DOOSAN

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Wheel Loader

Quick Start Manual

Stage IV

DL200-5 | DL200TC-5 | DL220-5 | DL250-5 | DL250TC-5 | DL280-5
DL300-5 | DL350-5 | DL420-5 | DL420CVT-5 | DL450-5 | DL550-5 | DL580-5

This document is not a replacement for the operations manual. Please read the Operation and Maintenance Manual provided with the machine for installation, operating and safety information.

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DEALER CONTACT

DEALER

SALES

Name .....

Phone number .....

SERVICE

Name .....

Phone number .....

PARTS

Name .....

Phone number .....

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SAFETY MESSAGES

DANGER

This signal word is used on safety messages and safety labels and indicates an imminently hazardous situation which, if not avoided, can lead to serious injury or death.

WARNING

This signal word is used on safety messages and safety labels and indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

CAUTION

This signal word is used on safety messages and safety labels and indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

IMPORTANT

This signal word identifies the procedures to be followed to prevent damage to the machine.

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PERSONAL PROTECTIVE EQUIPMENT

IMPORTANT

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Do not wear loose clothing and/or accessories.
- Firmly tie back long hair.
- Do not wear waxed clothes. They are highly flammable.
- Remember that risks endangering your health may not appear immediately. Exhaust fumes and noise pollution may not seem harmful right away, but these risks can result in permanent injury. Respirator and/or ear protection may be necessary.
- Wear a hard hat, safety shoes, safety glasses, a mask, leather gloves, earplugs and other protective equipment, if necessary.

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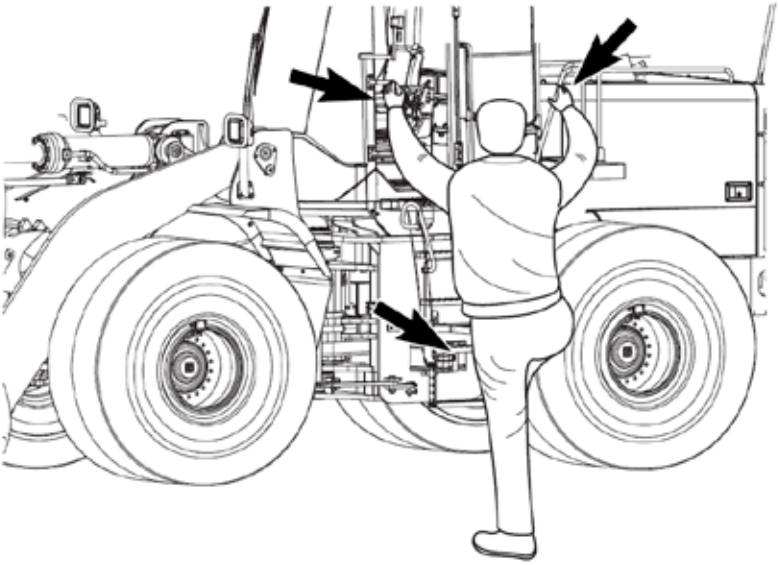
MACHINE ACCESS



WARNING

PREVENT SERIOUS INJURY OR DEATH

- Always wear appropriate footwear.
- Always face the machine.
- Do not jump on the machine. Do not stand on the machine while it is moving.
- Always clean the mud and oil from the running board of the platform and your shoes.
- Use the handrails and ladders to get on or off the machine.
  With **3 holding points**.

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SAFETY SIGNS

DANGER

PREVENT SERIOUS INJURY OR DEATH

- Always fasten your safety seat belt!

DANGER

PREVENT SERIOUS INJURY OR DEATH

- The displacement of the lift arm control lever, or a part failure, may cause the sudden lowering of the lift arm.
- Never touch or stand under the lift arm when it is lifted (unless it is secured properly).

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DIESEL EXHAUST FLUID & FUEL

IMPORTANT

- Only use a fuel with ultra-low sulphur content with this machine (sulphur ≤ 10 mg/kg).
- For the process of selective catalytic reduction (SCR), use only a 32.5 % urea aqueous solution (AdBlue®).
- See the **Operation and Maintenance Manual** for more information.

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MAIN CHECK POINT

IMPORTANT

Please read the **Operation and Maintenance Manual** for all details and information about inspection, maintenance and adjustment.

DAILY MAINTENANCE (EVERY 10 HOURS)

- Check level of engine/Transmission/Hydraulic oil
- Check level of coolant and cooling compartment (fan blade)
- Check water separator and fuel prefilter
- Check and clean Air pre-cleaner (Turbo III, TopSpin)
- Check work tool, coupling system, lifting arm condition and fatigue
- Check tyre pressure, wear and impacts
- Check any leaks of oil, fuel, AdBlue®, coolant, etc.
- Check operation of all switches, automatic function, exterior light, back-up alarm and camera system

WEEKLY MAINTENANCE (EVERY 50 HOURS)

- Check and grease all pins/check and fill auto lube system
- Check air conditioner and alternator belt (tension, wear)
- Drain fuel condensation

RECOMMENDATION FOR USE

- Regular and careful maintenance keeps your machine in better condition for a longer time.
- Right maintenance for safe, efficient and high performance work.
- Routine maintenance can reduce repair cost and downtime.

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TYRE PRESSURE

WHEEL LOADER TYRES

L2 Traction – Regular tread
L3 Rock – Regular tread
L4 Rock – Deep tread
L5 Rock – Extra deep tread

Model	Tyre			Application				
	Class	Size	Axle	Sand pit	Quarry customer loading	Quarry high risk of cut	Road maintenance	Driving
DL200-5/ DL200TC-5	L3	20.5 R25	Front	3,1 bar	3,4 bar	3,7 bar	3,5 bar	3,5 bar
			Rear	2,1 bar	2,4 bar	2,6 bar	2,5 bar	3,0 bar
DL220-5			Front	3,3 bar	3,5 bar	3,9 bar	3,6 bar	4,3 bar
			Rear	2,3 bar	2,5 bar	2,8 bar	2,6 bar	3,1 bar
DL250-5/ DL250TC-5			Front	3,1 bar	3,4 bar	3,7 bar	3,5 bar	4,3 bar
			Rear	2,1 bar	2,4 bar	2,6 bar	2,5 bar	3,1 bar
DL280-5			Front	3,3 bar	3,5 bar	3,9 bar	3,6 bar	4,3 bar
			Rear	2,3 bar	2,5 bar	2,8 bar	2,6 bar	3,1 bar
DL300-5		23.5 R25	Front	3,1 bar	3,4 bar	3,7 bar	3,5 bar	3,4 bar
			Rear	2,1 bar	2,4 bar	2,6 bar	2,5 bar	3,0 bar
DL350-5			Front	3,5 bar	4,0 bar	4,4 bar	3,8 bar	3,4 bar
			Rear	2,5 bar	2,7 bar	3,0 bar	2,8 bar	3,0 bar
DL420-5		26.5 R25	Front	3,3 bar	3,5 bar	3,9 bar	3,6 bar	3,4 bar
			Rear	2,3 bar	2,5 bar	2,8 bar	2,6 bar	3,0 bar
DL420CVT-5			Front	3,3 bar	3,5 bar	3,9 bar	3,6 bar	3,4 bar
			Rear	2,3 bar	2,5 bar	2,8 bar	2,6 bar	3,0 bar
DL450-5			Front	3,5 bar	4,1 bar	4,5 bar	3,8 bar	3,5 bar
			Rear	2,5 bar	3,0 bar	3,3 bar	2,8 bar	3,1 bar
DL550-5	L5	29.5 R25	Front	L5 not recommended	3,7 bar	4,1 bar	Machine too large	3,4 bar
			Rear		2,7 bar	3,0 bar		3,0 bar
DL580-5	L5		Front		3,9 bar	4,3 bar		3,4 bar
			Rear		2,9 bar	3,2 bar		3,0 bar

RECOMMENDATION FOR USE

- Improve your performance and comfort = check tyre condition and pressure on a regular basis.
- Always follow tyre manufacturer's recommended pressure.

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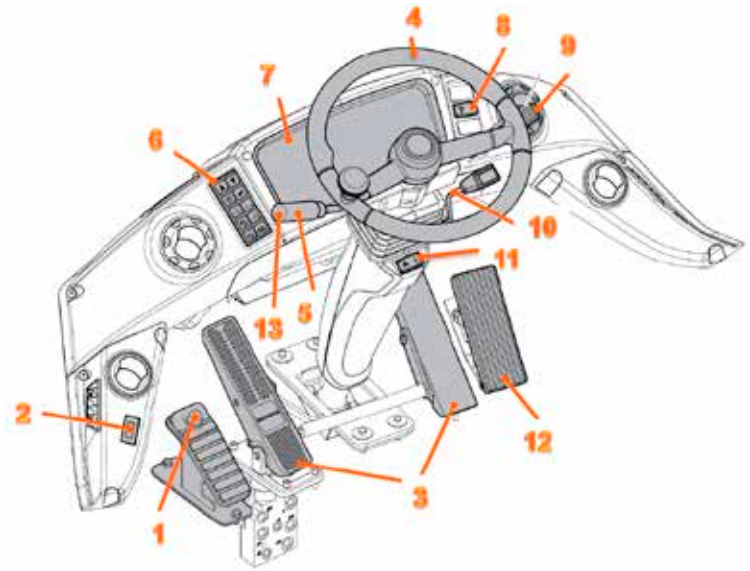
OPERATOR STATION – FRONT CONSOLE



1. **Manual** differential lock control (by foot) – only with H.D.L. (not available for DL200-5)
2. Working hours
3. Brake pedal
   a) Inching function (DL200-5, DL420CVT-5)
   b) With transmission clutch cut off (other models)
4. Steering wheel
5. FNR lever (Forward - Neutral - Reverse)
6. Touch-pad (features next to)
7. Dashboard with information LCD screen
8. Electric steering high/low speed switch (electric joystick steering)
9. Wiper/high beam/Turn signal lever
10. Steering column adjustment by handle (tilt & height)
11. Switch warning lights
12. Throttle pedal
13. Kick-down button

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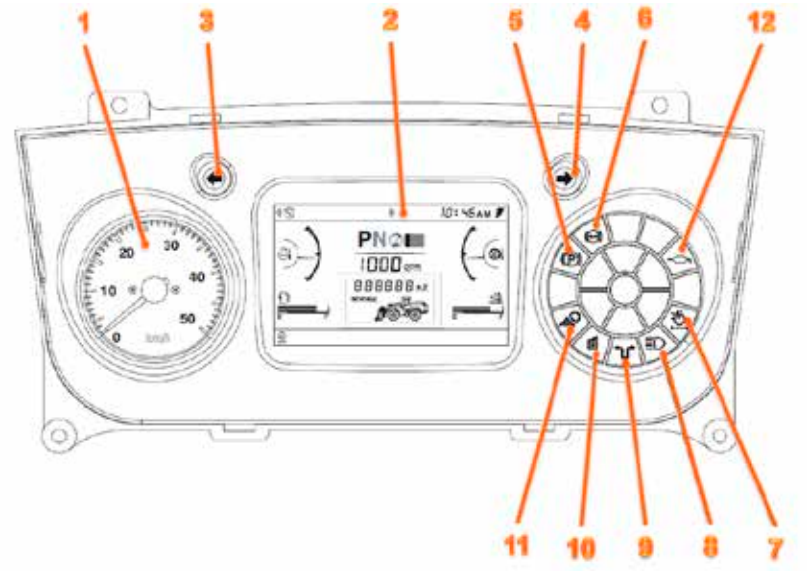
OPERATOR STATION – DASHBOARD



1. Speedometer
2. Multifunction LCD display
3. Left turn/hazard warning light
4. Right turn/hazard warning light
5. Parking brake
6. Brake fluid pressure warning light
7. Air cleaner clogged warning light
8. High beam indicator light
9. Emergency steering indicator light
10. Mirror heater indicator light
11. Work lights indicator light
12. Auto grease fault indicator (option)

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OPERATOR STATION – LCD SCREEN

1. Warning lights display
2. Transmission information
   → Way selected
   → Gear selected
3. Digital display of engine speed
4. Eco-Bar
   → Displays in real time the relationship between fuel consumption and the true effectiveness of the machine.
5. Multifunction display
   → Trip meter | Battery voltage | Total operating time
6. Displaying driving indicators
   → Confirmation of the automatic activation of the different used
7. Numeric clock
8. Transmission oil temperature gauge
9. Engine coolant temperature gauge
10. Diesel Exhaust Fluid (AdBlue®) level gauge
11. Fuel level gauge

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OPERATOR STATION – LCD SCREEN

1. Fuel gauge
2. Engine coolant temperature gauge
3. Transmission oil temperature gauge
4. DEF (AdBlue®) level gauge
5. FNR select
6. Transmission select gear
7. Engine speed
8. Max. speed limit state
9. Mode indicator
   → ECO | NORMAL | POWER modes
   → DIGGING or DRIVE modes
10. Warning symbols
11. Driving indicator
12. Digital clock

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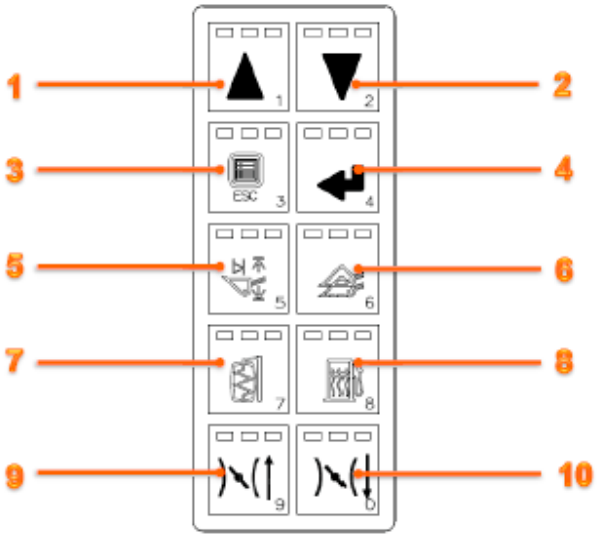
TOUCH PAD ON FRONT CONSOLE



1. Selection touch (use with LCD screen menus)
2. Selection touch (use with LCD screen menus)
3. Exit touch (ESC) (use with LCD screen menus)
4. Confirmation touch (use with LCD screen menus)
5. Setting touch high & low position of the lift arm
6. Enable/disable of front lift arm suspension – L.I.S. (Load Isolation System)
7. Mirror heating
8. Fuel heater (optional)
9. Throttle Lock Up
10. Throttle Lock Down

Detail about each function on following pages

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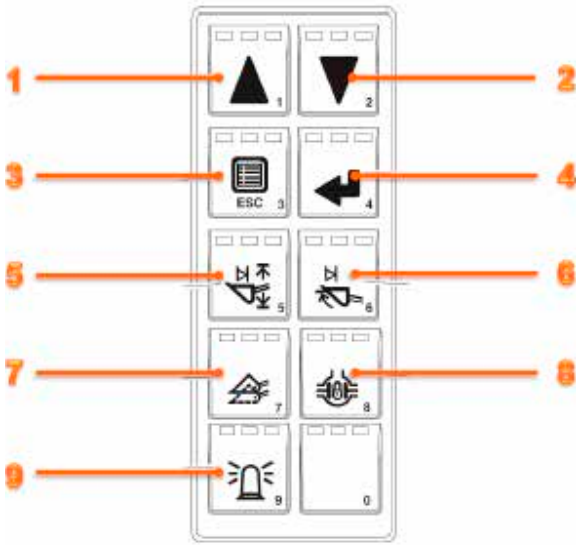
TOUCH PAD ON FRONT CONSOLE



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2. Selection touch (use with LCD screen menus)
3. Exit touch (ESC) (use with LCD screen menus)
4. Confirmation touch (use with LCD screen menus)
5. Setting touch high & low position of the lift arm
6. Enable/disable of bucket function 'return to dig' (only with EMCV*)
7. Enable/disable of front lift arm suspension – L.I.S. (Load Isolation System)
8. Enable/disable of Hydraulic Differential lock – H.D.L. (Hydraulic Differential lock)
9. Rotating beacon light

Detail about each function on following pages

*EMCV = Electric Main Control Valve

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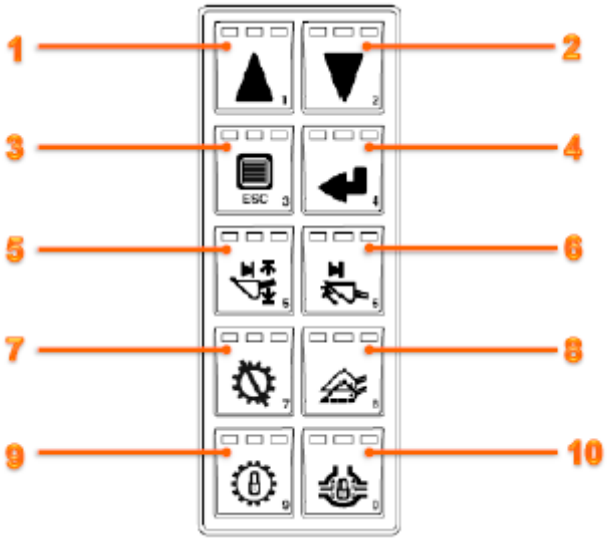
TOUCH PAD ON FRONT CONSOLE



1. Selection touch (use with LCD screen menus)
2. Selection touch (use with LCD screen menus)
3. Exit touch (ESC) (use with LCD screen menus)
4. Confirmation touch (use with LCD screen menus)
5. Setting touch high & low position of the lift arm
6. Enable/disable of bucket function 'return to dig' (only with EMCV*)
7. Enable/disable of transmission clutch cut off
8. Enable/disable of front lift arm suspension – L.I.S. (Load Isolation System)
9. Lock/unlock torque convertor – Lock-up (with 5-speed transmission)
10. Enable/disable of Hydraulic Differential Lock – H.D.L. (Hydraulic Differential lock)

Detail about each function on following pages

*EMCV = Electric Main Control Valve

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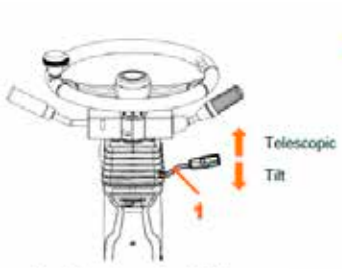
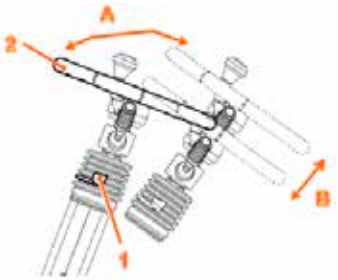
STEERING COLUMN & SEAT



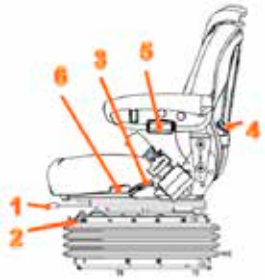


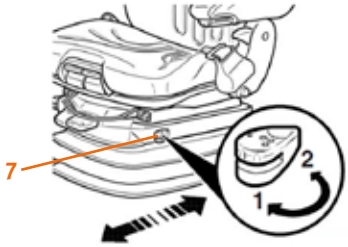
STEERING WHEEL TILT

A Push lever (1) downward and tilt steering wheel (2) to desired position

STEERING WHEEL TELESCOPIC

B Pull lever (1) upward and move wheel (2) to desired position.





SEAT ADJUSTMENT

1. Forward/Backward
2. Height and weight adjustment (automatically following operator weight)
3. Backrest adjustment
4. Lumbar control knob (pneumatic)
5. Armrest adjustment
6. Heating function
7. Horizontal suspension lock/unlock

RECOMMENDATION FOR USE

- Protect your back from pain – don't forget to unlock horizontal suspension, especially during V-shape.

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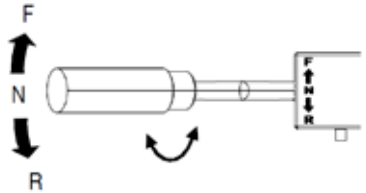
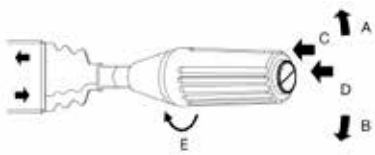
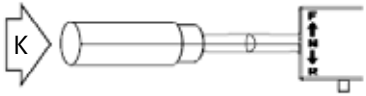
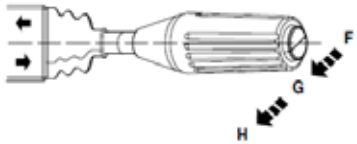
STEERING COLUMN – LEVER









TRANSMISSION LEVER

F Forward
N Neutral
R Reverse

K Push lever – When transmission is S mode or Traction mode, pressing this switch will shift transmission into Max mode

Rotating the lever shifts transmission between 1st, 2nd, 3rd or 4th range

WIPER/HIGH BEAM/TURN SIGNAL LEVER

A Left turning signal
B Right turning signal
C Washer
D Horn
E Wiper
- J: Intermittent mode (5 second interval)
- O: Stop (off)
- I: Normal speed mode
- II: High speed mode

F Neutral position (standard lights – low beam)
G Warning light – 'horn'
H High beam turns 'ON', push again to turn off

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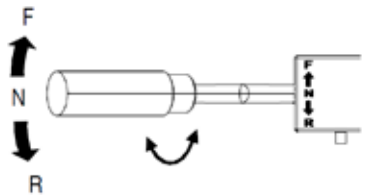
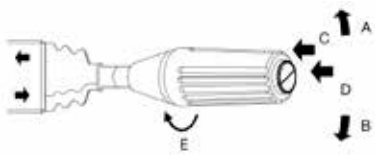
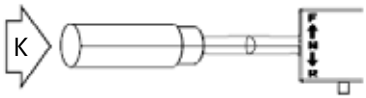
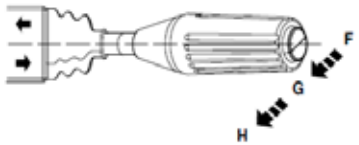
STEERING COLUMN – LEVER









TRANSMISSION LEVER

F Forward
N Neutral
R Reverse

K Push lever – initiates the DIGGING mode (see next pages)

Rotating the lever changes the drive gears – 1, 2, 3 or D-range. These ranges limit the maximum speed:
1st – max. 7,2 kph
2nd – max 13,7 kph
3rd – max 18,6 kph
D – max 39 kph

WIPER/HIGH BEAM/TURN SIGNAL LEVER

A Left turning signal
B Right turning signal
C Washer
D Horn
E Wiper
- J: Intermittent mode (5 second interval)
- O: Stop (off)
- I: Normal speed mode
- II: High speed mode

F Neutral position (standard lights – low beam)
G Warning light – 'horn'
H High beam turns 'ON', push again to turn off

RECOMMENDATION FOR USE

- CVT loader creates the maximum torque for maximum breakout force in every range. But in D-Mode, the time to shift the transmission back to hydrostatic drive takes a little bit longer than in 3rd range = **Working in 3rd range, Travelling in D-range**

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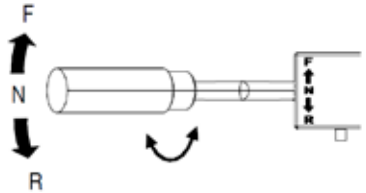
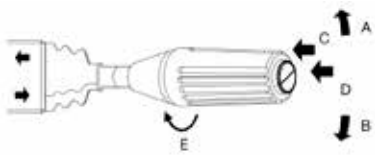
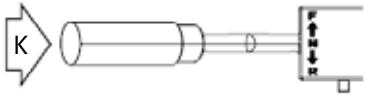
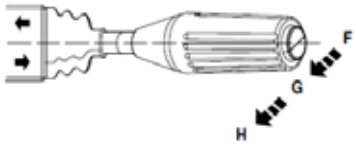
STEERING COLUMN – LEVER









TRANSMISSION LEVER

F Forward
N Neutral
R Reverse

K Push lever – Kick-down
Automatic: 2nd, 3rd, 4th
Manual: 2nd

Rotating the lever shifts transmission between 1st, 2nd, 3rd or 4th gears (5th is automatically chosen, if it is available)

WIPER/HIGH BEAM/TURN SIGNAL LEVER

A Left turning signal
B Right turning signal
C Washer
D Horn
E Wiper
- J: Intermittent mode (5 second interval)
- O: Stop (off)
- I: Normal speed mode
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F Neutral position (standard lights – low beam)
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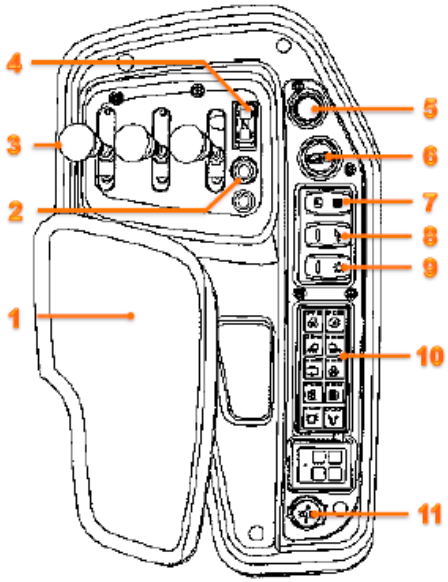
SIDE CONSOLE



1. Armrest
2. Right console FNR switch activation
3. Arm and bucket control by levers | joystick (options on next pages)
4. FNR control (forward (F) - neutral (N) - reverse (R))
5. Cigar lighter **(24 Volts!)**
6. Starting key
7. Electric parking brake – Must be engaged to start engine
8. Front loader control enable/disable (pilot valve cutoff switch)
9. Lights and crossing lights
10. Touch-pad (features next to)
11. 12 Volts plug

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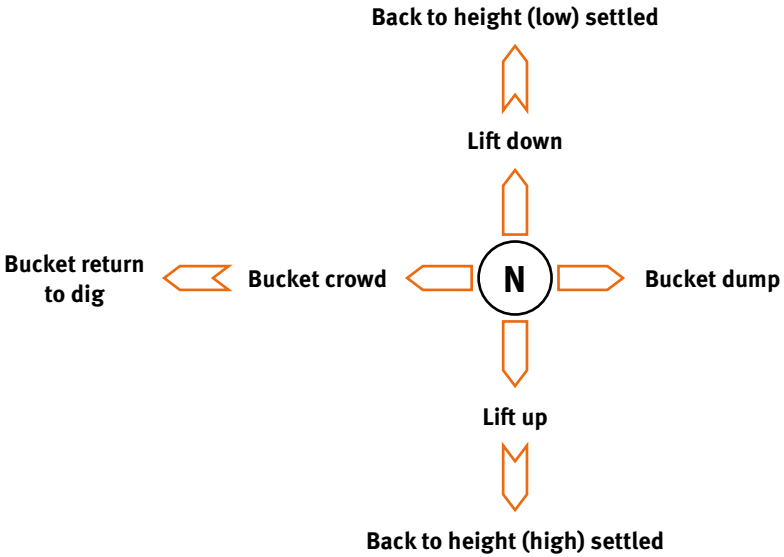
MULTIFUNCTION JOYSTICK

1. Joystick multidirectional (see 'Joystick use' below)
2. Horn
3. Forward selection
4. Reverse selection
5. Neutral selection
6. 3rd hydraulic auxiliary function
7. Kick-down control

JOYSTICK USE



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MULTIFUNCTION JOYSTICK

FNR USE

A. Press NEUTRAL (5) for engagement of Joystick FNR

→ Blue **F/R** symbol in LCD monitor

B. Press Kick Down (7) with FORWARD (3) or REVERSE (4) simultaneously for driving forward or reverse by joystick.

C. Forward and Reverse change by single (3) or (4) button. If Neutral (5) pressed in between, step B must repeated.

If the FNR lever (close to the steering wheel) is used in the meantime, JOYSTICK FNR is deactivated and process must be repeated for activation.

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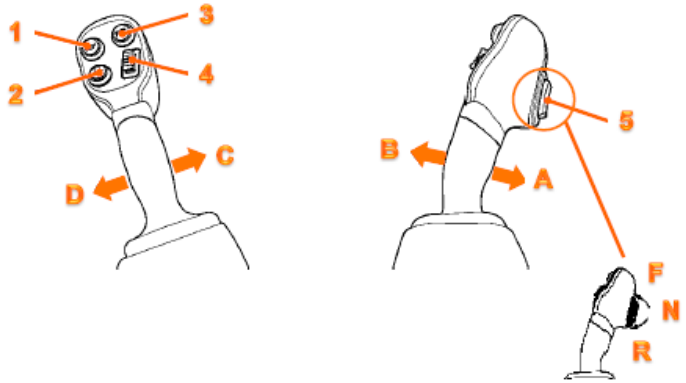
MULTIFUNCTION JOYSTICK

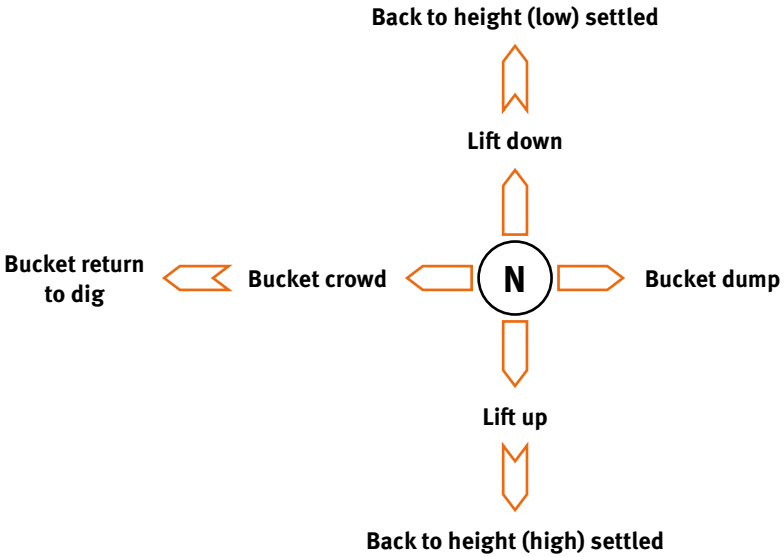


1. Horn
2. Kick-down
3. FNR activation
4. Thumb wheel
5. FNR control

A Arm lift down
B Arm lift up
C Bucket dump
D Bucket crowd

F Forward
N Neutral
R Reverse

JOYSTICK USE



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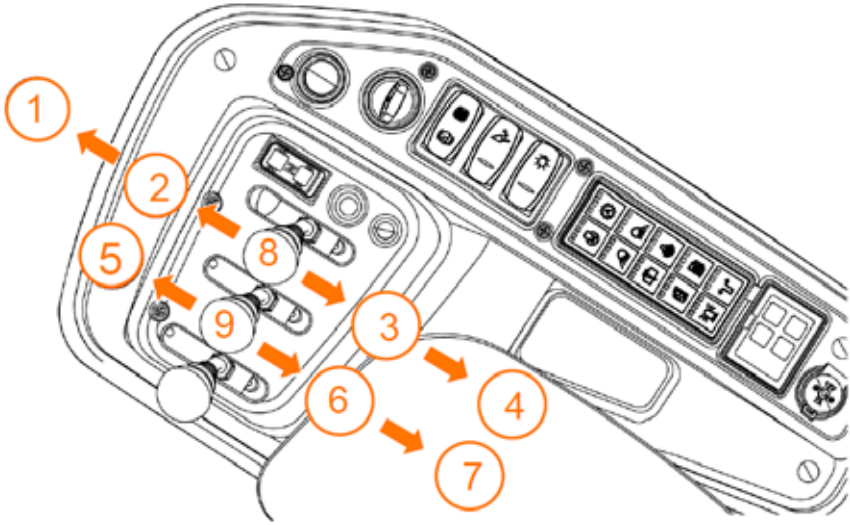
FINGER TIP



1. Arm float = Ready to dig (low arm position memory)
2. Arm lift down
3. Arm lift up
4. Arm height Kick-out = Ready to dump (high arm position memory)
5. Bucket dump
6. Bucket crowd
7. Bucket ‘return to dig’ position
8. Transmission ‘Kick down’
9. Horn

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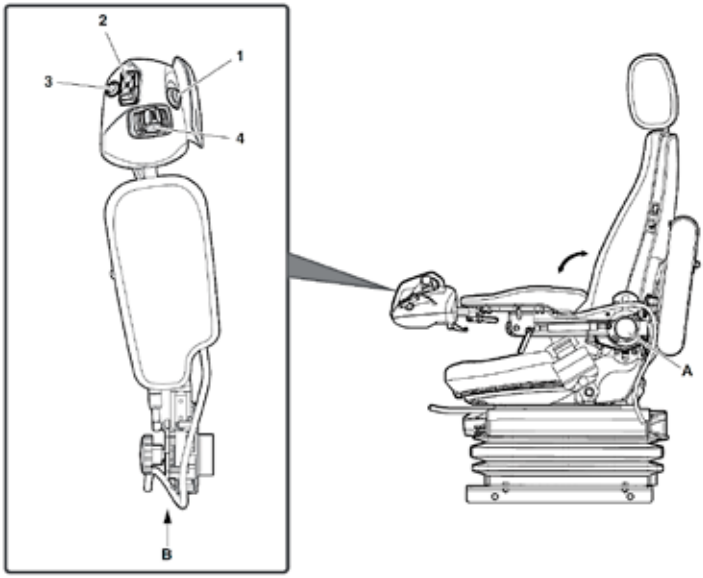
ELECTRIC STEERING BY JOYSTICK



1. Electric steering activation button
2. FNR control switch
3. Kick-down switch
4. Electric steering joystick

A Knob is used to allow electric control unit to be moved to the most convenient position for the operator. Loosen the knob, move electric control unit to desired position and then tighten the knob.

RECOMMENDATION FOR USE

- Never activate electric steering joystick when traveling on a public road. Always use the steering wheel to drive the machine.

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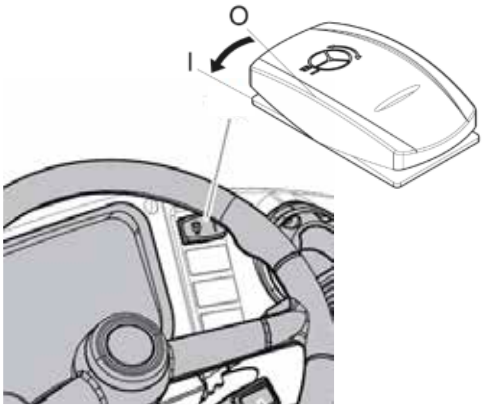
ELECTRIC STEERING BY JOYSTICK – FNR

ELECTRIC JOYSTICK STEERING USE:

- Fold the armrest and lock the small lower latch
- Press the switch (1) to activate the controls
  - → The visual signal **F/R** appears at the bottom of the LCD display
- The direction and FNR control (on the arm) is operational

2 DRIVING MODES ARE AVAILABLE WITH ELECTRIC JOYSTICK STEERING:

- Fast mode (Hi) with more responsiveness when maneuvering in tight spaces
- Soft Mode: more precision for travel at high speed



RECOMMENDATION FOR USE

- If the parking brake or the FNR lever (close to steering wheel) are used, you need to reselect the Electric Joystick steering function, otherwise FNR on armrest is inactive (but the steering is still active).

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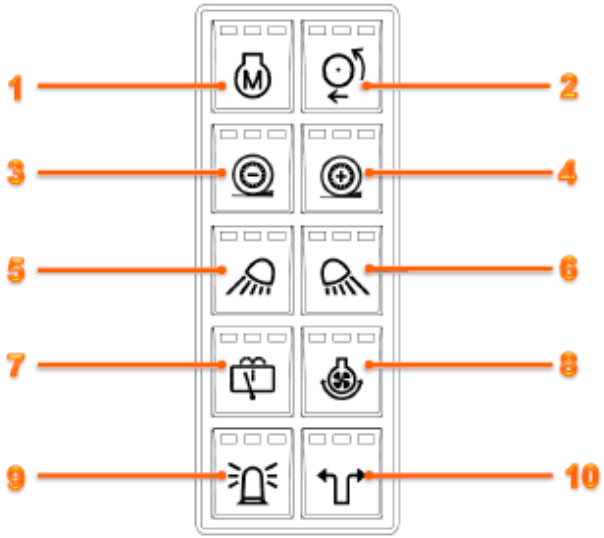
TOUCH PAD ON RIGHT CONSOLE

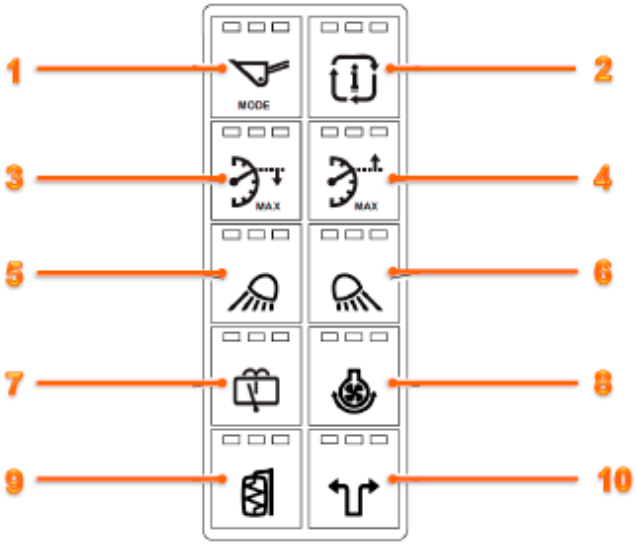


1. Power mode selection
2. Traction mode switch
3. Variable speed control (-)
4. Variable speed control (+)
5. Front working light
6. Rear working light
7. Rear wiper
8. Cooling fan reverse
9. Rotating beacon light
10. Safety electric steering test control

Detail about each function on following pages

https://truckmanualshub.com/

TOUCH PAD ON RIGHT CONSOLE

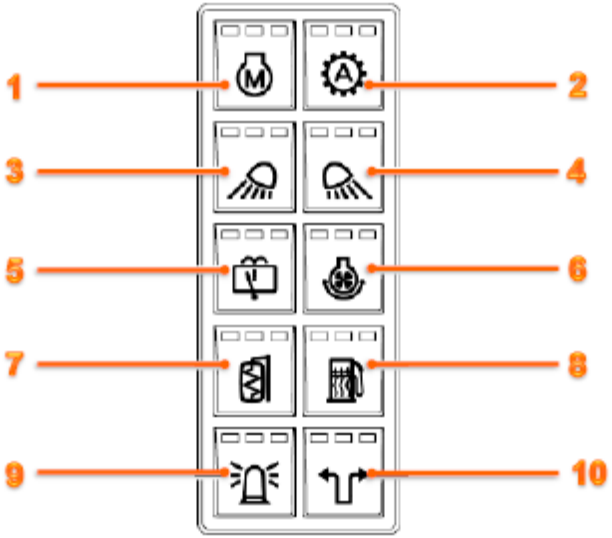


1. Power mode selection
2. Gauge panel style change switch
3. Maximum speed limit – Down
4. Maximum speed limit – Up
5. Front working light control
6. Rear working light control
7. Rear wiper switch
8. Cooling fan reverse
9. Mirror heating
10. Safety electric steering test control

Detail about each function on following pages

https://truckmanualshub.com/

TOUCH PAD ON RIGHT CONSOLE



1. Power mode selection
2. Transmission mode selection
3. Front working lights control
4. Rear working light control
5. Rear screen wiper control
6. Reversing fan control
7. Heating mirror control
8. Fuel heater control (if equipped)
9. Rotating beacon control
10. Safety electric steering test control

Detail about each function on following pages

https://truckmanualshub.com/

LIFT ARM POSITIONS MEMORY

AUTOMATIC STOP & FLOAT POSITION

Auto stop disable

Auto stop enable

The operator can set 2 exact positions of the lift arm (high & low) – for example, when the machine must discharge repeatedly at the same height.

Procedure

- High position: Raise the lift arm to the required height.
  - → Press the button for 3 seconds (a short signal sounds). The high position of the linkage is saved.
- Low position: Down the lift arm at the required height.
  - → Press the button for 3 seconds (a short signal sounds). The low position of the linkage is saved.
- When the joystick/finger-tip is pulled/pushed to the maximum, a solenoid keeps the joystick/finger-tip in the position and the lift arm rises up/down to the set position.

When the automatic stop function is activated. Pushing the joystick/finger-tip forward to the maximum de-pressurizes the hydraulic system and only the bucket's weight exerts pressure on the ground. This is the **float position** (this function makes levelling easy).

RECOMMENDATION FOR USE

- After settings, don't forget to check your choices and activate the automatic stop function if you want to use them!

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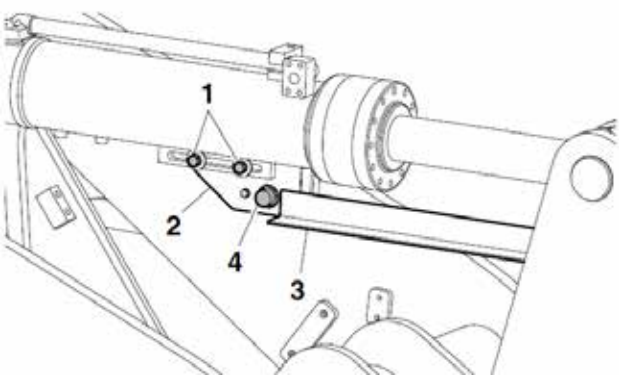
BUCKET FUNCTION – RETURN TO DIG

Auto return disable

Auto return enable

When the bucket is in dump position, simply push the joystick to the maximum to the left, and the bucket returns to the horizontal position.

You can adjust this 'return to dig' position by modifying the sensor (4) position on the tilt cylinder.



For machines configured with EMCV (electro hydraulic control), the automatic 'return to dig' function can be set with a sensor, which allows you to set the attack angle from the cab. Place the bucket in the position desired, then press the touch for 3 seconds (a short signal sounds). The bucket angle has been recorded.

RECOMMENDATION FOR USE

- Before using the bucket, check whether the proximity sensor position on the tilt cylinder needs to be adjusted (this is not necessary with EMCV).

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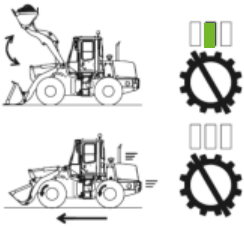
TRANSMISSION CLUTCH CUT OFF – ICCO

ICCO disable

ICCO enable

- ICCO = Intelligent Clutch Cut Off
- This function disengages the transmission automatically when the operator presses the brake pedal, in order to save 100% of the engine's power for the hydraulic system – only available with 1st & 2nd gears.
- Green LED ON: the transmission clutch cut-off is activated.
- The light signal appears at the bottom of the dashboard when the clutch cut-off is working.
- The brake pressure threshold that triggers the transmission clutch cut-off is determined by the electronic control unit (depending on the machine speed and the brake pedal position). Disengagement is gradual to avoid sudden braking.



RECOMMENDATION FOR USE

- It's not recommended to use the ICCO during the rolling steps:
  - → **Excavation, loading, "V" cycles:** ICCOactive = the green LED in the middle is ON.
  - → **Translation, slope working:** ICCO inactive = the LED is OFF.

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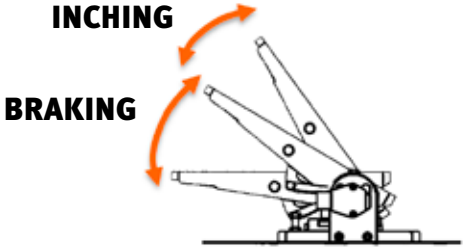
BRAKE PEDAL INCHING FUNCTION



The machine can be inched with the brake pedal:

- Inching swivels the hydrostatic drive pump in, the hydraulic flow in the drive system is interrupted, and the machine brakes by hydraulic cut-off
- Engine performance is available for working hydraulically
- Fuel-saving braking
- Pushing the brake pedal in for the first 20% (DL200-5)/30% (DL420CVT-5) inches the machine; real braking starts when you push the pedal further.

RECOMMENDATION FOR USE

- Operator needs to get used to the Inching/Braking pedal. Performance is very different from conventional power shift transmission braking system.
- Foot should not remain permanently on the brake pedal, even with low brake pressure the hydraulic braking effect is massive.

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LIFT ARM SUSPENSION – L.I.S. (LOAD ISOLATION SYSTEM)

L.I.S. disable

L.I.S. enable

- The lift arm is cushioned by a hydro-pneumatic accumulator linked to the lift hydraulic system.

- When the operator presses the button, he activates the L.I.S. system.

- The suspension is automatically activated above 6 kph* (in forward position) and 4 kph* (in reverse position). The visual signal appears at the bottom of the LCD screen when the suspension is working.

*Activation speed can be selected in the on-board computer. Permanent L.I.S. with Activation Speed 0 kph

RECOMMENDATION FOR USE

- Activation speed = 0 is not recommended for applications with bucket or pallet fork.
- Very useful with clamp – log grab application.

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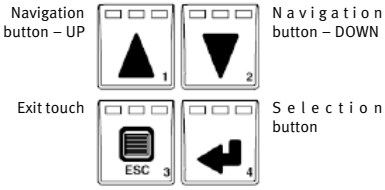
LIFT ARM SUSPENSION – L.I.S. (LOAD ISOLATION SYSTEM)

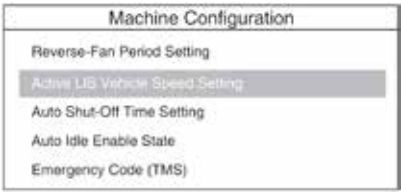
L.I.S. disable

L.I.S. enable

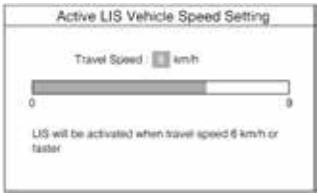


1. Press 3 sec. on the ESC touch to display the menu

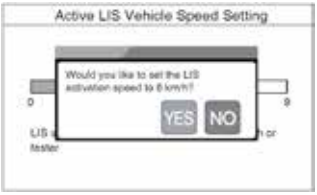
2. Select the menu “Vehicle Configuration”



3. Select the row “Active LIS Vehicle Speed Setting”



4. Select vehicle speed for activation of L.I.S.



5. Confirm your setting by pressing Selection button

6. Pop up window appears after successful settings

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TORQUE CONVECTOR LOCKING – LOCK-UP

Lock-up disable

Lock-up enable

- Green LED ON, the torque convertor locking is activated.
- The visual signal appears at the bottom of the LCD screen.
- When the lock-up is activated, the operator can travel faster on flat ground and on a slope and reduce fuel consumption.

RECOMMENDATION FOR USE

- Speed on slope with lock-up is extremely increased.
- Better if Lock-up is off during loading works in “V” cycle maneuvers.

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FRONT DIFFERENTIAL LOCK – H.D.L.

H.D.L. disable

H.D.L. enable

- H.D.L. = Hydraulic Differential Lock allows you to lock the front differential to 100%.
- A foot switch on the cab floor (left side) allows the operator to use it at his convenience.
- A switch on the dashboard (left side) allows you to activate the automatic differential lock (green LED ON). When the function is active, it automatically locks the front differential as soon as the unit detects wheel slippage.
- A visual signal appears at the bottom of the LCD screen as soon as the differential lock is working (by the operator or automatically).

RECOMMENDATION FOR USE

- H.D.L. active = the green LED in the middle is ON.
- H.D.L. inactive = the LED is OFF.
- Intensive work in curve – don't use automatic function, use foot switch when you need 100% lock.

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POWER MODES MANAGEMENT

ECO mode

Normal mode

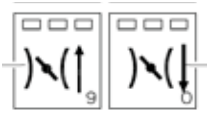
Power mode

ENGINE POWER MODES

ECO mode
- Light work
- Minimize fuel consumption
- Reduce noise

Normal mode
- General work
- Optimize fuel consumption

Power mode
- Required to perform heavy work in short period of time
- Fast speed loading
- Fast speed travel



Up Down

THROTTLE LOCK UP/DOWN

Up
- Each time you press the button, the engine increases its speed by 100 rpm up to the maximum rpm for the current engine mode.

Down
- Each time you press the button, the engine decreases its speed by 100 rpm down to 800 rpm.

RECOMMENDATION FOR USE
- Throttle lock up/down is very helpful during work with hydraulic work tools (eg. snow blower, sweepers).
- You can easily set higher engine speed for hydraulic flow that matches your work.
- Throttle lock up/down is automaticaly deactivated when brake pedal is used.

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POWER MODES MANAGEMENT

SAT mode

Normal mode

Power mode

ENGINE POWER MODES

SAT mode
- Minimize fuel consumption
- Ensures efficient working performance

Normal mode
- General work
- Optimize fuel consumption

Power mode
- Perform heavy work in a short time period
- Fast speed loading
- Fast travel speed

SAT = Situation Awareness Technology

Automatically monitors the machine's activity and adjusts the engine's output accordingly – machine is more economical

RECOMMENDATION FOR USE
- When SAT mode is selected, the transmission automatically enters auto 1-5 mode.

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POWER MODES MANAGEMENT

ECO mode

Normal mode

ENGINE POWER MODES

ECO mode
- Light work
- Minimize fuel consumption
- Reduce noise

Normal mode
- General work
- Optimize fuel consumption

RECOMMENDATION FOR USE
- CVT transmission does not require high engine speed for maximum breakout force due to hydrostatic drive. Operators of conventional loaders who are used to POWER Mode - please first try out ECO Mode in combination with DIGGING Mode. Machine provides low consumption only in ECO mode, which is expected for CVT.

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POWER MODES MANAGEMENT

ECO mode

Normal mode

Power mode

ENGINE POWER MODES

ECO mode
- Light work
- Minimize fuel consumption
- Reduce noise

Normal mode
- General work
- Optimize fuel consumption

Power mode
- Perform heavy work in a short time period
- Fast speed loading
- Fast speed travel

From one mode to another one, the maximum engine rpm increases from 150 to 200 rpm.

Also, the transmission shifting mode changes automatically according to the engine mode.

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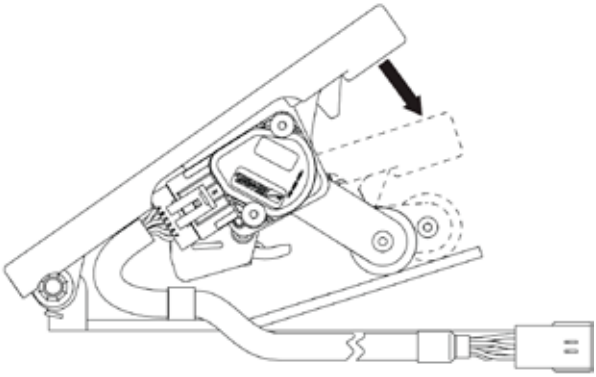
POWER MODES MANAGEMENT

ECO mode

Normal mode

Power mode

- The Power-Up function allows the operator to switch immediately to the upper power mode, through the throttle pedal.
- The operator presses the pedal to the maximum stroke until a point of resistance (peak acceleration), then beyond the point of resistance to the active Power-Up function and the machine automatically switches to the next higher mode.
- When the pedal is released, the mode is automatically set to the one selected.



RECOMMENDATION FOR USE

- Use Power-UP function to combine power and fuel economy.

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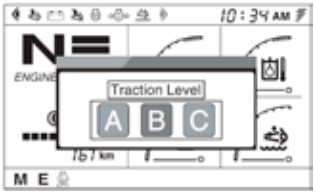
TRACTION MODES, VARIABLE SPEED CONTROL

Max mode

Traction mode

S mode



TRACTION MODES

Max Mode

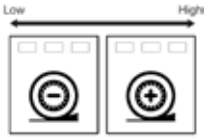
- Maximum traction force – 100%

Traction mode – level selection

- **Hold** the traction mode/level selection **switch for more than 1 second**.
- The display will show the traction level selection page.
- Use the arrow keys to select from among A (90%), B (80%) and C (70%) and then press the enter button to confirm.

S mode

- 50% of maximum traction force.



VARIABLE SPEED CONTROL

- This function limits the vehicle's speed in first gear by seven increments between 2 ~ 13 kph.
- The current speed increment is shown on the LED lamp above the switch.
- Eg. for ≈ 6 kph – LED 2 is on

RECOMMENDATION FOR USE

- Traction and S modes can be used to advantage for light applications – less tyre wear.

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TRANSMISSION MODES MANAGEMENT

Maximum speed limit – Down

Maximum speed limit – Up

Limit 1 Step

Limit 2 Step

Limit 3 Step

Limit 4 Step

Speed limit can be chosen for each range selected by Transmission lever (1st, 2nd, 3rd, D-range).

RECOMMENDATION FOR USE

- Lower speed limit provides faster downshifting to hydrostatic drive, which results in more traction to fill the bucket = **Travelling in D-range with 4 bars, Working in 3rd range with 2 or 3 bars**

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TRANSMISSION MODES MANAGEMENT

Creep Setting	
Creep Operation Enabled :	☐ ON
Target Speed Setting	
1 (Low)	☐
2 (Middle)	☑
3 (High)	☐

Creep mode simulates powershift transmission driving attitude, travel movement in engine idle as soon as forward or reverse is initiated.

This mode can be activated in the Service menu. Operator can chose 3 speed ranges:

- → 1 (Low) = 1 kph in engine idle
- → 2 (Middle) = 2 kph in engine idle
- → 3 (High) = 3 kph in engine idle

CREEP

RECOMMENDATION FOR USE

- Creep mode ON – machine starts moving as soon as direction is selected. Operators can handle this mode like a machine with powershift transmission.
- Creep mode OFF – machine stands still (on idle speed) with selected direction. Machine starts moving when operator presses the accelerator pedal.

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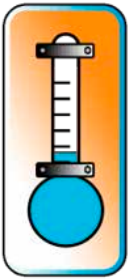
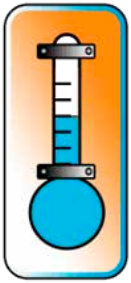
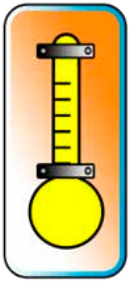
COLD START PROCEDURE



Below -2 °C
Cold Start Procedure



-2 °C to 10 °C
Limited Drive Mode



Above 10 °C
No Limit

At very cold temperature (below -2 °C), CVT transmission requires cold start procedure:

- No movement of machine
- Parking brake ON
- Duration depends on ambient temperature
- Automatic procedure, but if interrupted (Parking Brake OFF) = failure code will appear
- When procedure is finished, operator is notified on monitor

With cold temperature from -2 °C to 10 °C, machine goes to Limited Drive Mode:

- Machine to be operated in first gear only
- No direct Forward/Reverse possible, NEUTRAL between shifting is always necessary
- Machine must be moving and should not stand still
- Duration about 45 sec., operator is informed by display when finished (Gear indicator in monitor flashes)

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TRANSMISSION MODES MANAGEMENT

Manual Mode

Auto 1-5 Mode

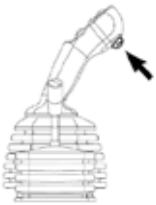
Auto 2-5 Mode

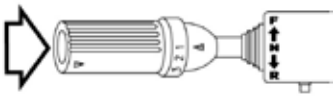
3 transmission modes available and identified by a visual signal at the bottom of the LCD screen:

- Manual mode: Operator shifts gears manually –by rotating the FNR lever.
- Auto 1-5 mode: Gears shift automatically from 1st to 5th speed.
- Auto 2-5 mode: Gears shift automatically from 2nd to 5th speed (faster acceleration).

RECOMMENDATION FOR USE

- With automatic modes, the rotating switch on the FNR lever allows you to choose the maximum gear that the machine never exceeds.
- The Kick-down control, on the joystick or on the FNR lever, downshifts immediately to the lower gear. The operator can downshift until the 1st gear to maximum traction in the shortest possible time.
- Kick-down is RELEASED when the transmission is placed in NEUTRAL or the switch is pressed again.





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REVERSING FAN

Reversing fan
disable

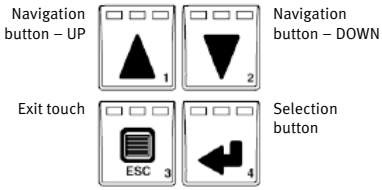
Reversing fan
enable
(manual mode)

Reversing fan
enable
(auto mode)

The reversing fan has 2 modes:

- Manual mode: press the switch, and the fan reverses rotation before restarting its normal rotation.
- Automatic mode: the fan regularly reverses rotation, depending on the settings recorded in the dashboard (every 30, 60, 90 or 120 minutes).

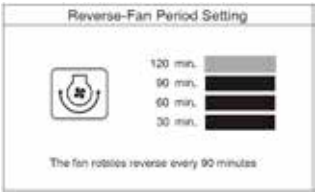
SETTING OF AUTOMATIC MODE (FREQUENCY OF FAN REVERSING)



1. Press 3 sec. on the ESC touch to display the menu

2. Select the menu “Vehicle Configuration”

3. Select the row “Reverse-Fan Period Setting”



4. Select the interval you want between each reversal

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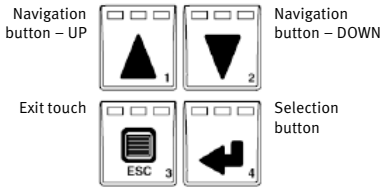
AUTO SHUT-OFF

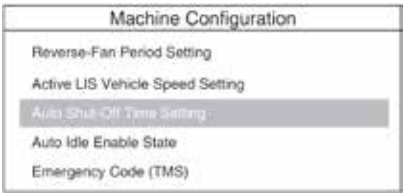
“Auto shut-off time setting” is used to set up a time for engine auto shut-off function.

- Conditions for activation of “Auto shut-off”
  - → Throttle pedal is released
  - → FNR at neutral
  - → Parking brake engage (ground speed – 0 kph)



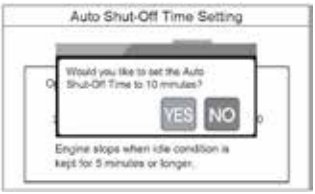
1. Press 3 sec. on the ESC touch to display the menu

2. Select the menu “Vehicle Configuration”

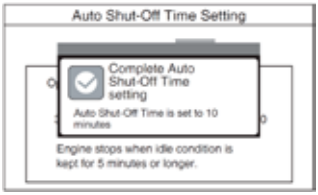


3. Select the row “Auto Shut-off Time Setting”

4. Select the interval by Navigation button



5. Confirm your setting by pressing Selection button



6. Pop up window appears after successful settings

RECOMMENDATION FOR USE

- Improve operating costs – save fuel, reduce operating hours.

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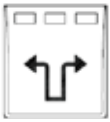
SAFETY ELECTRIC STEERING

On



Off

This switch is used to test whether the emergency steering system is functioning properly.

Manual test procedure:

- Do not start engine.
- Press emergency steering test switch and turn steering wheel at the same time.
- If system is functioning properly, the unit should steer.
- If unit does not steer, do not operate machine until problem is solved.

Automatic test:

- System automatically tests the hydraulic oil pressure in the emergency steering system lines. Emergency warning light on the dashboard will light for about 3 seconds when you switch ignition key to position 'I' (ON).

RECOMMENDATION FOR USE

- If the emergency steering indicator light turns on while operating, immediately stop operation.
- Do not press this switch continuously = will cause heavy battery discharge.

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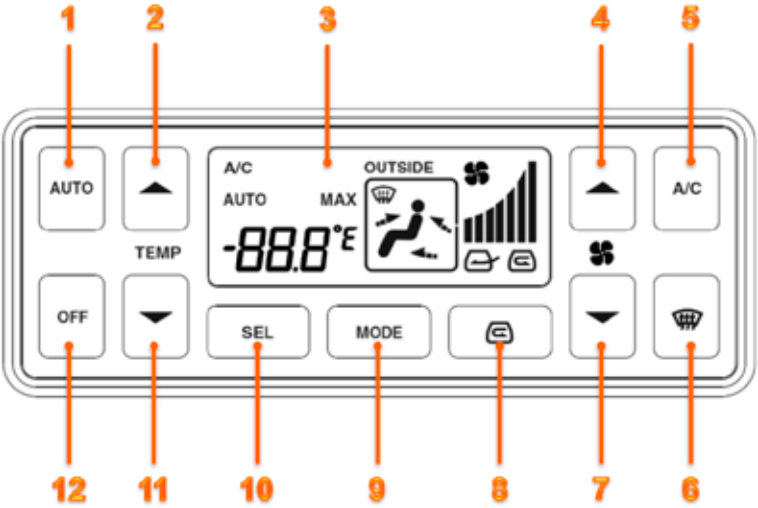
AIR CONDITIONING



1. Activation touch for automatic management
2. Temperature rise touch
3. Display screen
4. Touch for blower increase (manual management)
5. Climate control (manual management)
6. Defrost Control
7. Touch for blower decrease (manual management)
8. Touch for managing the air entering the cab
9. Touch to combine air outlets
10. Touch for the temperature adjustment (°C or °F)
11. Temperature down touch
12. Air conditioning switch off

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ON-BOARD COMPUTER – ACCESS

CONFIGURATION MENU ACCESS

1. Press the button ‘ESC’ on the front touch pad for 3 seconds.

2. Use the navigation arrows to enter in the different menus.

3. Use the submit arrow to enter inside menus.

4. Use the touch ‘ESC’ to come back to the previous menu or to the menu.

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ON-BOARD COMPUTER – MACHINE STATE

MACHINE STATE MENU

Monitoring

- Voltage, fuel level temperature and pressure information

Filter/Oil information

- Use time, replacement period and remaining time

Machine information

- Machine name, engine type and serial number

Fuel efficiency data

- Per week
- Per day
- Historic

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ON-BOARD COMPUTER – MACHINE CONFIGURATION

MACHINE CONFIGURATION MENU

Reversing fan interval setting

L.I.S. activation speed setting

Auto shut down setting

Auto idle setting

Emergency code (TMS)

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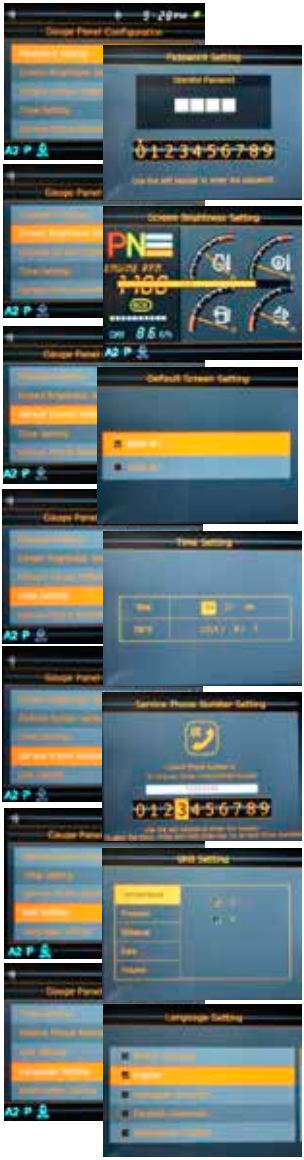
ON-BOARD COMPUTER – GAUGE PANEL CONFIGURATION

GAUGE PANEL CONFIGURATION MENU



Password Setting

- User password

Screen brightness setting

Default screen setting

Time setting

Service phone number setting

Units setting

Languages setting

Notifications setting

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DOOSAN CONNECT

JOB SITE MANAGMENT

Monitoring of equipment location

WORK EFFICIENCY MANAGMENT

Operating hours, fuel level and consumptions

PREVENTIVE MAINTENANCE

Alarm for replacing consumables like filters and oils.

PROACTIVE SERVICE

Minimize your downtime

- DoosanCONNECT services provide the proper information, connect your operation, offer advice.
- Doosan telemetric system allows remote access to machine data through the web or mobile application.
- With DoosanCONNECT, you can manage fleet, machine efficiency, and maintenance for your special machines.

ASK YOUR DEALER FOR YOUR ACCESS!

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- Maximum user convenience
- Easy accessibility
- Prompt update of the information
- Environment-friendly

Easy registration:

- Download Doosan Mobile Parts Book from the App Store or Google Play
- Sign Up
  - → Click the “Sign up” button on the bottom right of the sign-up page
  - → Set your region, e-mail and password
  - → Enter the PIN = Product Identification Number, to validate your machine
    Directly enter the PIN (machine serial number)
    or
    Click “Scan QR CODE” button and read the QR code from sticker
  - → Accept the Terms of Use
- Use the parts catalog

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NOTES

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DOOSAN

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