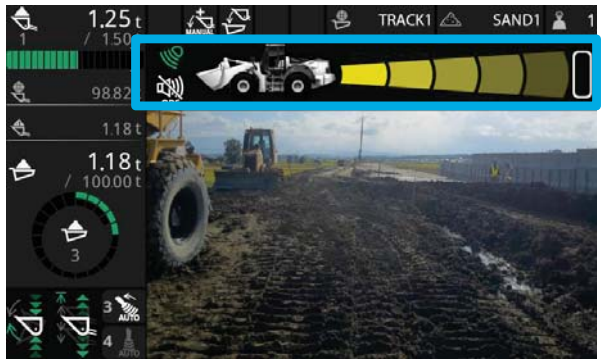
New OPT Rear obstacle detection and warning system



Controller

Sub monitor display

-Warning level 1 ~ 4 -



Alarm

Detect condition

- **Shift lever position: Rear**
- **Travel speed**
- **Inclination**

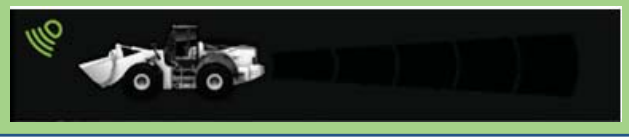
→During stock pilling operation the “rear obstacle detection and warning system” alarm is not activated due to the IMU sensor.

When an obstacle is detected behind the machine the operator is notified by visual and sound alarms

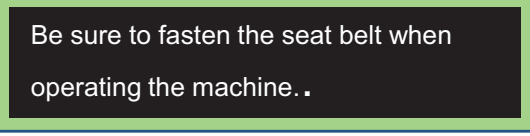
New OPT Rear obstacle detection and warning system

Sub monitor display

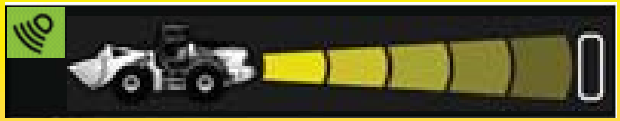
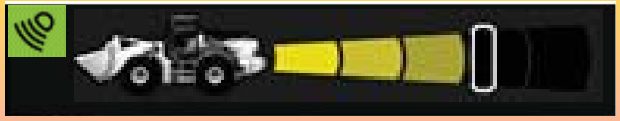
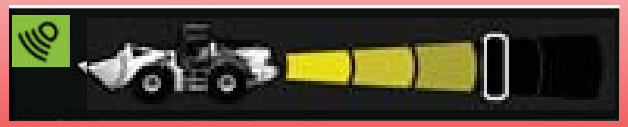
Normal



or

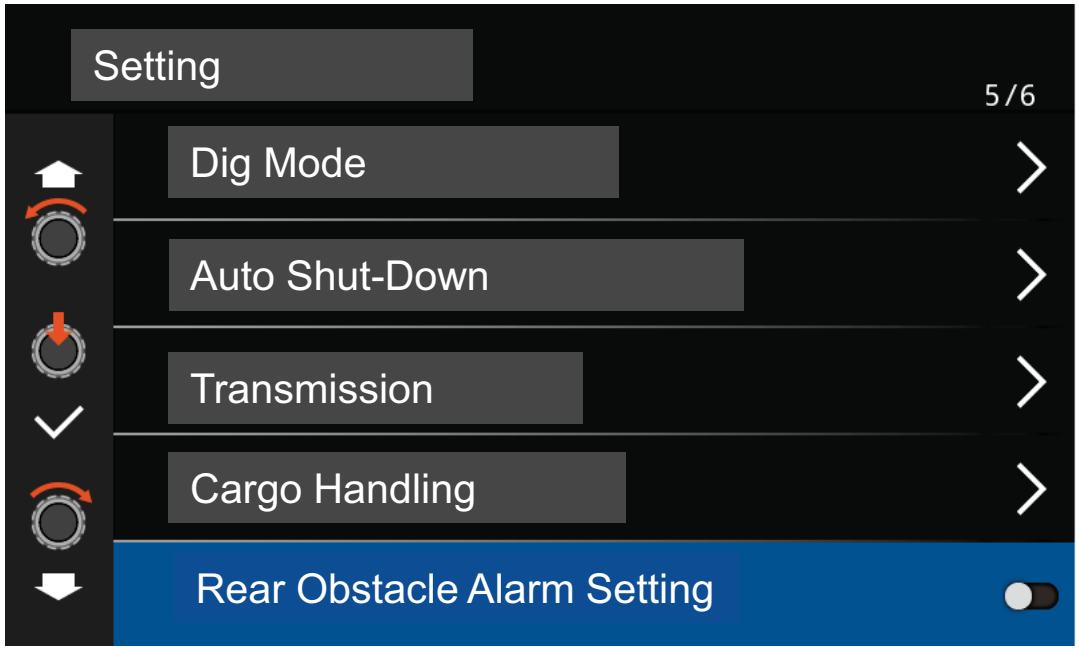


Rear obstacle alarm setting

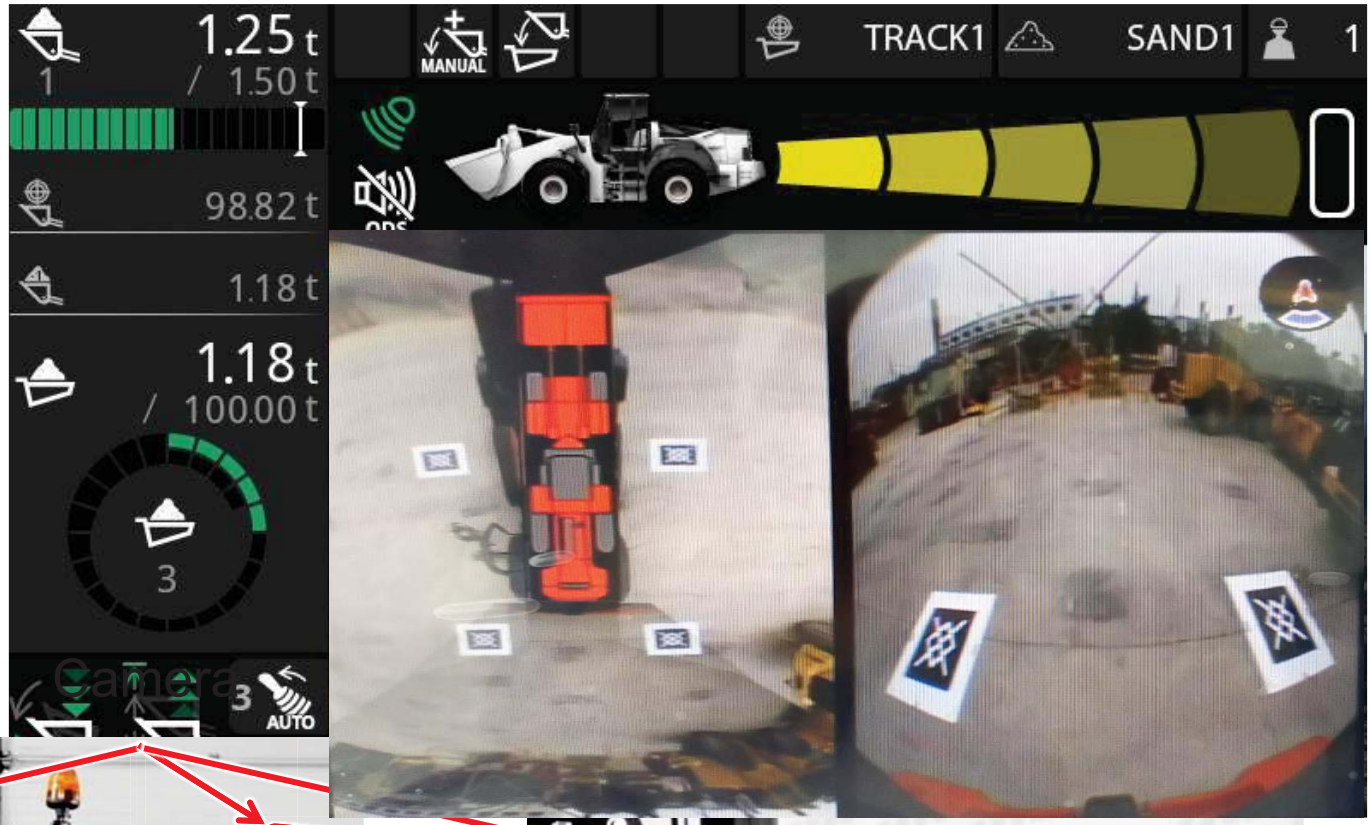
Warning level		ON	OFF
1.		No alarm	No alarm
		(Small short beep)	No alarm
		(Large long beep)	(Large long beep)
4.		(Large long beep)	(Large long beep)

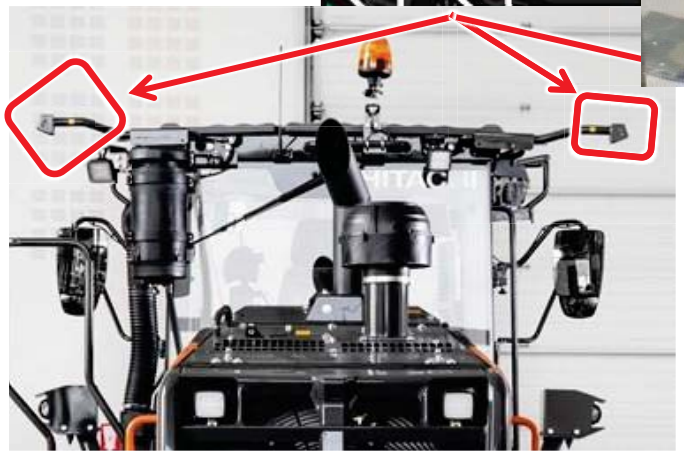
New OPT Rear obstacle detection and warning system

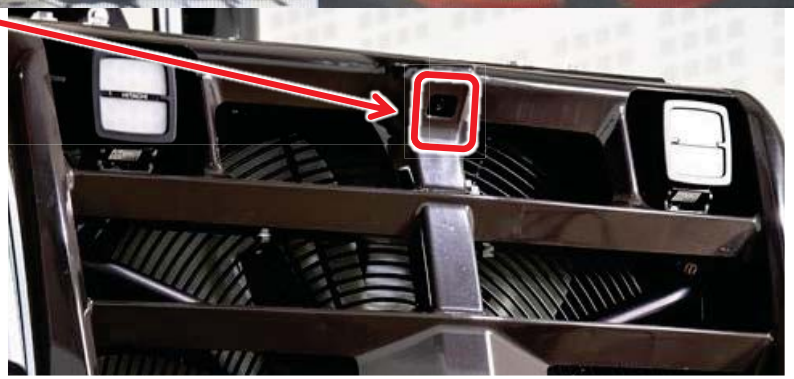
At warning level 2, the operator can choose to alert or not via Setting on sub monitor.



New OPT Aerial Angle® (side & rear view camera)

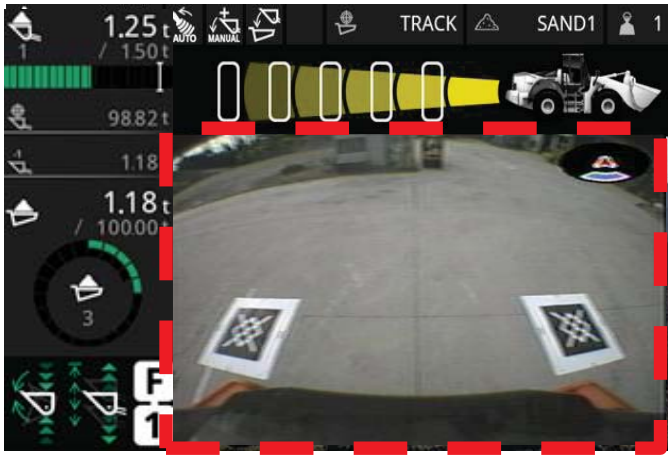




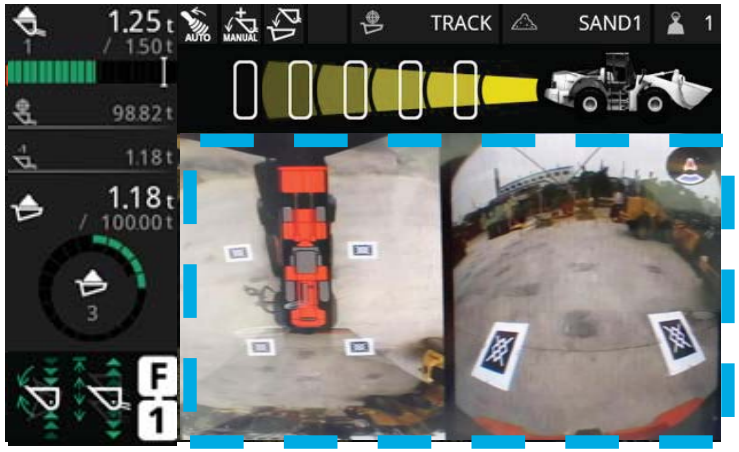


New OPT Aerial Angle® (side & rear view camera)

Operator can select an image satisfying ISO 5006 (operator's field of view) according to job site conditions and operator's preference from 3 image patterns. Visibility map is available in the operator's manual.



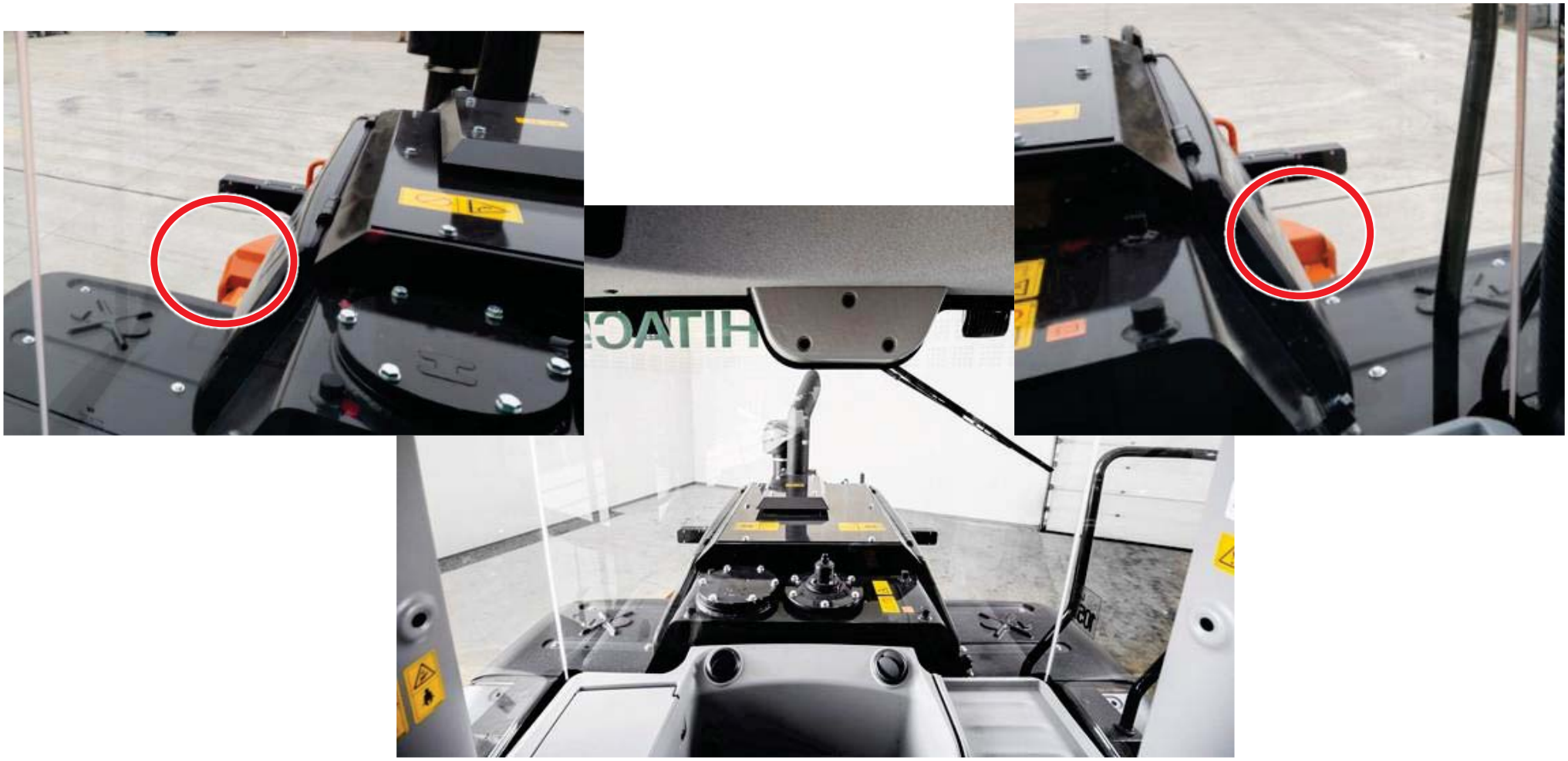
Rear view



Around view + Rear view

The view can be changed by sub monitor controller rotation.

Rear view from the operator's seat



Great visibility towards the rear of the machine supports operator confidence when working on narrow job sites

STD Rear view mirror (inside the cabin)

Specifications comparison

HITACHI

Reliable solutions

Manufacturer			HITACHI	HITACHI	CAT	Komatsu	VOLVO	Liebherr	Doosan
Model			ZW220-7	ZW220-6	950M	WA380-8	L110H	L550	DL300-5
Engine	Engine make		Cummins	Cummins	Cat	Komatsu	Volvo	Liebherr	Scania
	Engine model		B6.7	QSB6.7	C7.1 ACERT	SAA6D107E-3	D8J	D934 A7	DC9
	No. of cylinders - Piston displacement		→	6- 6.69	6- 7.01	6- 6.69	6- 7.755	4 - 7,014	5- 9.3
	Engine output (gross / ISO 9249, SAE J1349 net)	(kW)	157 / 152	149 / 145	186 / 171	143 / 142	191 / 190	143 / 140	202 /
	Engine output (gross / ISO 9249, SAE J1349 net)	(HP)	210 / 204	200 / 194	253 / 232	192 / 191	259 / 258	194 / 190	271 /
	Engine max. torque (ISO 9249, SAE J1349 net)	(Nm)	967	907	1,163	941	1,250	1,215	
	Exhaust emission regulation		Stage V	Stage IV	Stage IV	Stage V	Stage IV	Stage IV	Stage IV
	After treatment device		SCR + DPF	SCR (w/o DPF)	DPF + SCR	DPF + SCR	DPF + SCR	SCR (w/o DPF)	SCR
Noise level	LpA (inside cab)	(dB)	→	68	69	68	68	68	73
	LwA (outside cab)	(dB)	→	105	106	108	106	104	107
Transmission	Number of forward / reverse speeds		→	5 / 3	5 / 3 (w/ Lock-up)	4 / 4 (w/ Lock-up)	4 / 4 (w/o Lock-up) opt. (w/ Lock-up)	(CVT)	5 / 3 (w/ Lock-up)
	Max. forward speed	(km/h)	36.3	36.0	40	40	40	40	37
Hydraulic System	Main pump type		→	Variable piston pump	Variable piston pump	Variable piston pump	Variable piston pump	Variable piston pump	Variable piston pump
	Main pump max. flow	(L/min)	→	275	286	205	128 + 128	234	290
	at engine rpm	(min-1)	→	2,200	2,150		1,900		
	Main relief valve setting	(MPa)	→	27.4	29.3	31.4	29	33	25
	Hydraulic cycle time								
	Raise	(sec)	5.6	5.6	5.1	5.9	5.4	5.5	5.8
	Dump, loaded, max lift:	(sec)	1.5	1.5	1.5	1.8	2.1	2.3	1.4
	Lower, empty, float down	(sec)	3.3	3.3	2.3	3.3	2.5	2.7	3.2
	Total	(sec)	10.4	10.4	8.9	11	10	10.7	10.4
Axles	Front differential type STD / OPT		→	TPD / LSD	manual diff lock / auto diff lock	HD axle / LSD	Diff lock / conventional / LSD	LSD	LSD / Diff lock
	Rear differential type STD / OPT		→	TPD / LSD	/ auto Diff lock	HD axle / LSD		LSD	LSD / Diff lock

Specifications comparison

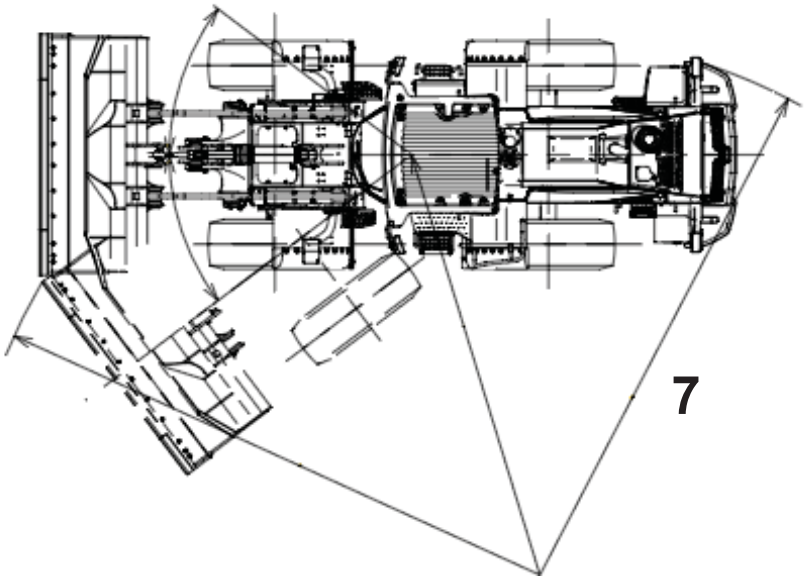
HITACHI

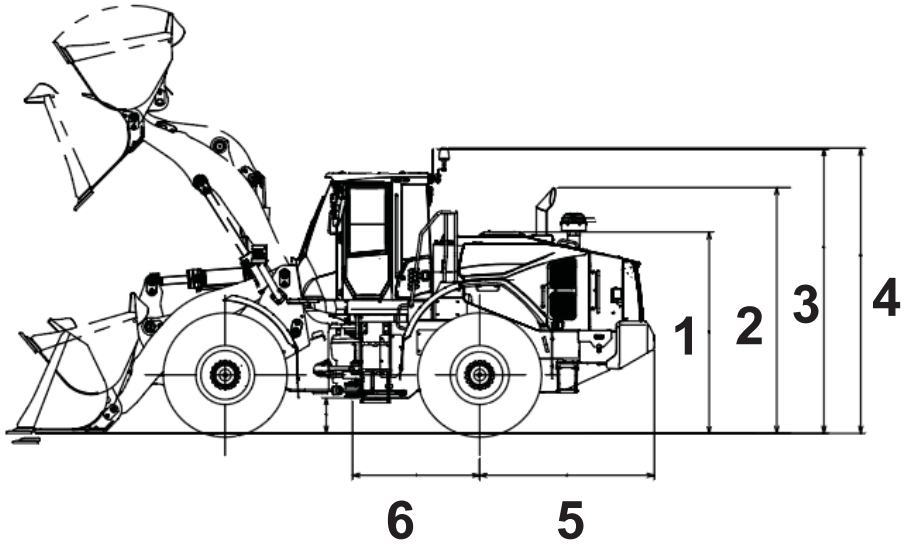
Reliable solutions

Manufacturer			HITACHI	HITACHI	CAT	Komatsu	VOLVO	Liebherr	Doosan
Model			ZW220-7	ZW220-6	950M	WA380-8	L110H	L550	DL300-5
Capacities	Fuel tank	(L)	→	255	275	300	270	280	241
	Hydraulic tank	(L)	→	114	125	142	133	105	180
	AdBlue tank	(L)	→	25	16	36	24.9	67.5	38
Loader	Loader type		Single arm	Single arm	Single arm	Single arm	Single arm	Single arm	Single arm
	Geometry		Z bar - 1	Z bar - 1	Z bar - 1	Z bar - 1	TP linkage	Z-bar	Z bar - 1
	Bucket mounting		Direct	Direct	Direct	Direct	Direct	Direct	Direct
	Bucket type		GP w/ BOC	GP w/ BOC	GP w/ BOC	GP w/ BOC	GP w/ BOC	GP w/WOT	GP w/ BOC
	Bucket capacity heaped	(m^3)	→	3.3	3.1	3.35	3.4	3.2	3.2
	Bucket width	(mm)	→	2,910	2,927	2,990	2,880	2,700	2,920
	Hinge pin height	(mm)	→	4,080	4,027	4,095	4,030	3,915	3,975
	Dump angle full height	(deg)			47		50	45	45
	Dump clearance at full lift and 45 deg discharge	(mm)	2,800	2,900	2,821	2,950	2,790	2,880	2,845
	Dump reach at full lift and 45 deg discharge	(mm)	1,220	1,140	1,346	1,110	1,200	1,095	1,160
	Crowd angle carry position	(deg)	47	47	49		44	48	49
	Crowd angle ground	(deg)			37		40		45
	Breakout force	(kN)	156	147	181	153	157.7	140	168
	Operating weight	(kg)	18,190	18,080	19,221	18,270	18,560	17,700	18,890
	Turn radius over bucket	(mm)	6,980	6,940	6,881	7,365	6,330	6,585	6,405
	Tipping load straight	(kg)	15,230	14,940	12,624	14,755	13,350	14,000	15,380
	Tipping load FTTL	(deg / kg)	37 / 13,490	37 / 13,210	/ 10,878	40 / 12,865	40 / 11,420	40 / 12,200	40 / 13,580
	Length with bucket on ground	(mm)	8,520	8,300	8,371	8,210	8,010	8,380	8,095
Dimensions	Wheelbase	(mm)	→	3,300	3,350	3,030	3,200	3,395	3,200
	Tread	(mm)	→	2,160	2,140	2,160	2,070	2,003	2,150
	Height over cab	(mm)	→	3,370	3,446	3,395	3,380	3,370	
	Tier size std		→	23.5R25	23.5 R25	23.5 R25	23.5 R25	23.5R25	23.5 R25
	Width over tires std	(mm)	→	2,825	2,814	2,765	2,670	2,650	2,760
	Ground clearance std	(mm)	→	450	385	455	430	442	435

Additional specifications

HITACHI
Reliable solutions





1: Height to Top of Hood	: 2,620 mm
2: Height to Top of Exhaust Pipe	: 3,190 mm
3: Height to Top of Antenna	: 3,680 mm
4: Height to Top of Rotating Beacon	: 3,700 mm
5: Center line of rear axle to edge of counterweight	: 2,265 mm
6: Center line of rear axle to hitch	: 1,650 mm
7: Turning Radius of Counterweight	: 6,320 mm

With 23.5 R25 (L3) tires

ZW220-7 vs Competitors

HITACHI

Reliable solutions

	HITACHI ZW220-7	HITACHI ZW220-6	CAT 950 M	VOLVO L110H	KOMATSU WA380-8
Machine Performance					
Improvement of acceleration by increasing torque in low engine speed range	STD	-	-	STD	-
Fuel saving mode	STD mode	STD mode	Eco mode	Opti-shift	E-Light
Approach speed control	STD	-	-	-	-
Quick P	STD	STD	-	-	-
Eco Pedal	-	-	-	STD	-
Comfort and operability					
Electric control lever	STD	-	STD	STD (3 mode)	STD
Electric control lever mounted on seat	STD	-	STD	STD	STD
JSS	OPT	OPT	OPT	OPT	OPT
Air suspension seat with heater	STD	STD	OPT	OPT	STD
Monitor on A pillar	STD	-	STD	-	-
Panel switch on A pillar	STD	-	STD	STD	-
DAB radio with Bluetooth	STD	OPT	OPT	OPT	OPT
Semi auto dig control	-	-	-	-	STD
USB 5V supply	STD	-	-	-	-

ZW220-7 vs Competitors

HITACHI
Reliable solutions

	ZW220-7	ZW220-6	950 M	L110H	WA380-8
Payload checker with tip off function	STD	-	STD	OPT (Load Assist)	STD
Safety					
Aerial Angle	OPT	-	-	-	-
Rear obstacle system	OPT	-	OPT	OPT	OPT
Cab top rail	STD	-	STD	STD	-
Cleaning foot plate for front window	STD	-	STD	STD	-
Auto switch to open/close cab door	-	-	OPT	OPT	-
Life circle cost					
Auto interval change of automatic cooling fan	STD	-	OPT	-	-
Lock-up clutch torque converter	-	-	STD	STD	STD
Wide fin pitch radiator	STD	STD	OPT	-	STD
Battery disconnect switch	STD (2-way)	STD	STD	STD	STD
One-piece tilting engine hood	-	-	STD	STD	-
Def Lock	-	-	STD	-	-
Engine idle shut-down (interval can be changeable)	STD	STD	STD	-	STD

Interchangeability of components

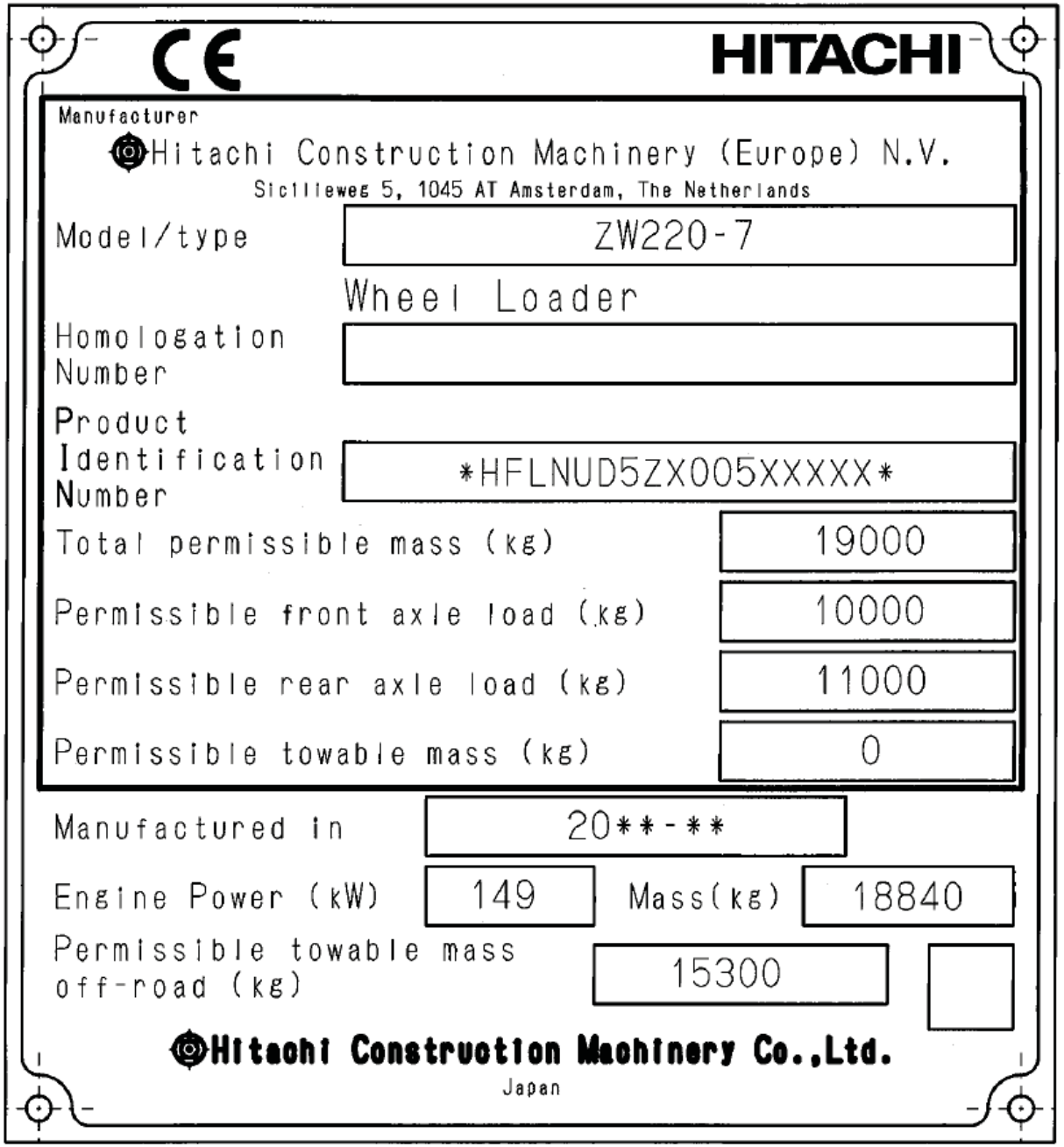
HITACHI
Reliable solutions

◯:Interchangeable　X:　not Interchangeable

ZW220-6	ZW220-7
Lift arm	◯
Bell crank	◯
Bucket /attachment	◯
Rim	◯

Identification Plate

HITACHI
Reliable solutions


CE
HITACHI
Manufacturer
Hitachi Construction Machinery (Europe) N.V.
Sicilieweg 5, 1045 AT Amsterdam, The Netherlands
Model/type ZW220-7
Wheel Loader
Homologation Number
Product Identification Number *HFLNUD5ZX005XXXXX*
Total permissible mass (kg) 19000
Permissible front axle load (kg) 10000
Permissible rear axle load (kg) 11000
Permissible towable mass (kg) 0
Manufactured in 20**-**
Engine Power (kW) 149
Mass(kg) 18840
Permissible towable mass off-road (kg) 15300
Hitachi Construction Machinery Co.,Ltd.
Japan

Model Code for GeS:
NUD50 → for HCM (Jpn) production
NUD5Z → for HCME (Ams) production

Option List

HITACHI

Reliable solutions

1. Joystick Steering with Handle Wheel
2. Std Lift Arm with LK007 & AP3 piping
3. Std Lift Arm with LK108 & AP3 Piping
4. Std Lift Arm with LKQ007 & AP3 Piping
5. Std Lift Arm with LKQ108 & AP3 Piping
6. Std Lift Arm with LK013 & AP4 Piping
7. Std Lift Arm with LK114 & AP4 Piping
New 8. Std Lift Arm with LKQ013 & AP4 Piping
New 9. Std Lift Arm with LKQ114 & AP4 Piping
10. High Lift Arm with LK007 & AP3 Piping
11. High Lift Arm with LK108 & AP3 Piping
12. Michelin L3 (XHA2) - 23.5R25
13. Michelin L5 (XLDD2) - 23.5R25
14. Michelin L5 (X-MINED2 PRO) - 23.5R25
15. Michelin L2 (XSNOPLUS) - 23.5R25
16. Additional Michelin L3 (XHA2)
17. Additional Michelin L2 (XSNOPLUS)
New 18. Bridgestone L3 (VJT)
19. 4 HB LED WLamp (2F Cab & 2Eng Grille)
20. 8 HB LED WLamp (4F/2R Cab & 2Eng Grille)
New 21. 8 LED WLamp (4F/2R Cab & 2Eng Grille)
22. Rotating Lamp with Bracket
23. Bracket for Rotating Lamp
24. German Road Homologation Kit
25. Italian Road Homologation Kit
26. Spanish Road Homologation Kit
New 27. Cab Pre-Cleaner (SY-KLONE)
28. Pre-Cleaner (Turbo II)
New 29. Multidirectional Camera System
New 30. Rear Obstacle Detection System
31. Auto Lubrication System (BEKA-MAX) for SLA
32. Auto Lubrication System (BEKA-MAX) for HLA
33. Bucket Cutting Edge Protection
34. Wheel Blocks
35. Rear License Plate Bracket
36. Driving Speed Limiter (20km)
37. Belly Guard
38. Bucket Cylinder Guard
39. Cab Front Windshield Guard
40. Radiator Dust Protection Screen

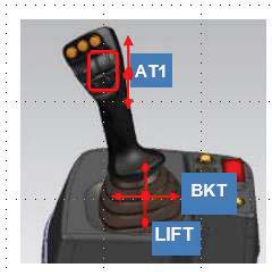
Option List

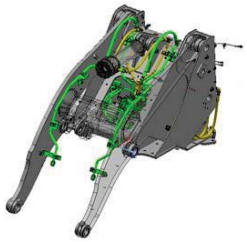
HITACHI
Reliable solutions

1. Joystick Steering System

Joystick steering is very useful during long operation hrs. Loader is always equipped with steering wheel as standard machine configuration.

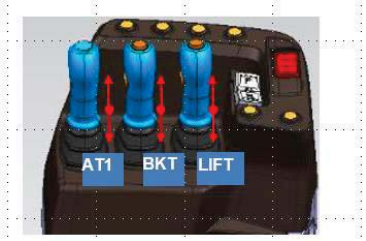
2. Std Lift Arm with LK007 & AP3 piping

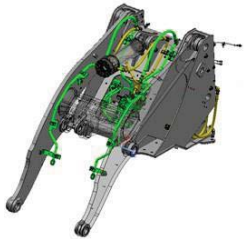




Pattern; LK007
Control lever type; Multifunction lever
Control valve spools; 3
Auxiliary lines on Lift Arm; 1

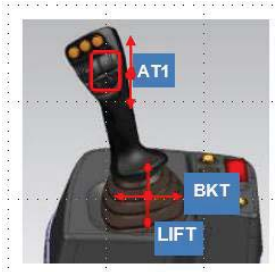
3. Std Lift Arm with LK108 & AP3 piping

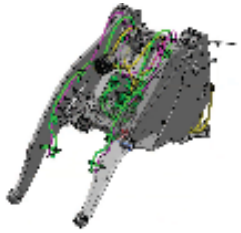




Pattern; LK108
Control lever type; Mono lever
Control valve spools; 3
Auxiliary lines on Lift Arm; 1

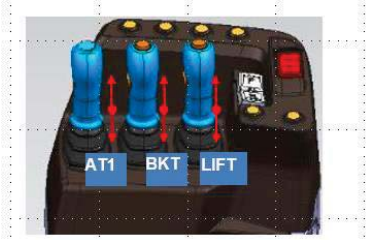
4. Std Lift Arm with LKQ007 & AP3 piping

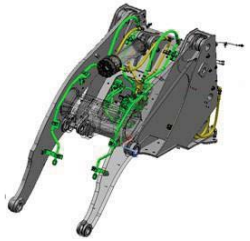




Pattern; LKQ007
Control lever type; Multifunction lever
Control valve spools; 3
Auxiliary lines on Lift Arm; 1 & 1 Quick coupler line

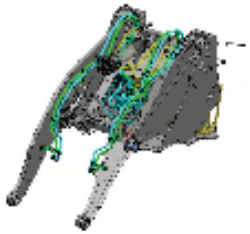
5. Std Lift Arm with LKQ108 & AP3 piping





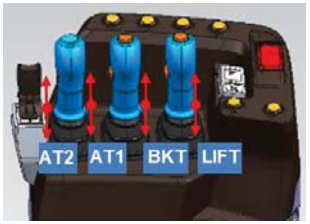
Pattern; LKQ108
Control lever type; Mono lever
Control valve spools; 3
Auxiliary lines on Lift Arm; 1 & 1 Quick coupler line

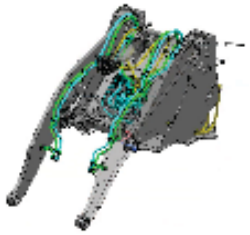
6. Std Lift Arm with LK013 & AP4 piping



Pattern; LK013
Control lever type; Multifunction lever
Control valve spools; 4
Auxiliary lines on Lift Arm; 2

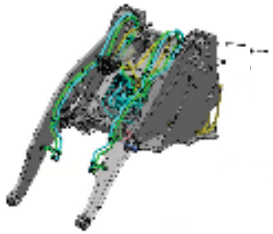
7. Std Lift Arm with LK114 & AP4 piping





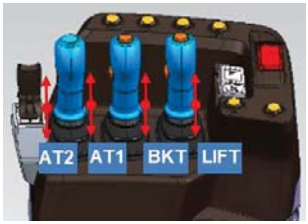
Pattern; LK114
Control lever type; Mono lever
Control valve spools; 4
Auxiliary lines on Lift Arm; 2

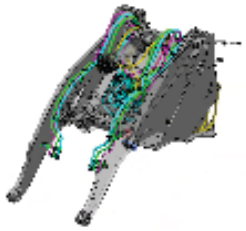
8. Std Lift Arm with LKQ013 & AP4 piping



Pattern; LK013
Control lever type; Multifunction lever
Control valve spools; 4
Auxiliary lines on Lift Arm; 2 & 1 Quick coupler line

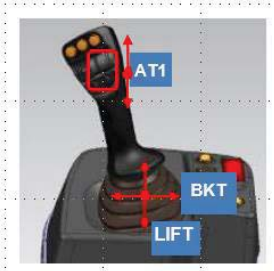
9. Std Lift Arm with LKQ114 & AP4 piping





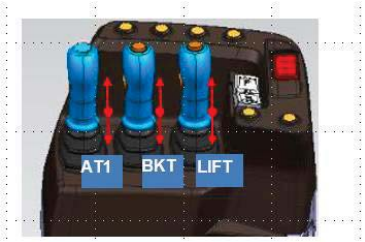
Pattern; LKQ114
Control lever type; Mono lever
Control valve spools; 4
Auxiliary lines on Lift Arm; 2 & 1 Quick coupler line

10. High Lift Arm with LK007 & AP3 Piping



Pattern; LK007
Control lever type; Multifunction lever
Control valve spools; 4
Auxiliary lines on Lift Arm; 1

11. High Lift Arm with LK118 & AP3 piping



Pattern; LK118
Control lever type; Mono lever
Control valve spools; 4
Auxiliary lines on Lift Arm; 1

12. Michelin L3 (XHA2)

Best suitable for: Building sites, infrastructural maintenance and handling of aggregates.

Tread life:	★★★☆☆
Stress resistance:	★★☆☆☆
Traction:	★★★☆☆
Fuel economy:	★★★★★

13. Michelin L5 (XLDD2)

Best suitable for: Mining and Quarry work.

Tread life: ★★★★★

Stress resistance: ★★★★☆

Traction: ★★☆☆☆

Fuel economy: ★☆☆☆☆

14. Michelin L5 (X-MINED2 PRO)

Best suitable for: Demolition, waste management and heavy industrial applications.

Tread life: ★★★★★

Stress resistance: ★★★★★

Traction: ★☆☆☆☆

Fuel economy: ★☆☆☆☆

15. Michelin L2 (XSNOPLUS)

Best suitable for: Loose or slippery surfaces (sand, mud, snow, ice), all season usage.

Tread life:	★★☆☆☆
Stress resistance:	★☆☆☆☆
Traction:	★★★★★
Fuel economy:	★★★★☆

---

16. Additional Michelin L3 (XHA2)

Description: Set of 4 tires mounted on rims

17. Additional Michelin L2 (XSNOPLUS)

Description: Set of 4 tires mounted on rims

Best suitable for: Building sites, infrastructural maintenance and handling of aggregates.

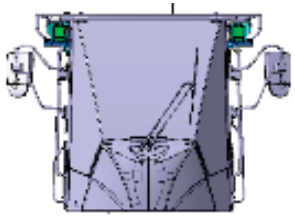
Tread life:	★★★☆☆
Stress resistance:	★★☆☆☆
Traction:	★★★☆☆
Fuel economy:	★★★★★

---

18. Bridgestone L3 (VJT)

Description: Suitable for general construction sites, infrastructural maintenance and handling of aggregates.

19. 4HB LED Wlamp (2F Cab & 2Eng Grille)

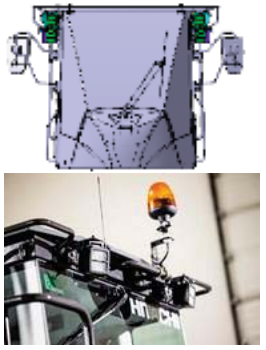


Description: 4 High Brightness LED working lamps in total mounted.
2 at the cab front (4,200 lm/pc)
2 at the engine grille (3,360 lm/pc).

20. 8HB LED WLamp (4F/2R cab & 2Eng Grille)

Description: 8 High Brightness LED working lamps in total mounted.
4 at the cab front (4,200 lm/pc)
2 at the cab rear (4,200 lm/pc)
2 at the engine grille (3,360 lm/pc)

21. 8 LED Wlamp (4F/2R Cab & 2Eng Grille)



Description: 8 LED working lamps in total mounted.
4 at the cab front (1,200 lm/pc)
2 at the cab rear (1,200 lm/pc)
2 at the engine grille (1,200 lm/pc)

22. Rotating lamp with bracket

23. Bracket for rotating lamp

24. German road homologation kit

Description: German road homologation is useful for countries where specific legislation is applicable.

Once ordered the following items will be mounted on the machine:

- Rear License Plate Bracket
- Wheel Blocks
- 40 km/h or 20 km/h Sticker depends on max traveling speed controller
- Reflective Sticker

Note: Above items are included in the kit, it's not necessary to order them separately.

25. Italian road homologation kit

Description: Italian road homologation is required for machines shipped to Italian market.

Once ordered the following items will be mounted on the machine:

- Rear License Plate Bracket
- Bucket Cutting Edge Protection
- Italy Kit (Link Stopper, Cab Light, Reflective Sticker, etc.)
- 40 km/h Sticker
- Rotating Lamp

Note: Above items are included in the kit, it's not necessary to order them separately.

26. Spanish road homologation kit

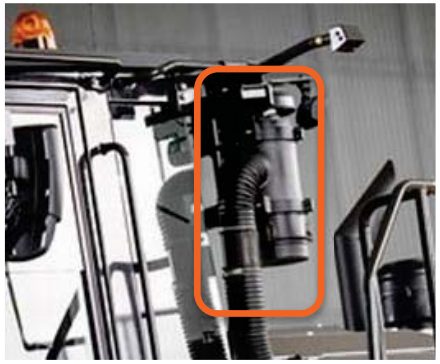
Description: Spanish road homologation is required for machines shipped to Spanish market.
Once ordered the following items will be mounted on the machine:

- Rear License Plate Bracket
- Rotating Lamp

Note: Above items are included in the kit, it's not necessary to order them separately.

---

27. Cab pre-cleaner (Sy-Klone)



Description: The pre-cleaner prevents dust from entering the operator's cabin. It is effective on especially dusty job sites. Outside air is cleaned by passing through the pre-cleaner before flowing into the air conditioner filter, which is installed on the inside cover.

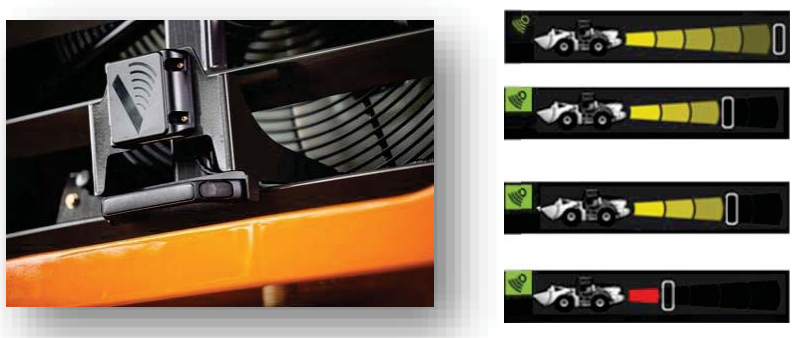
28. Pre-Cleaner (Turbo II)

Description: To reduce the frequency of engine air filter cleaning and extending air filter life, Turbo II and Sy-KLONE pre-cleaners are available. Sy-KLONE is included in the standard machine configuration.

29. Multidirectional camera system

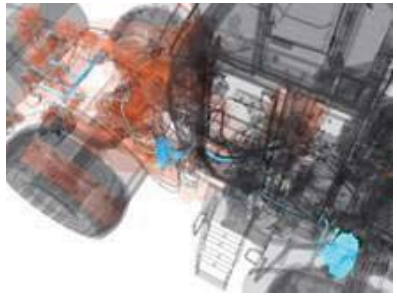
Description: Multidirectional camera system ensures 270° visibility around the machine. 3 image patterns can be selected by the operator and will be displayed on the sub monitor.

30. Rear obstacle detection system



Description: Rear obstacle detection & warning system is a supporting system that alerts the operator of any objects at the rear of the machine.

31. & 32. Auto lubrication system (Beka-Max) for SLA & HLA



Description: Auto lubrication system provides grease to hinge pins automatically for better serviceability.
The lubrication tank is located on the left side of the cab deck.

33. Bucket cutting edge protection

Description: Bucket cutting edge protection is a necessary item for Italian road homologation.

34. Wheel blocks

Note: Picture for reference only

35. Rear license plate bracket

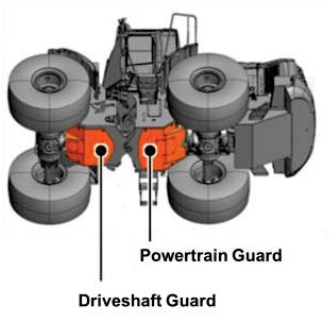
Description: License plate bracket is required by local authorities when the wheel loader is moving in public authority areas.
Consult locally about the necessity.

36. Driving speed limited (20 km)

Note: Picture for reference only

Description: As per customer job site or local authorities' requirements a 20 km/h controller is available to limit the max traveling speed.
Consult locally about the necessity.

37. Belly guard



Description: Protects machine powertrain and driveshaft from any damage.

38. Bucket cylinder guard

Note: Picture for reference only

Description: Heavy duty guard protects the bucket cylinder from any damage of falling debris or material slippage.

39. Cab front windshield guard

Note: Picture for reference only

Description: Protects both the windshield and the operator from large debris. Glass breakage is minimized.

40. Radiator dust protection screen

Note: Picture for reference only

Description: Fine mesh dust protection is mounted on both sides and the top of the engine hood to keep large debris away from radiators.

END