Operation Manual

Q-370100 LWJ 006

H625/H735/HA735
H933/H1440/H1840
H1840-Ⅱ/HR2150

Telehandler

PART No.OM-2537050145

Original Instructions

Original Instructions

Thank you for choosing to use this Mobile Elevating Work Platform from LGMG.

This manual is a guide for safe and proper operation and maintenance of the machine, which introduces technical parameters and mechanism and operation herein.

We sincerely hope that you will read through this manual before attempting to operate the machine for the first time and before repairing and maintaining the machine, and that you will master the operation and maintenance described therein.

The information contained in this manual is correct at the time of publication. However, LGMG has endeavored to deliver the highest degree of accuracy possible. And continuous improvement of our product is a LGMG policy. Therefore, product specifications are subject to change without notice.

Due to the impossibility of foreseeing all possible hazards, therefore, it is not possible to include all safety precautions in this manual and the machine's safety precautions in this manual and the machine's safety instructions. If some operations that are not recommended in this manual, you must ensure that you and others are safe and will not damage the machine. If the security of certain operations cannot be determined, please call LGMG industries or dealer service center.

The precautions for operation and maintenance contained in this manual are only applicable when the machine is used for the specified use. If the machine is used within the scope not listed in this manual, our company will not assume any safety responsibility, which is borne by the user and operator in such operations.

Any prohibited operations in this manual shall not be performed.

This manual should always be placed in the designated location for read. This manual is part of the machine, when the ownership or use right of the machine is transferred, please hand over this manual together. If the manual is lost, damaged or illegible, please replace it promptly.

2024-1 Version 1 Printed 1

LINGONG HEAVY MACHINERY CO.,LTD.

Add：2676 Kejia Road, high tech Zone, Jinan City, Shandong Province, China

Tel： 86-0531-67601108 Fax： 86-0531-67601108

Service Tel： 86-0531-67605016 Web： www.lgmg.com.cn

Revision History

Revision	Date	Section	Page / Description

Revision History

Revision	Date	Section	Page / Description

Safety Rules

Danger

Failure to obey the instructions and safety rules in this manual and the appropriate Operator's Manual on your machine will result in death or serious injury.

Failure to follow the instructions and safety rules in this manual and the Operating Manual may result in death or serious injury.

Many of the hazards identified in the operator's manual are also safety hazards when maintenance and repair procedures are performed.

Do Not Perform Maintenance Unless：

☑ You are trained and qualified to perform maintenance on this machine.

☑ You read, understand and obey:

- manufacturer's instructions and safety rules.
- employer's safety rules and worksite regulations.
- applicable governmental regulations.
- You have the appropriate tools, lifting equipment and a suitable workshop.

Personal Safety

Any person working on or around a machine must be aware of all known safety hazards. Personal safety and the continued safe operation of the machine should be your top priority.

Read each procedure thoroughly. This manual and the decals on the machine, use signal words to identify the following.

Safety alert symbol—used to alert personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

Indicates a imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

NOTICE

Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE: Used to indicate operation or maintenance information.

Be sure to wear protective eye wear and other protective clothing if the situation warrants it.

Be aware of potential crushing hazards such as moving parts, free swinging or unsecured components when lifting or placing loads. Always wear approved steel-toed shoes.

Workplace Safety

Any person working on or around a machine must be aware of all known safety hazards. Personal safety and the continued safe operation of the machine should be your top priority.

Be sure to keep sparks, flames and lighted tobacco away from flammable and combustible materials like battery gases and engine fuels. Always have an approved fire extinguisher within easy reach.

Be sure that all tools and working areas are properly maintained and ready for use. Keep work surfaces clean and free of debris that could get into machine components and cause damage.

Be sure any forklift, overhead crane or other lifting or supporting device is fully capable of supporting and stabilizing the weight to be lifted. Use only chains or straps that are in good condition and of ample capacity.

Be sure that fasteners intended for one time use (i.e., cotter pins and self-locking nuts) are not reused. These components may fail if they are used a second time.

Be sure to properly dispose of old oil or other fluids. Use an approved container. Please be environmentally safe.

Be sure that your workshop or work area is properly ventilated and well lit.

Contents

Revision History II

Safety Rules IV

Contents VI

Chapter 1 Safety 1

1.1 Unauthorized installation 3

1.2 Classification of hazardous situations 4

Chapter 2 Product Introduction 13

2.1 Legend of the whole machine 15

2.2 Machine identification 19

2.3 Machine purpose 39

2.4 Machine parameters 40

Chapter 3 Use of Vehicles 92

3.1 Operation of doors 94

3.2 Cab Electrical Layout 98

3.3 Cab interior device 102

3.4 Cab exterior device 133

Chapter 4 Operating Instructions 142

4.1 Precautions 144

4.2 Inspection before operation 144

4.3 Workplace inspection 146

4.4 Startup 146
4.5 Driving 147
4.6 Parking 149
4.7 Loading 149
4.8 Operate on slope 154
4.9 Machine transportation lifting instructions 154
4.10 Use of safety support 156
4.11 If the vehicle is not to be used for a long time 157
4.12 Disposal Instructions 158
4.13 Active Regeneration 159
4.14 Fault code 168
4.15 Instructions for Use of Hook and Bucket 199

Chapter 1 Safety

DANGER:

Failure to comply with the instructions and safety rules in this manual will result in the occurrence of death or serious injury. Alcoholics, drug addicts, and those taking reaction inhibiting drugs are strictly prohibited from approaching and operating the machine.

WARNING:

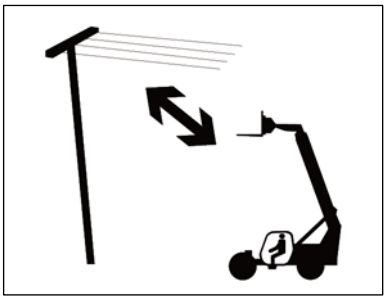
- **Do not operate unless**
- **Equipped with full body protection, such as helmet, seat belt, safety shoes, goggles, protective gloves, etc., and in good physical condition.**
- **You have understood and practiced the rules of safe operation of the machine in this operation manual.**
- **Avoid dangerous situations. Know and understand the safety rules before proceeding to the next step.**
- **Always perform the inspection before operation.**
- **Always perform pre-use functional testing.**
- **Check the workplace**
- **Use the machine only according to its design intent.**
- **The manufacturer's instructions and safety rules--safety operation manual and machine labels shall be read, understood and observed.**
- **You shall read, understand and comply with the user safety rules and workplace regulations.**
- **You must read, understand and comply with all applicable government laws and regulations.**
- **You have received proper training on the safe operation of the machine.**

1.1 Unauthorized installation

Any refit may cause danger. Please consult with Lingong Heavy Machinery Co., Ltd. (LGMG for short) before refitting the machine. LGMG shall not be liable for any damage caused by unauthorized refit.

1.2 Classification of hazardous situations

Electric shock hazard:



- **The machine is not insulated and does not provide protection from electric shock when in contact with or near the wires. Keep adequate safety distances from the power lines and electrical equipment in accordance with applicable government laws and regulations and the instructions in the following table.**

Voltage	Required clearance
0 ~ 50 kV	3 m
50 kV ~ 200 kV	5 m
200 kV ~ 350 kV	6 m
350 kV ~ 500 kV	8 m
500 kV ~ 750 kV	11 m
750 kV ~ 1000 kV	14 m

- **The influence of strong winds or gusts on the movement of the Fork, the swing and relaxation of the wires shall be considered.**
- **Keep away from the machine if it comes into contact with live wires. Before cutting off the power supply, it is forbidden for any person to contact or operate the machine.**
- **Do not operate the machine when there is lightning or storm.**
- **Do not use the machine as a ground wire during welding.**

Danger of scalding at high temperature:

- **When the operation was just completed, the temperature of hydraulic oil, oil and water in the engine, oil and water in the radiator is still very high and there is still pressure. At this time, open the tank cap, radiator cap, draining oil or water, or replacing the filter may cause serious burns. The above operations shall be carried out until the temperature drops and the prescribed procedures shall be followed.**
- **Do not touch the relay when the engine is hot to avoid scalding.**
- **Do not remove the engine oil temperature sensor, water temperature sensor and air conditioning water pipe**

to avoid scalding.

Danger of misuse:

- If the telescopic handler is not equipped with platform accessories, do not lift personnel.
- It is forbidden to use faulty or poorly maintained machines. Stop using defective/damaged machines.
- It is forbidden to lean the machine against the structure to stabilize the structure.
- Do not climb onto the machine cover.
- It is forbidden to replace parts that are vital to the stability of the machine with parts of different weights or specifications.
- It is forbidden to replace factory-installed tires with tires of different specifications or layers.
- Machine parts that affect safety and stability in any way shall not be changed or disabled.
- Do not disable the safety device.
- Do not operate the machine controls suddenly.
- During cleaning, it is forbidden to directly align the water gun with the engine exhaust port, electrical parts, and batteries, etc.

Danger of falling:

- Access to the cab using suitable handrails and provided steps; Keep 3 contact points (hands and feet) on the steps and handrails for access to the cab.
- Never grasp the joystick or steering wheel when installing or removing the machine.
- It is forbidden to use fork truck to lift personnel.
- It is forbidden to drill holes in the fork, and do not heat or weld the fork.

Danger of tip-over:

- **Increase the load strictly according to the load curve graph.**
- **Ensure that the center of gravity of goods are close to the inside of the fork and do not drag the goods.**
- **Ensure that the road surface can support the machine weight, including the rated load.**
- **Avoid sudden start-stop, steering and driving, and prevent load from overturning.**
- **Do not use the machine at wind speeds above level 6.**

Windscale	Description	Wind speed(m/s)	Wind speed(km/h)	Effects on land
0	Calm	< 0.3	0-1	Smoke rises vertically.
1	Light air	0.3-1.5	1-5	Direction of wind shown by smoke.
2	Light breeze	1.6-3.3	6-11	Wind felt on face; leaves rustle; wind vane moves.
3	Gentle breeze	3.4-5.4	12-19	Leaves and small twigs in constant motion; wind extends light flag.
4	Moderate breeze	5.5-7.9	20-28	Wind raises dust and paper; small branches move.
5	Fresh breeze	8-10.7	29-38	Small trees with leaves begin to sway; crested wavelets form on inland waters.
6	Strong breeze	10.8-13.8	39-49	Large branches move; wires and ventilation ducts whistle; umbrellas difficult to control.
7	Near gale	13.9-17.1	50-61	Whole trees sway; walking against wind is difficult.
8	Gale	17.2-20.7	62-74	Twigs break off trees; progress on foot is seriously impeded.
9	Strong gale	20.8-24.4	75-88	Buildings slightly damaged; roof and chimney tiles blow off.

- Do not drive and raise boom on slope exceeds the rated slope of the machine.
- Do not replace components of different weights or specifications that are critical to stability.
- It is forbidden to use outrigger or leveling cylinder to turn the machine over. The leveling cylinder and outrigger are only used to adjust the machine to level.
- Do not exceed the rated load of the machine.
- Do not drive at high speed under boom lift conditions.

Danger of tip-over:

When the boom lifting angle exceeds 30 °, the maximum driving speed of the machine cannot exceed 10km/h.

- In high-speed driving mode, only front-wheel steering can be used.
- Transport the goods as low as possible and bind the load to limit its movement.
- Always keep the tire pressure within the normal range.
- Do not raise the boom when the chassis is not horizontal (0 °).

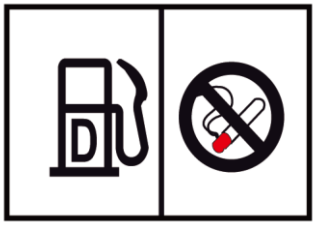
Danger while driving:

- Before moving the machine, make sure the road is clear and sound the horn.
- Check the working condition of the rearview mirror.
- The steering mode can only be changed when the machine is stationary or stopped.
- It is forbidden to go downhill at high speed.
- It is forbidden to drive fast in narrow or messy areas. The vehicle speed shall be controlled during turning or sharp turning.
- Excessively steep slope or unstable surfaces shall be avoided.
- Under no circumstances should you drive on an excessively steep slope.
- Never put the machine at N gear when going downhill.
- It is forbidden to drive on slope that exceeds the rated slope of the machine.

Danger of explosion/fire:

- The battery contains acidic substance. Wear protective clothing and glasses when using battery.
- Avoid spillage or contact with the acidic substance in the battery. Neutralize spilled battery acidic substance with soda and water.
- Do not operate the machine in an explosive or flammable environment.
- Do not touch high temperature parts.
- Do not touch battery terminals with metal objects.
- Do not repair the machine near sparks, open flames, lighted cigarettes.
- Do not expose batteries or electrical component to water, (high-pressure spray gun or rain).
- These hydraulic accumulators that may be installed on the telescopic handler are pressurized devices. Disassembling these accumulators and their piping systems is a dangerous operation and must be performed by an approved technician.
- Release the accumulator pressure of the brake system before service: park the machine on solid level ground, retract the boom to the stowed position, stop the engine, and place pads under the wheels. Repeatedly press and release the travel brake pedal (foot brake); repeatedly pull and release the parking brake handle (hand brake).

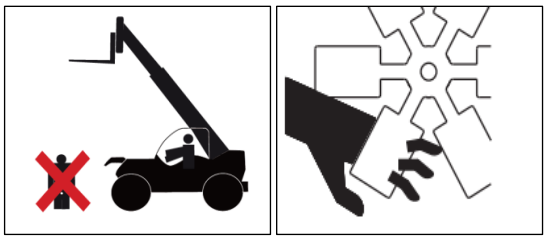
Chemical hazard:



- Do not allow engine to operate in a closed, narrow place, which can lead to the accumulation of toxic gases.
- Never use the machine underground.
- Do not add fuel while the engine is running, and do not allow the fuel system to work near open flames, sparks, or high temperature. The engine fuel is flammable and may cause fire and explosion.
- Do not attempt to repair or tighten any hydraulic hose or joints while the engine is running or the hydraulic system is under pressure.

- Do not check by hand for leaks, pressurized hydraulic oil may penetrate the skin. Replace with cardboard or paper. When checking the hydraulic system, wear gloves and goggles to prevent liquid splashing.

⚠ Danger of crushing and collision:



- When lifting and lowering the boom or before driving, check whether there are obstacles in the working area and whether there are any obstacles next to and under the boom.
- It is forbidden for personnel to work, stand or walk under the raised boom.
- Do not leave the cab when the lift truck has a raised load.
- When driving, non-operators must stay away from the machine.
- When driving, adjust the position of the boom to provide the best possible visibility and avoid any blind spots.
- When driving, the seat belt must be fastened.
- When driving, consider the parking distance of the machine, the influence of visibility reduction and blind spots.
- Keep away from the rotating parts on the machine and the parts that may be clamped.
- When operating the machine, please stay away from the tires, chassis, and other steering components.
- When rotating the turntable, pay attention to clarify the position of the boom and the tail of the turret.
- Make sure that the turret is fixed with a turret rotation lock before transportation.
- Make sure to unlock the turret during operation.

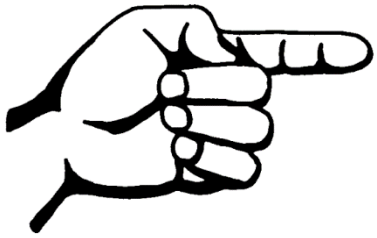
⚠ Danger of uncontrolled movement:

- Never use damaged or faulty machines.
- The machine must be immediately tagged and removed from service if a malfunction is found.
- Always comply with the following rules:
- Keep a sufficient distance from the high-voltage line.
- Keep sufficient distance from generator, radar and electromagnetic

field.


General hazard

- Always close the cab door during use to reduce the noise.
- Only approved spare parts can be used.
- A seat is an essential means to reduce the vibration transmitted to the operator. In case of replacement of the seat, refer to the manufacturer.
- Total vibration value to which the hand/arm system is subjected does not exceed 2.5 m/s², and the highest root-mean-square value of the weighted acceleration experienced by the whole body shall not exceed 0.5 m/s².
- The ambient temperature for the use of the machine shall be -20 ℃ ~ 40 ℃, and the relative humidity should not be greater than 90% (at 20 ℃).

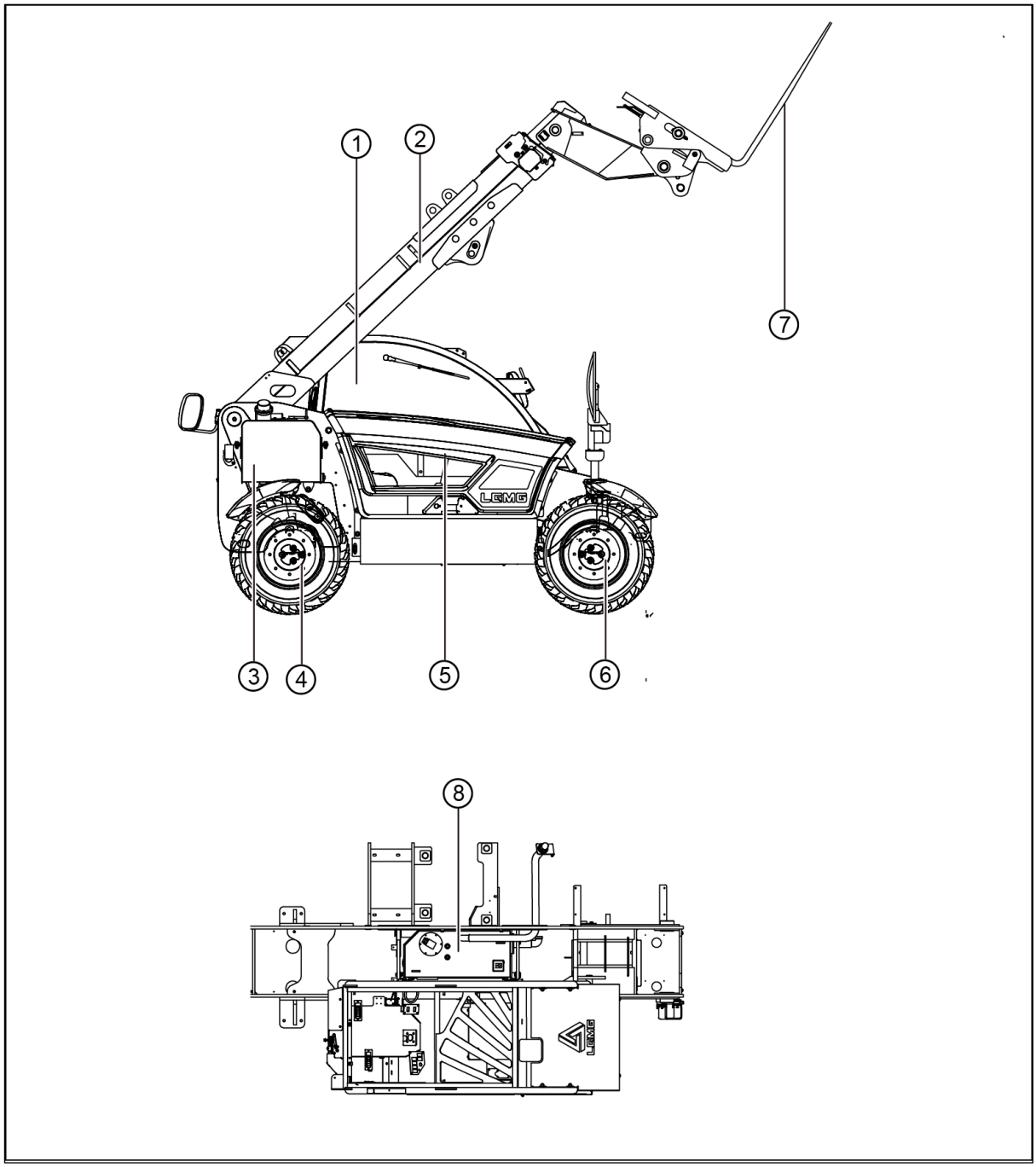


This page intentionally left blank.

Chapter 2 Product Introduction

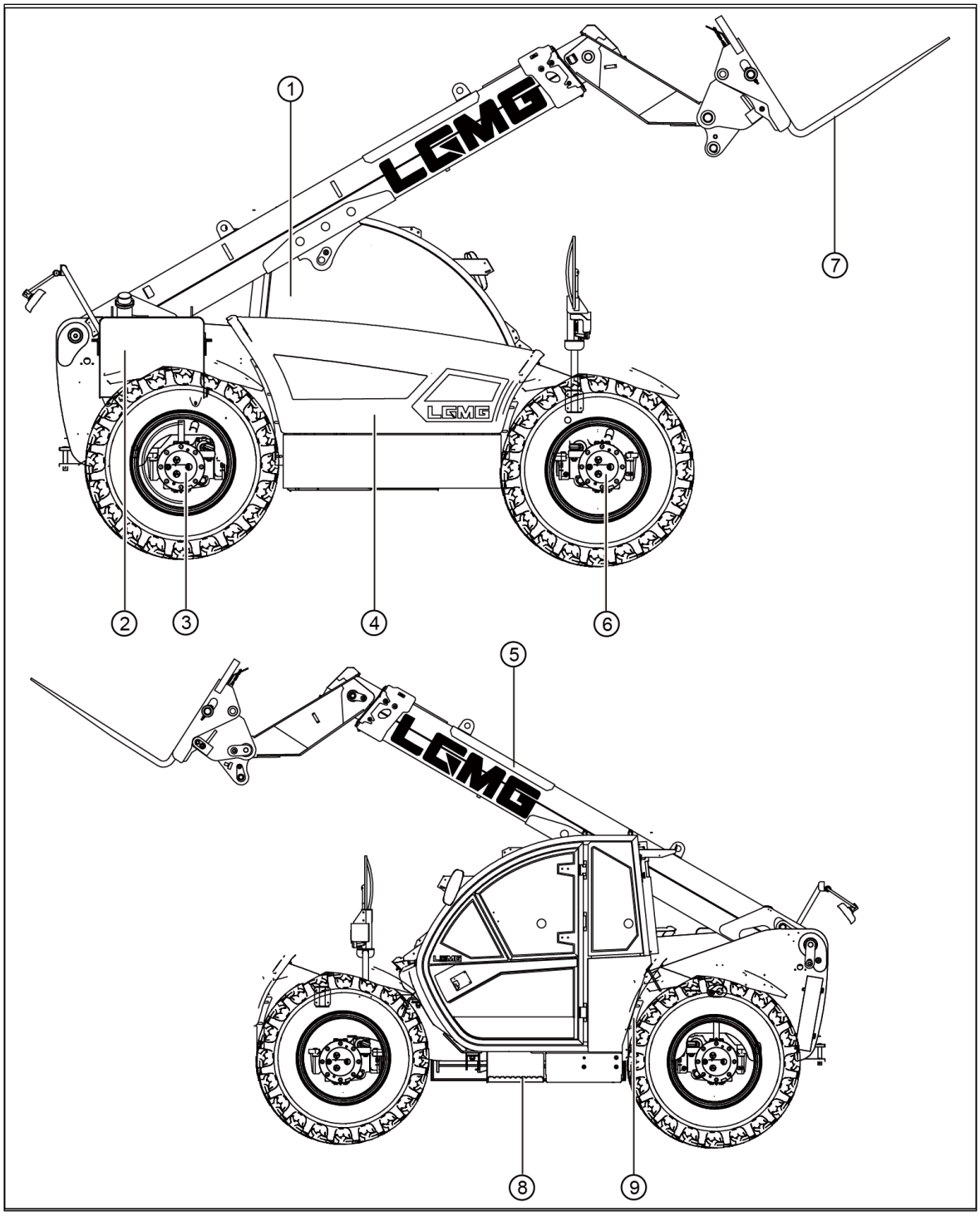
2.1 Legend of the whole machine

Legend of whole machine H625



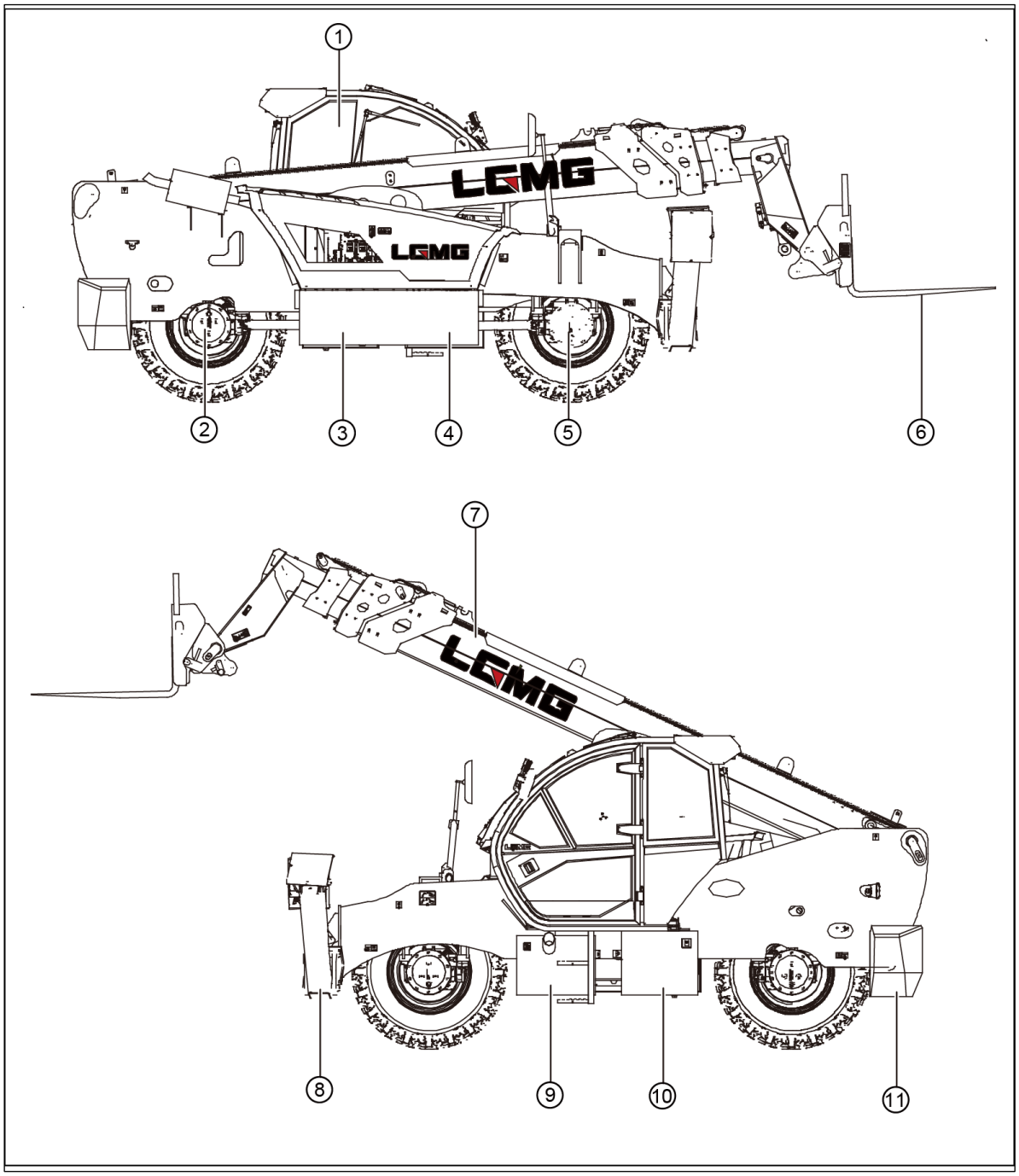
No.	Name	No.	Name
1	Cab	5	Engine and accessories
2	Boom	6	Front axle
3	Fuel tank	7	Accessory - fork
4	Rear axle	8	Hydraulic oil tank

Legend of whole machine H735/HA735/H933



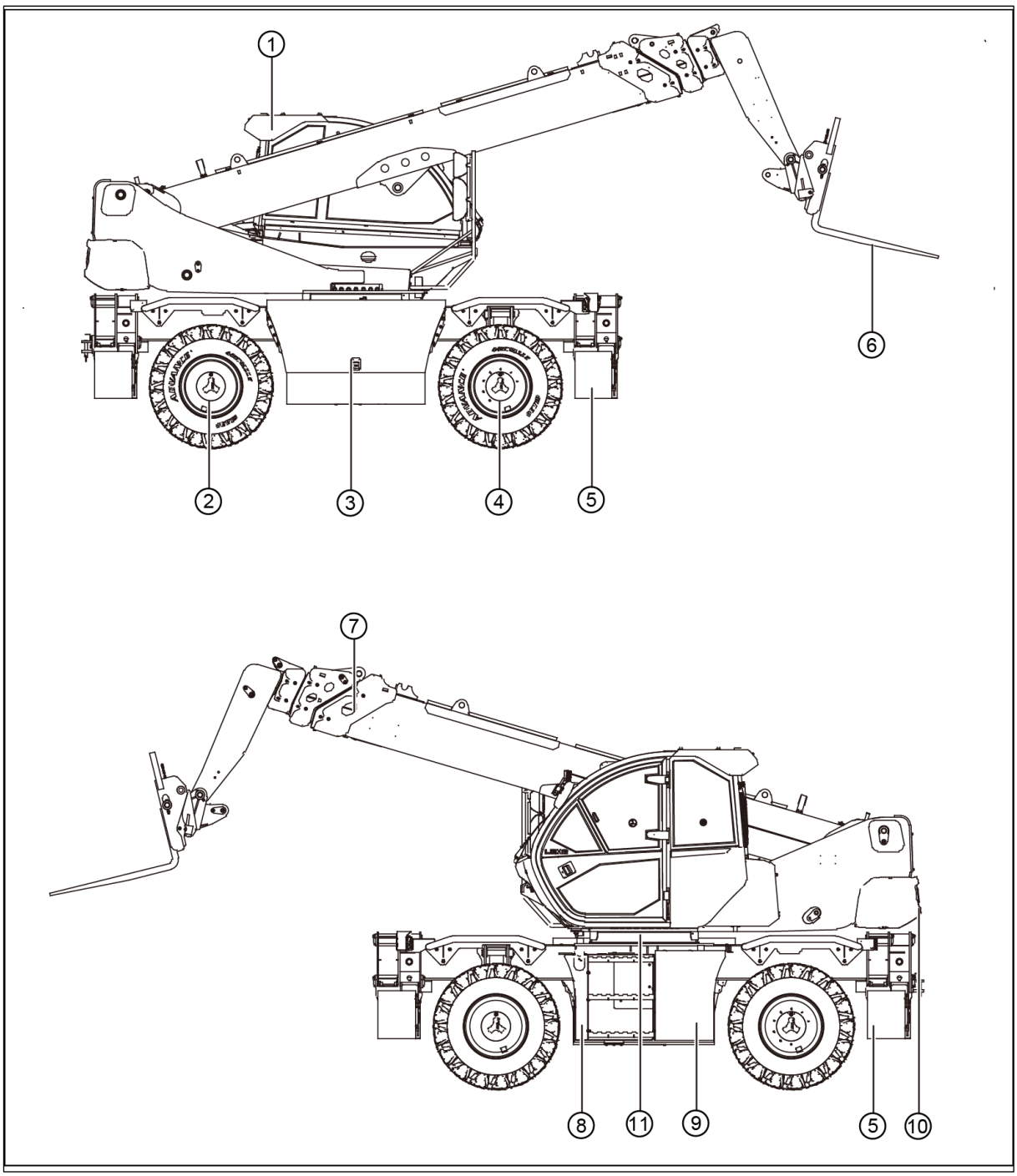
No.	Name	No.	Name
1	Cab	6	Front axle
2	Fuel tank	7	Accessory - fork
3	Rear axle	8	Ladder
4	Engine and accessories	9	Hydraulic oil tank
5	Boom		

Legend of whole machine H1440/H1840/ H1840-Ⅱ



No.	Name	No.	Name
1	Cab	7	Boom
2	Rear axle	8	Outrigger mechanism
3	Engine and accessories	9	Fuel tank
4	Transmission/Pump	10	Hydraulic oil tank
5	Front axle	11	Counterweight
6	Accessory - fork		

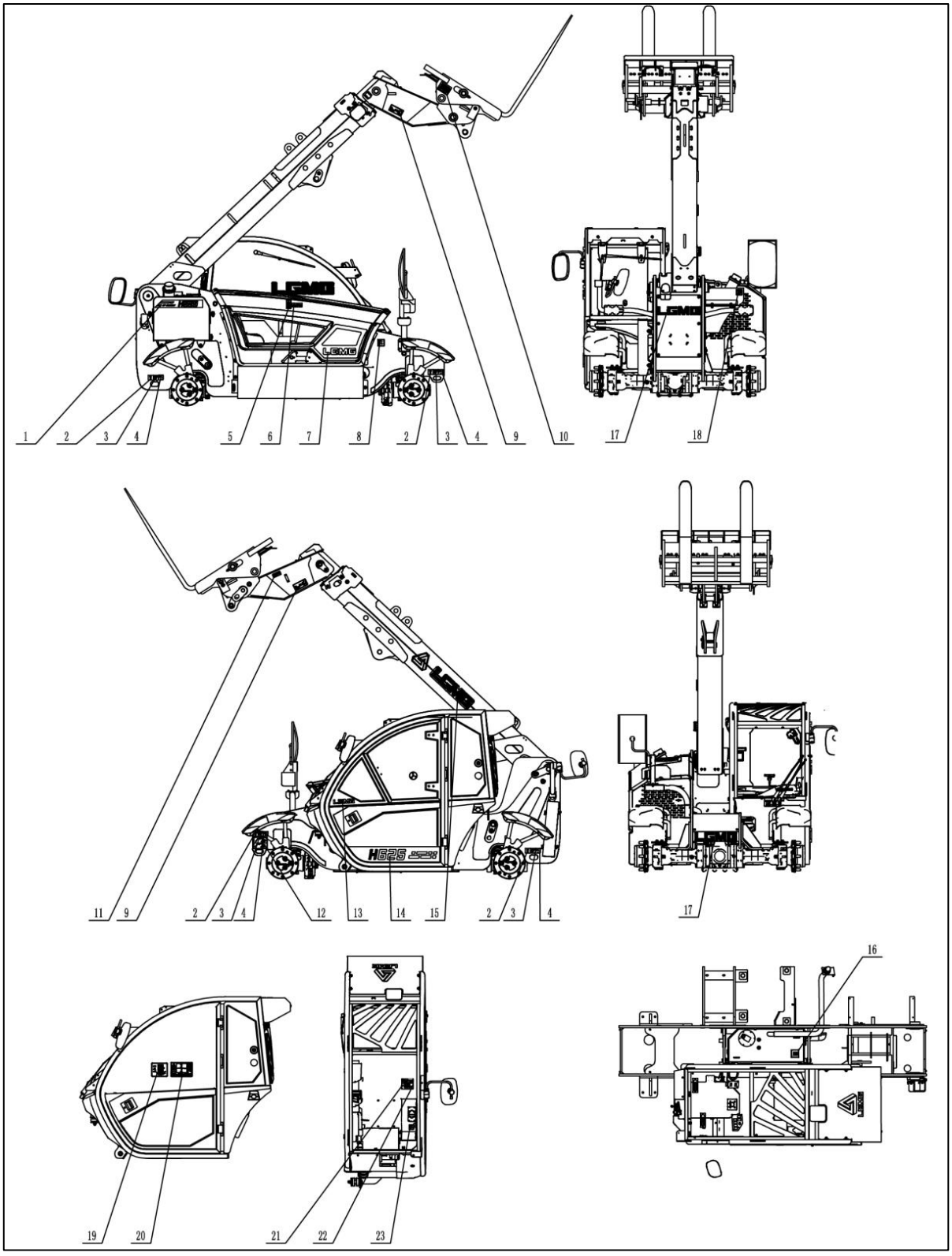
Legend of whole machine HR2150



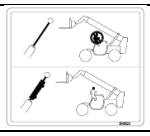
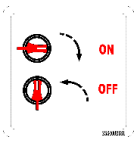
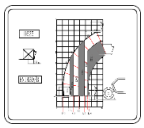
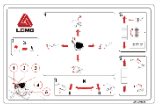
No.	Name	No.	Name
1	Cab	7	Boom
2	Rear axle	8	Fuel tank
3	Engine and accessories	9	Hydraulic oil tank
4	Front axle	10	Counterweight
5	Outrigger mechanism	11	Slewing mechanism
6	Accessory - fork		

2.2 Machine identification

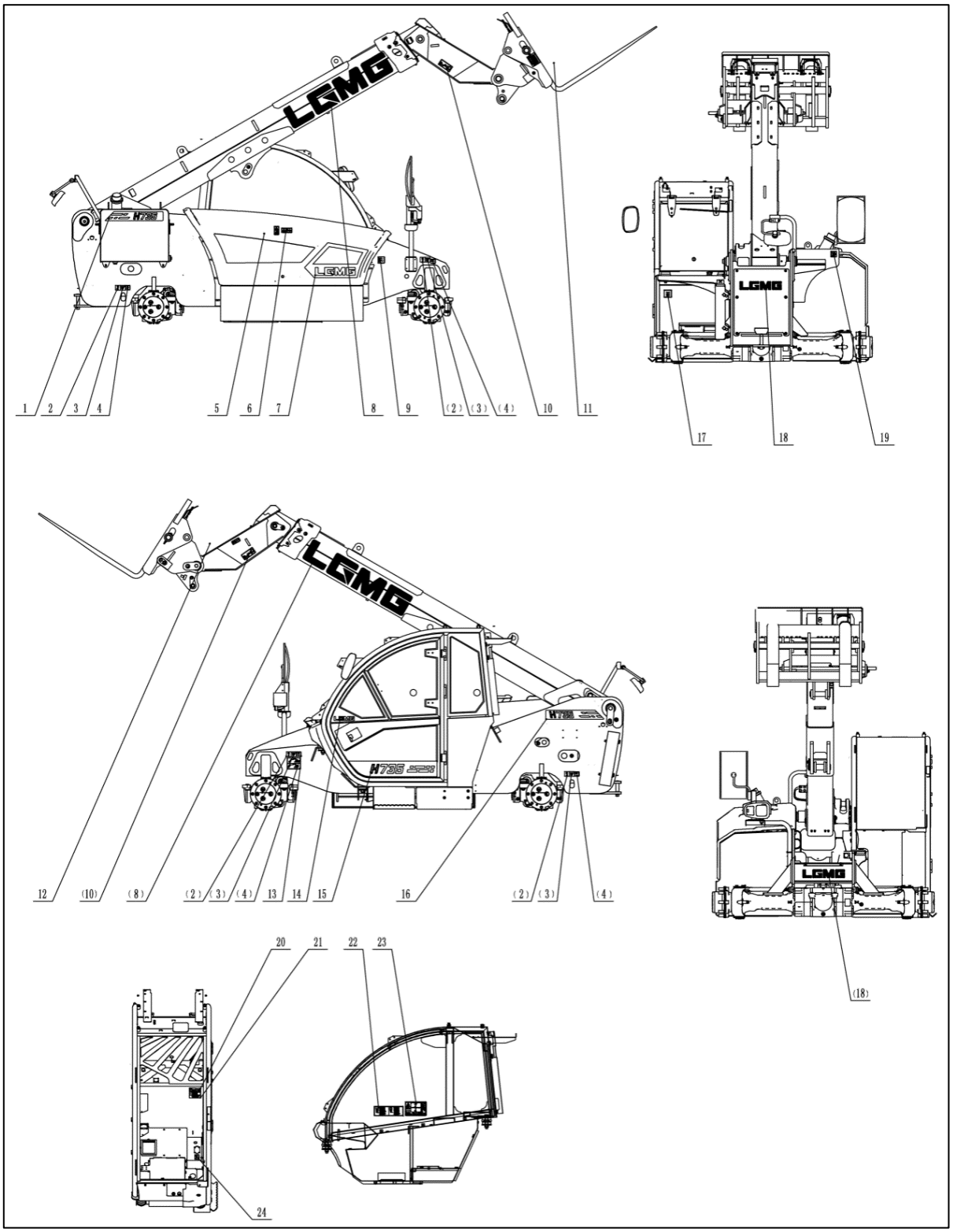
H625 Label



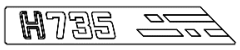
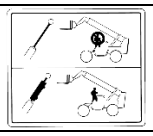
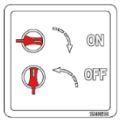
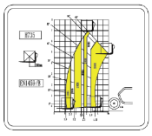
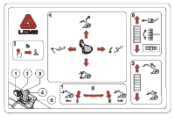
H625 Label List

Name	Sign and logo	Name	Sign and logo
1.Decal-Model H625 (RH, 509*85)		12.Decal-Inspection notes	
2.Decal-Lifting		13.Decal-Metal word LGMG (cab door)	
3.Decal-Lifting lug		14.Decal-Model H625-(cab, 910*160)	
4.Decal-Wheel load 3295kg		15.Decal (Boom left/right side, 978)	
5.Decal-Liquid hot warning		16.Decal-Hydraulic oil	
6.Decal-Box's interior inspection caution		17.Decal-LGMG logo (415*80)	
7.Decal-Model H625 (hood, 518*323)		18.Decal-Fuel tank	
8.Decal-Turn off power		19.Decal-Range of motion-H625	
9.Decal-Anti-squeezing caution		20.Decal-Combination joystick operating instruction	
10.Decal-Attachment nameplate		21/22.Nameplate	
11.Decal-Quick change instruction		23.Decal-Hand brake	

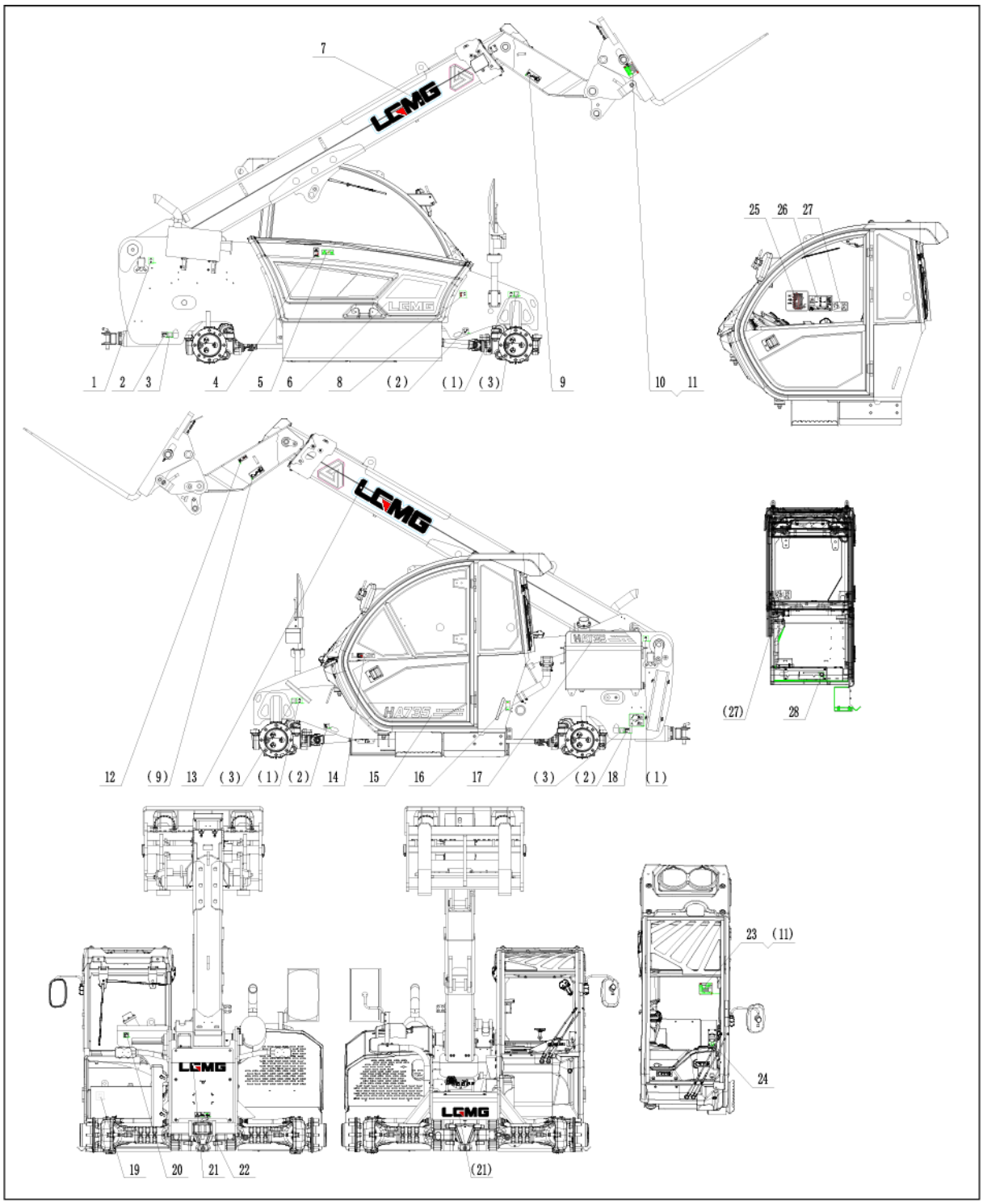
H735 Label

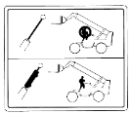
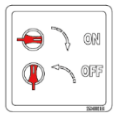
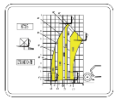

LGMG
H735
1
2
3
4
5
6
7
8
9
(2)
(3)
(4)
10
11
17
18
19
12
(10)
(8)
13
14
15
16
20
21
22
23
24
(18)

H735 Label List

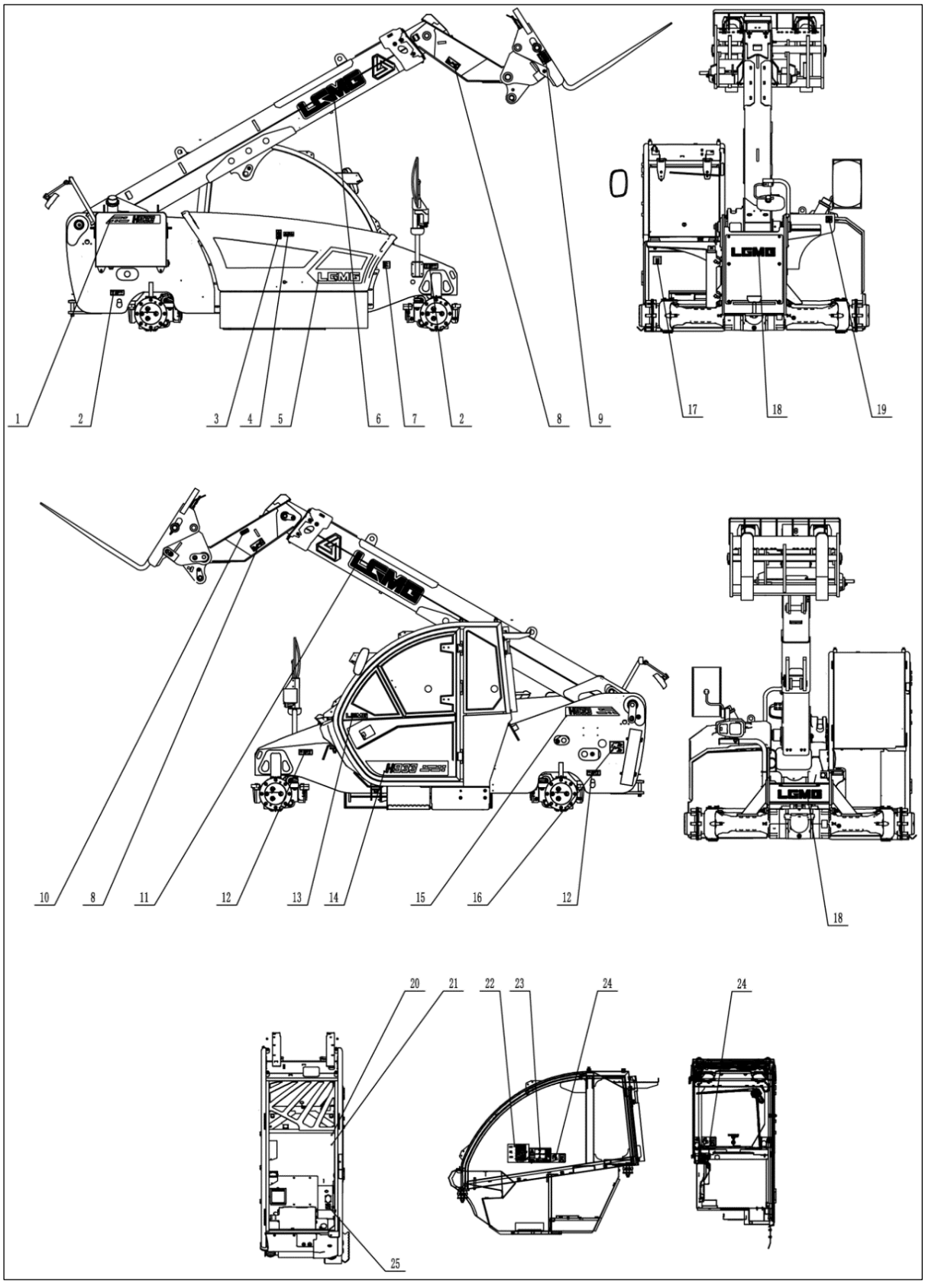
Name	Sign and logo	Name	Sign and logo
1.Decal-Lifting		15. Metal word on cab door	
2. Decal-Model (RH)		16. Decal-Model (Cab)	
3. Decal-Lifting lug		17. Decal-Model (LH)	
4. Decal-Wheel load 4750KG		18. Decal-Inspection notes and warning	
5. Decal-Hot liquid warning		19. Decal-Hydraulic oil	
6. Decal-Inspection notes and warning		20. Decal-LGMG logo	
7. Decal-LGMG (Hood)		21. Decal-Fuel tank	
8.Decal-Boom decal (RH)		22. Complete machine nameplate	
9. Decal-Turn off power		23. Decal-Hand brake	
10. Decal-Risk of squeezing		24. Decal-Range of motion	
11. Attachment nameplate		25. Decal-Multifunction joystick operation	
13. Quick-change notes		26. Decal-Safe escape	
14. Decal-Boom decal (LH)			

HA735 Label

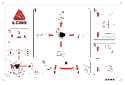

7
1
2
3
4
5
6
8
(2)
(1)
(3)
9
10
11
25
26
27
12
(9)
13
(3)
(1)
(2)
14
15
16
17
(3)
(2)
18
(1)
(27)
28
23
(11)
24
19
20
21
22
(21)

Name	Sign and logo	Name	Sign and logo
1. Decal-Lifting		16. Decal-Oil level	
2. Decal-Lifting lug		17. Decal-Model (LH)	
3. Decal-Wheel load 4750KG		18. Decal-Inspection notes and warning	
4. Decal-Hot liquid warning		19. Decal-Hydraulic oil	
5. Decal-Inspection notes and warning		20. Decal-Fuel tank	
6. Decal-Hood decal		21. Decal-LGMG logo	
7. Decal-Boom (RH)		22. Decal-Tow hitch	
8. Decal-Turn off power		23. Complete vehicle nameplate	
9. Decal-Anti-squeezing safety note		24. Decal-Hand brake	
10. Attachment nameplate		25. Decal-Range of motion	
12. Quick-change note		26. Decal-Multi-function joystick operation	
13. Decal-Boom (LH)		27.Decal-Safe escape	
14. Metal word on cab door		28.Decal-Fill washer fluid	
15. Decal-Model (Cab)			

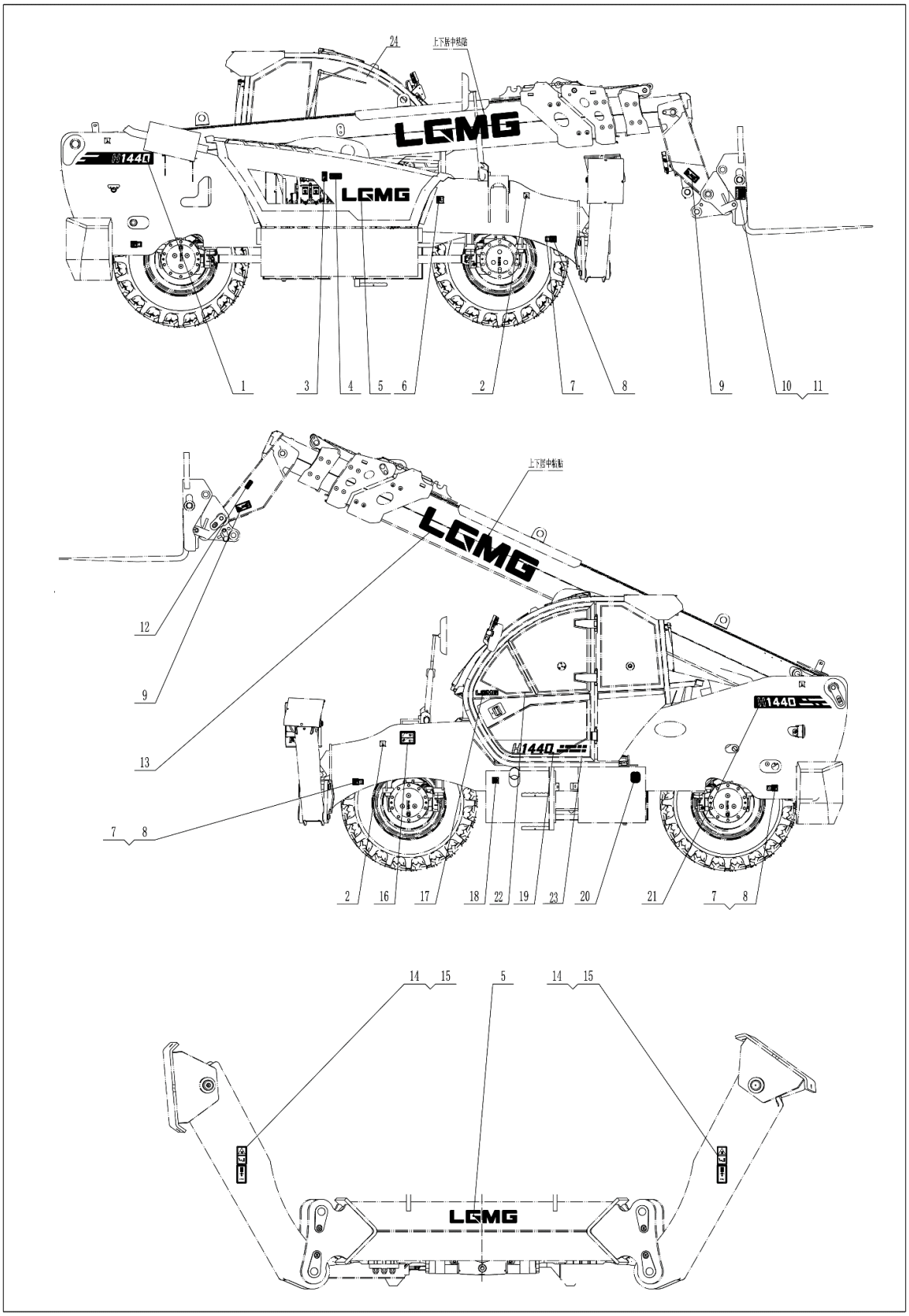
H933 Label



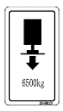
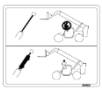
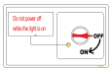
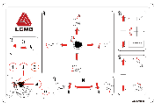
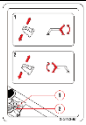
H933 Label List

Name	Sign and logo	Name	Sign and logo
1. Decal-Model H933 (RH, 600*94)		13.Decal-Metal word LGMG (cab door)	
2.Decal-Lifting		14.Decal-Model H933-910*160	
3.Decal-Liquid hot warning		15.Decal-Model H933 (LH, 600*94)	
4.Decal-Box's interior inspection caution		16.Decal-Inspection notes	
5. Decal-LGMG logo (hood)		17.Decal-Hydraulic oil	
6. Decal-LGMG logo (boom left/right side)		18.Decal-LGMG logo	
7.Decal-Turn off power		19.Decal-Fuel tank	
8.Decal-Anti-squeezing safety		20/21.Nameplate	
9.Decal-Attachment nameplate		22.Decal-Range of motion-H933	
10.Decal-Quick change instruction		23.Decal-Combination joystick operating instruction	
11. Decal (Boom left/right side, 978)		24.Decal-Safe escape instruction	
12.Decal-Lifting lug		25.Decal-Hand brake	

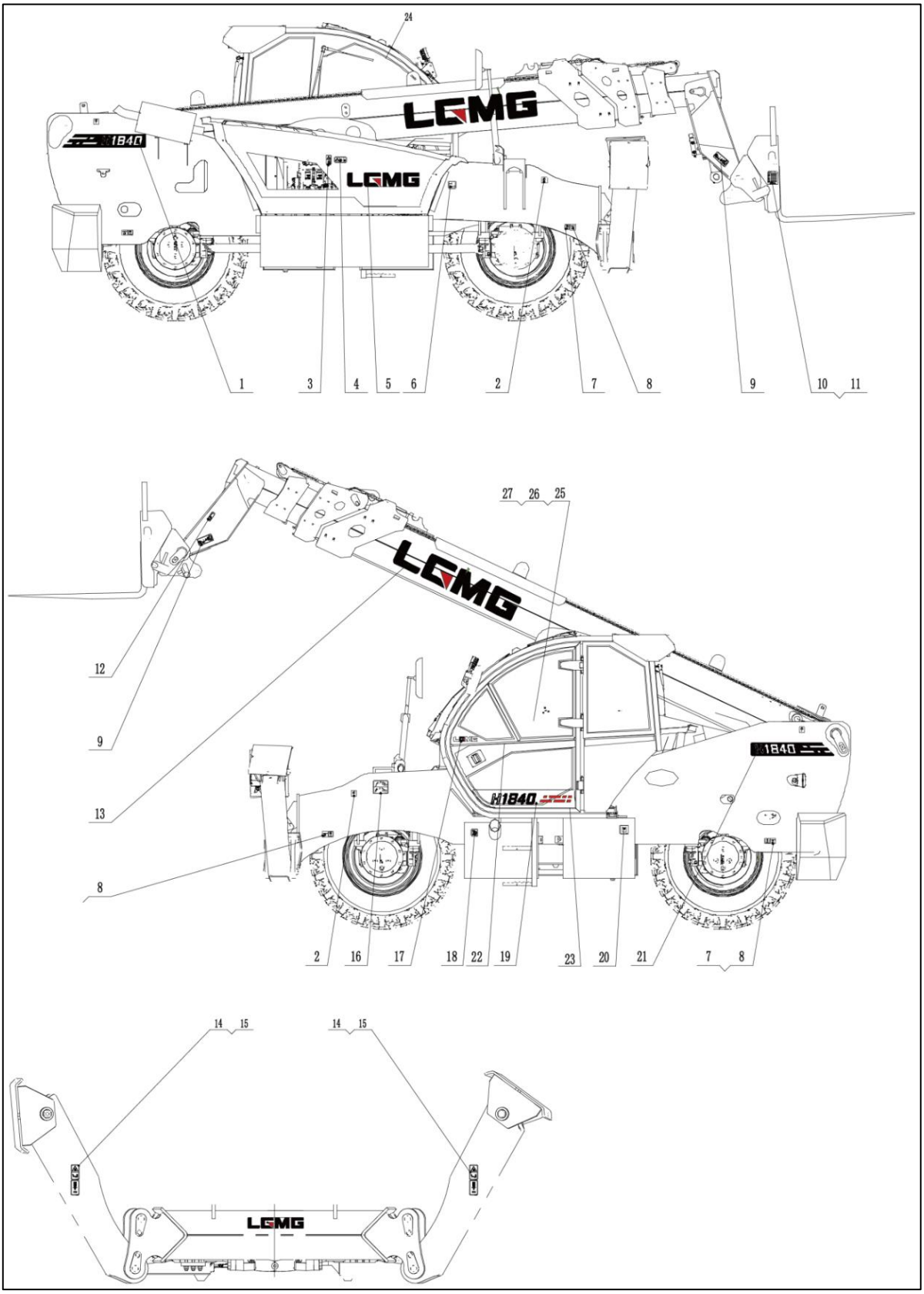
H1440 Label


24
上下居中粘贴
LGMG
H1440
1
3
4
5
6
2
7
8
9
10
11
12
13
H1440 SES
16
17
18
22
19
23
20
21
14
15

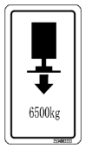
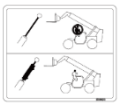
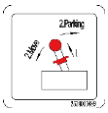
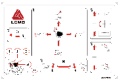
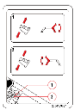
H1440 Label List-1

Name	Sign and logo	Name	Sign and logo
1.Decal-Model (RH)		15.Decal-Outrigger load	
2.Decal-Lifting		16.Decal-Metal word LGMG (cab door)	
3.Decal-Liquid hot warning		17.Decal-Inspection notes	
4.Decal-Box's interior inspection caution		18.Decal-Fuel tank	
5.Decal-LGMG logo (120)		19.Decal-Model (cab)	
6.Decal-Turn off power		20.Decal-Hydraulic oil	
7.Decal-Wheel load		21.Decal-Model (LH)	
8.Decal-Lifting lug		22.Nameplate	
9.Decal-Anti-squeezing safety		23.Decal-Hand brake	
10/11.Decal-Attachment nameplate		24.Decal-Range of motion-H1440	
12.Decal-Quick change instruction		25.Decal-Combination joystick operating instruction	
13.Decal-LGMG logo (230)		26.Decal-Outrigger joystick operating instruction	
14.Decal-Away from outriggers warning		27.Decal-Vehicle body levelling joystick	

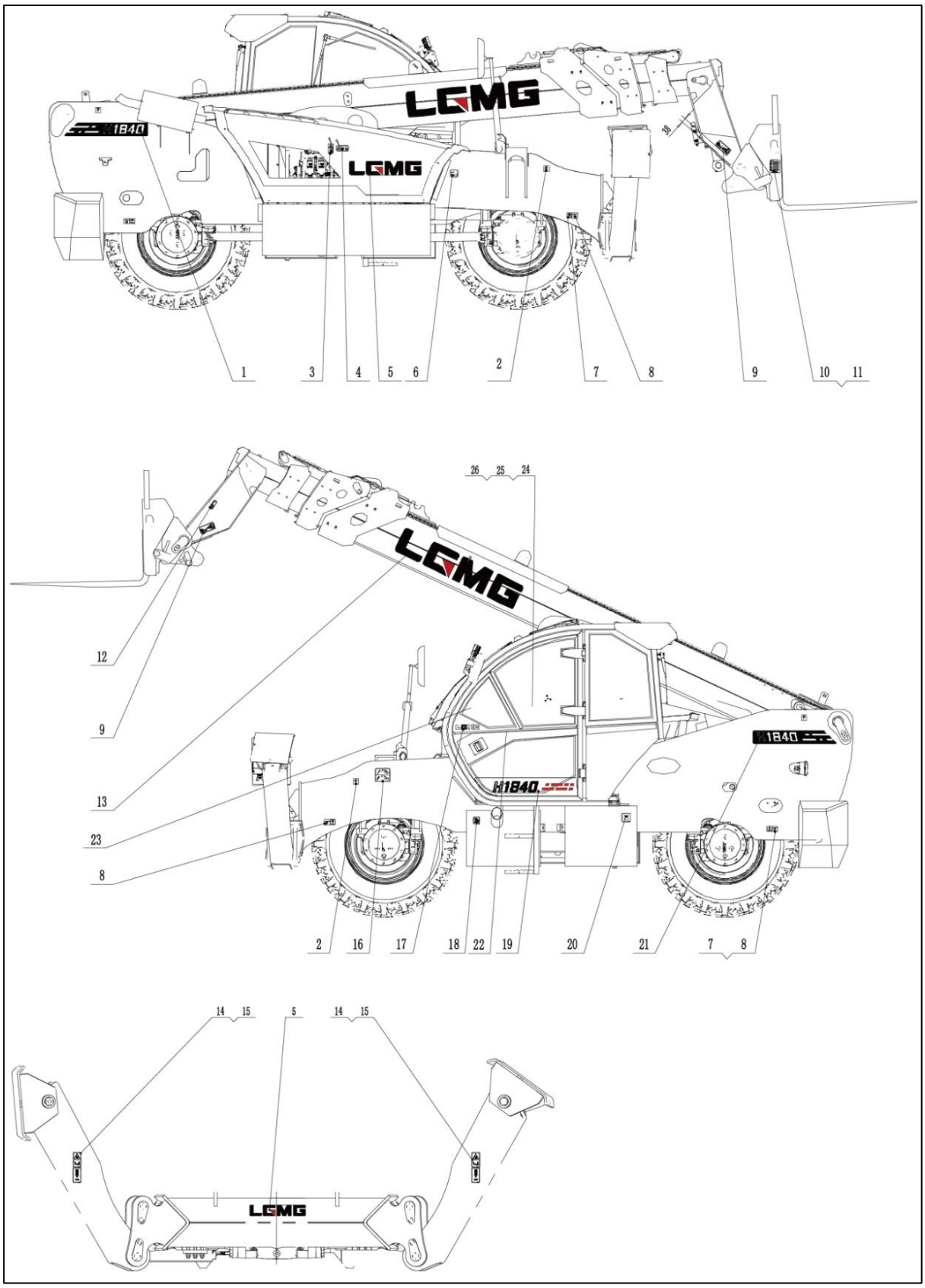
H1840 Label (CE)



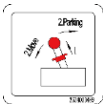
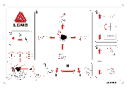
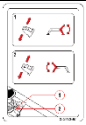
H1840 Label List-1

Name	Sign and logo	Name	Sign and logo
1.Decal-Model H1840 (RH)		15.Decal-Outrigger load	
2.Decal-Lifting		16.Decal-Metal word LGMG (cab door)	
3.Decal-Liquid hot warning		17.Decal-Inspection notes	
4.Decal-Box's interior inspection caution		18.Decal-Fuel tank	
5.Decal-LGMG logo (120)		19.Decal-Model (cab)	
6.Decal-Turn off power		20.Decal-Hydraulic oil	
7.Decal-Wheel load		21.Decal-Model H1840 (LH)	
8.Decal-Lifting lug		22.Nameplate	
9.Decal-Anti-squeezing notes		23.Decal-Hand brake	
10/11.Decal-Attachment nameplate		24.Decal-Range of motion-H1840	
12.Decal-Quick change instruction		25.Decal-Combination joystick operating instruction	
13.Decal-LGMG logo (230)		26.Decal-Outrigger joystick operating instruction	
14.Decal-Away from outriggers warning		27.Decal-Vehicle body levelling joystick	

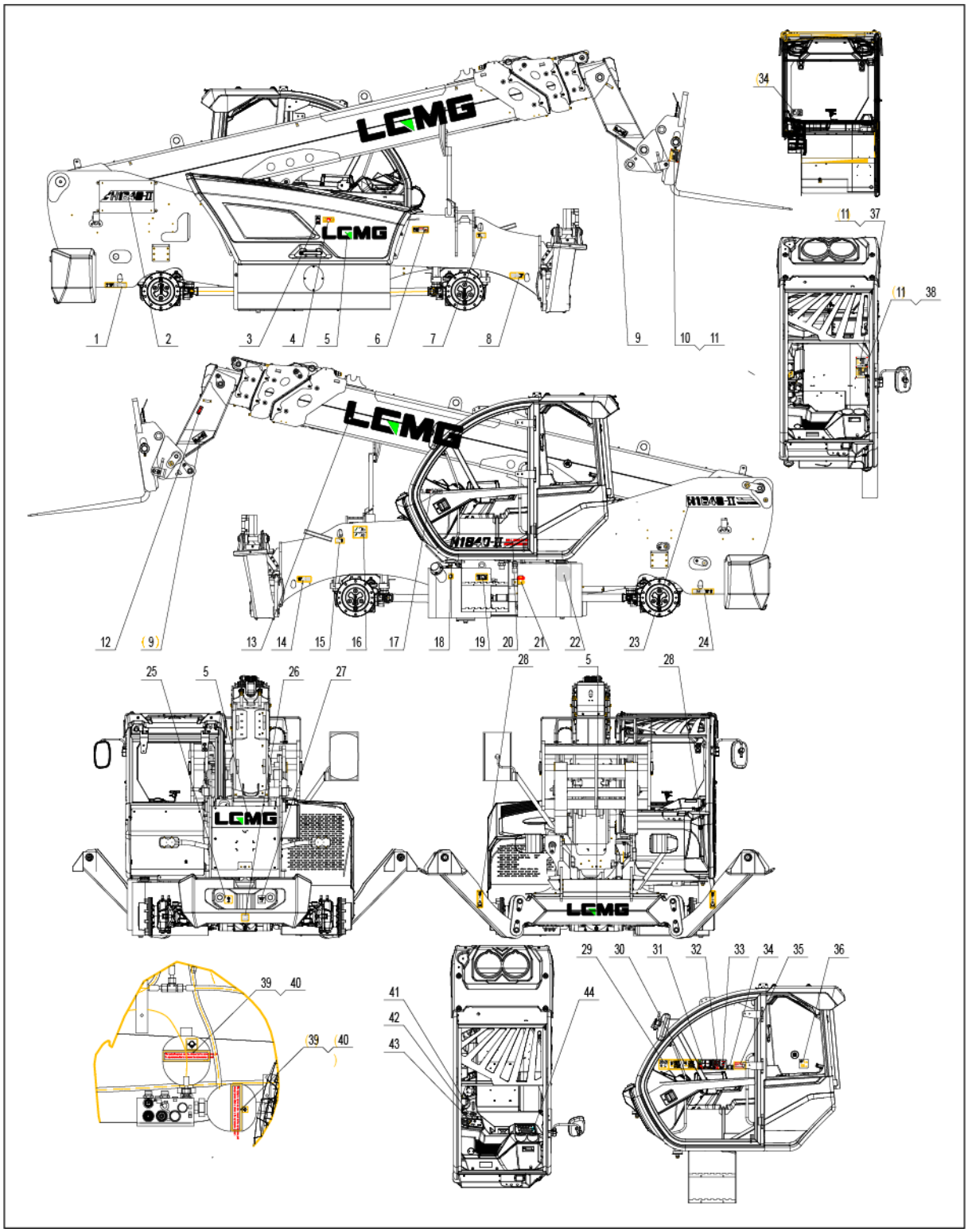
H1840 Label (RU)

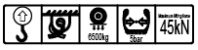
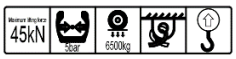
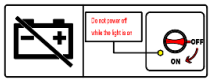
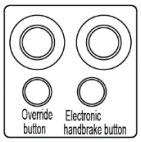
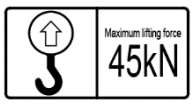
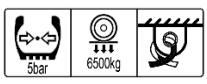
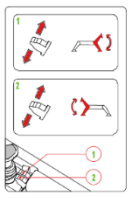


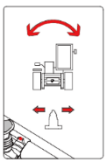
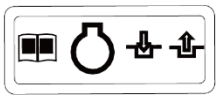
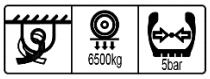
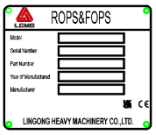
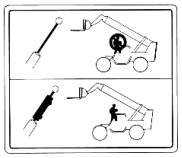
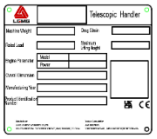
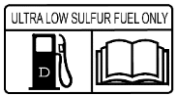
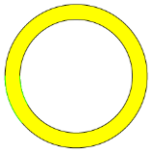
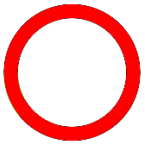
H1840 Label List-1

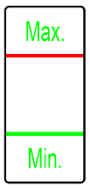
Name	Sign and logo	Name	Sign and logo
1.Decal-Model (RH)		15.Decal-Outrigger load	
2.Decal-Lifting		16.Decal-Metal word LGMG (cab door)	
3.Decal-Liquid hot warning		17.Decal-Inspection notes	
4.Decal-Box's interior inspection caution		18.Decal-Fuel tank	
5.Decal-LGMG logo (120)		19.Decal-Model (cab)	
6.Decal-Turn off power		20.Decal-Hydraulic oil	
7.Decal-Wheel load		21.Decal-Model H1840 (LH)	
8.Decal-Lifting lug		22.Nameplate	
9.Decal-Anti-squeezing notes		23.Decal-Hand brake	
10/11.Decal-Attachment nameplate		24.Decal-Combination joystick operating instruction	
12.Decal-Quick change instruction		25.Decal-Outrigger joystick operating instruction	
13.Decal-LGMG logo (230)		26.Decal-Vehicle body levelling joystick	
14.Decal-Away from outriggers warning			

H1840-Ⅱ Label (CE)

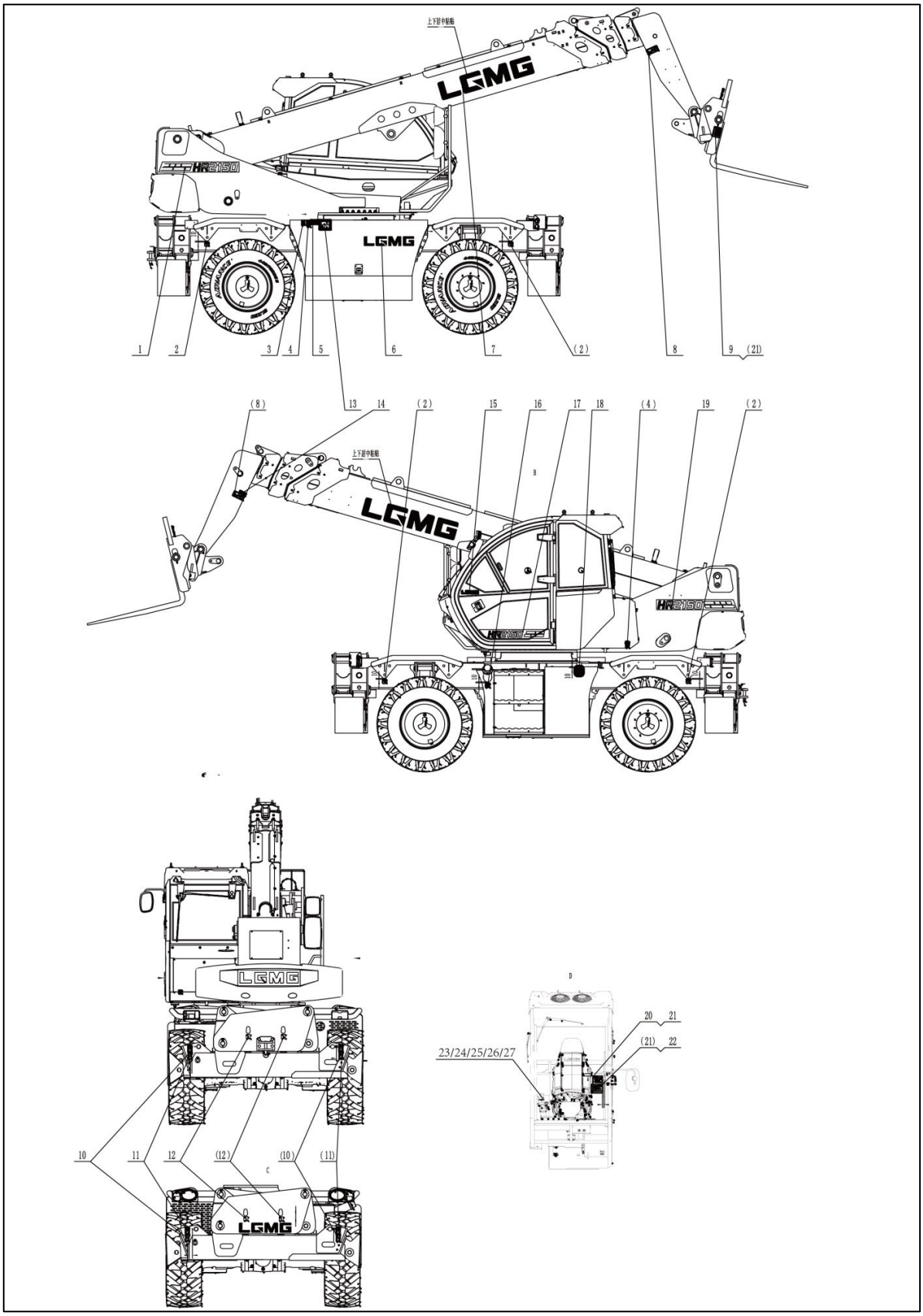


Name	Sign and logo	Name	Sign and logo
1 Decal-Lift point decal-H1840（RH）		24 Decal-Lift point decal-H1840）（LH）	
2 Decal-RH model decal（H1840-Ⅱ）		25 Decal-Lifting decal	
3 DECAL		26 Maximum traction	
4 Decal-In-box maintenance attention		27 Decal-lifting eye	
5 Decal-LOGO		28 Decal-Outrigger load decal	
6 Decal-Turn off the power		29 Decal-Button description-H1840	
7 Decal-Lifting-H1840 (RH)		30 Decal-Working curve-H1840	
8 Decal-Tire hanging-H1840（RH）		31 Decal-Combination handle operation decal	
9 Decal-Anti-squeeze safety		32 Decal-Outrigger handle operation decal	

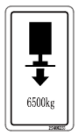
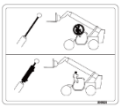
10 Apparatus nameplate		33 Decal-Body leveling handle decal	
12 Decal-Change the instructions quickly decal		34 Decal-Safe escape	
13 Decal-LOGO	LGMG	35 Decal-Cab (EU V)	1.Never use the machine in explosive atmosphere; 2.Never use the machine underground. Always close the cab door during use to reduce the noise. Only approved spare parts can be used.
14 Decal-Tire hanging-H1840（LH）		36 Decal-96DB noise level	LWA 106 dB
15 Decal-Lifting-H1840 (LH)		37 Name plate-ROPS & FOPS	
16 Decal-Maintenance attention decal		38 Complete machine nameplate	
17 Decal-Metal word on door	LGMG	39 Decal-Pressure relief decal	The hydraulic system must be relieved before maintenance,and the operation method is shown in the maintenance manual.
18 Decal		40 Decal	
19 Decal-Fuel filling decal		41 Decal-Emergency stop switch decal	
20 Decal-Model decal on cab（H1840-Ⅱ）		42 Decal	

21 Decal		43 Decal	
22 Decal-Hyd oil decal		44 Decal-Regeneration inhibition	
23 Decal-Model on the （LH） H1840-Ⅱ			

HR2150 Label



HR2150 Label List-1

Name	Sign and logo	Name	Sign and logo
1.Decal (turntable left side)		14.Decal-Quick change instruction	
2.Decal-Wheel load		15.Decal-Metal word LGMG (cab door)	
3.Decal-Turn off power		16.Decal-Fuel tank	
4.Decal-Liquid hot warning		17.Decal (cab door)	
5.Decal-Box's interior inspection caution		18.Decal-Hydraulic oil	
6.Decal-LGMG logo (120)		19.Decal (turntable right side)	
7.Decal-LGMG logo (230)		20/21.Nameplate	
8. Decal-Anti-squeezing notes		22.Decal-Environmental protection information	
9.Decal-Attachment nameplate		23.Decal-Hand brake	
10. Decal-Away from outriggers warning		24. Decal-Outrigger extends/retracts	
11.Decal-Outrigger load		25. Decal-Outrigger up/down	
12.Decal-Lifting		26. Decal-Chassis levelling	
13.Decal-Inspection notes		27. Range of motion-HR2150	

2.3 Machine purpose

This machine is a telescopic boom fork loading truck equipped with telescopic boom for lifting, moving and placing materials.

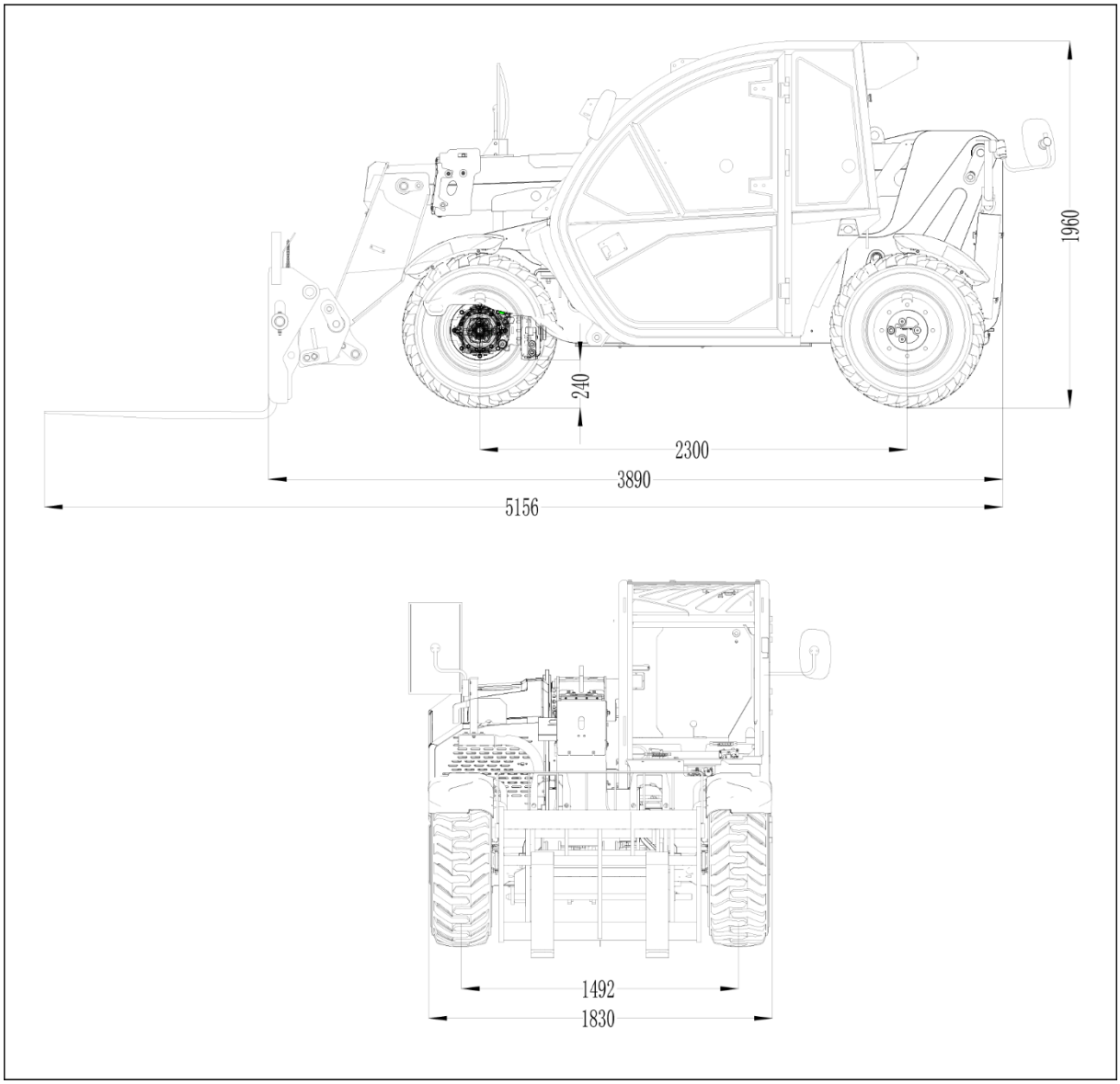
Do not lift personnel, unless the telescopic handler is equipped with platform accessories.

WARNING:

- **All other uses or modifications must be approved by Lingong Heavy Machinery Co., Ltd.**
- **Driving on soft, unstable or messy ground is not allowed.**
- **It is strictly prohibited to use it in places with strong magnetic fields that exceed the maximum allowable wind speed, explosive environment, storm.**

2.4 Machine parameters

H625 (EU Stage Ⅲ Engine) Machine parameters



1. Overall performance parameters-1

Item	Parameter	Item	Parameter
Rated load (kg)	2500	Boom lifting time (s)	4~10
Total weight (kg)	5000	Boom lowering time (s)	4~10
Maximum working height (m)	5.85	Boom extension time (s)	4~10
Maximum horizontal reach (m)	3.43	Boom retraction time (s)	4~10
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	4~10

1. Overall performance parameters-2

Item	Parameter	Item	Parameter
Second gear speed (km/h)	25	Retraction time of leveling cylinder (s)	4~10
First reverse gear speed (km/h)	5	Max. braking distance (no-load, stowed) (20 km/h) (m)	5
Second reverse gear speed (km/h)	25	Minimum turning radius (m)	3.36
Drive type	4WD, 4WS	Theoretical max. gradeability (no-load, stowed)	45%
Towing force （kN）	38		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	3890	Wheelbase (mm)	2300
Overall width (mm)	1830	Track width (mm)	1492
Overall height (mm)	1960	Min. ground clearance (mm)	240

3. Engine system

Item	Parameter	Item	Parameter
Model	V3307-DI-T-ET04e	Rated speed (r/min)	2200
Displacement (ml)	3331	Maximum torque (Nm)	261.1/1500rpm
Rated power (kW)	54.6	Emission standard	EU Stage Ⅲ

4. Drive chain

Item			Parameter
Transmission	Type		MT
	Gear		2 forward gears and 2 reverse gears
	Gear ratio	Forward gear	1.545/1
		Reverse gear	1.545/1
Front axle	Overall gear ratio		17.454
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		17.454
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		12-16.5-12-TL
	Inflation pressure (MPa)		0.55

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Function pump displacement (ml/r)	35
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	17.5
Brake system pressure (MPa)	5.5
Driving pump displacement (ml/r)	60
Driving motor displacement (ml/r)	115

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	120
Control system	Voltage (V)	12

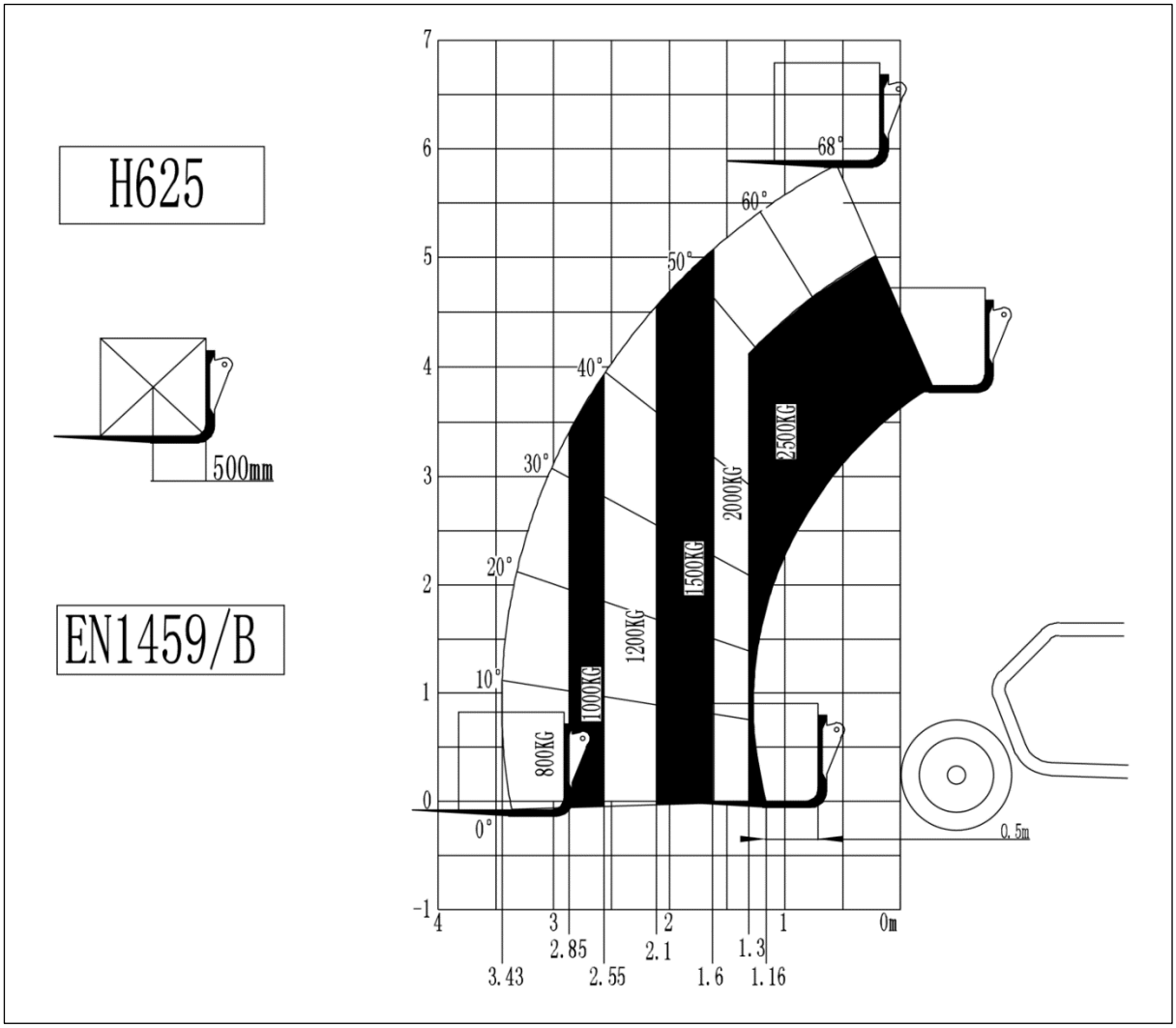
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	75L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CH-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	63L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	10L	Meet ASTM D6210 standard

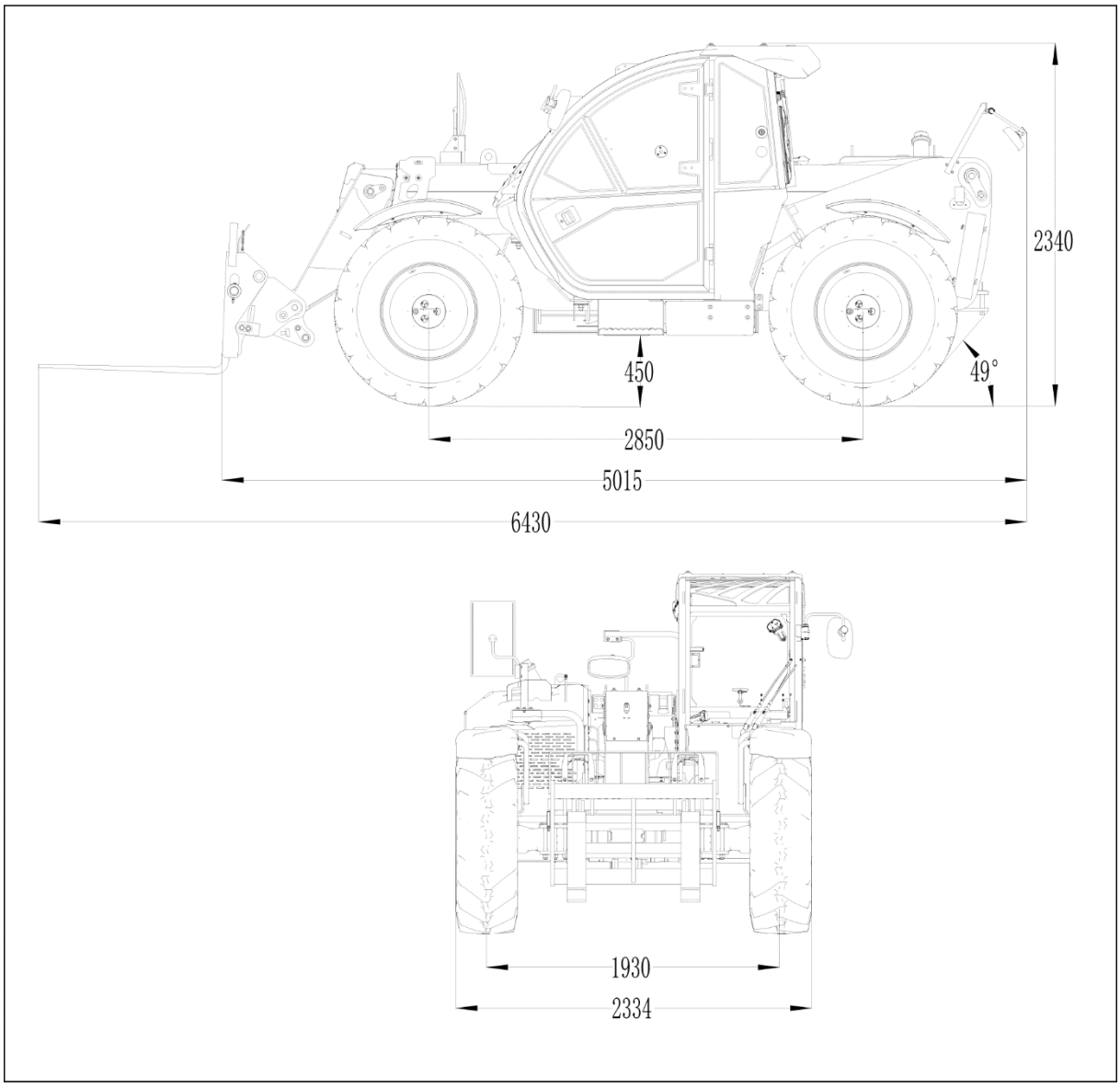
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	75 L	Front axle gear oil	6.1 L
Diesel fuel	63 L	Rear axle gear oil	6.1 L
Engine oil	8.5 L	Transmission gear oil	1.3 L
Antifreeze	10 L		

9. Range of motion



H735 (EU Stage Ⅲ Engine) Machine parameters



1. Overall performance parameters

Item	Parameter	Item	Parameter
Rated load (kg)	3500	Boom lifting time (s)	5~15
Total weight (kg)	7000	Boom lowering time (s)	5~15
Maximum working height (m)	7	Boom extension time (s)	5~15
Maximum horizontal reach (m)	3.9	Boom retraction time (s)	5~15
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	5~15
Second gear speed (km/h)	29	Retraction time of leveling cylinder (s)	5~15
First reverse gear speed (km/h)	5	Max. braking distance (no-load, stowed) (20 km/h) (m)	3
Second reverse gear speed (km/h)	29	Minimum turning radius (m)	3.9
Drive type	4WD, 4WS	Theoretical max. gradeability (no-load, stowed)	45%
Towing force （kN）	42		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	5015	Wheelbase (mm)	2850
Overall width (mm)	2334	Track width (mm)	1930
Overall height (mm)	2340	Min. ground clearance (mm)	450

3. Engine system

Item	Parameter	Item	Parameter
Model	V3307-DI-T-ET04e	Rated speed (r/min)	2200
Displacement (ml)	3331	Maximum torque (Nm)	261.1/1500rpm
Rated power (kW)	54.6	Emission standard	EU Stage Ⅲ

4. Drive chain

Item			Parameter
Transmission	Type		MT
	Gear		2 forward gears and 2 reverse gears
	Gear ratio	Forward gear	4.286/1.359
		Reverse gear	4.286/1.359
Front axle	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		400/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Function pump displacement (ml/r)	45
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	7.5
Driving pump displacement (ml/r)	45
Driving motor displacement (ml/r)	60

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

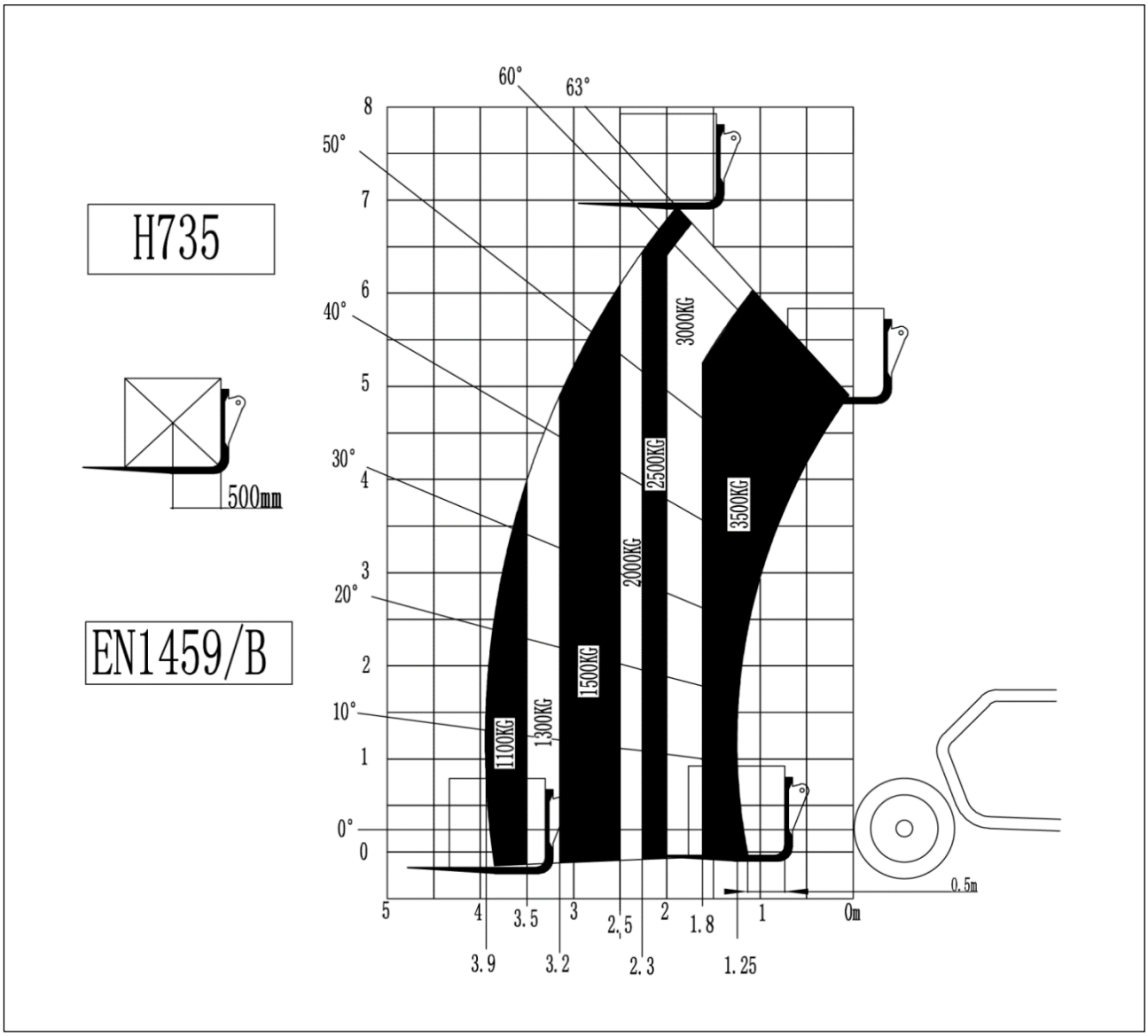
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	75L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CH-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	100L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	10L	Meet ASTM D6210 standard

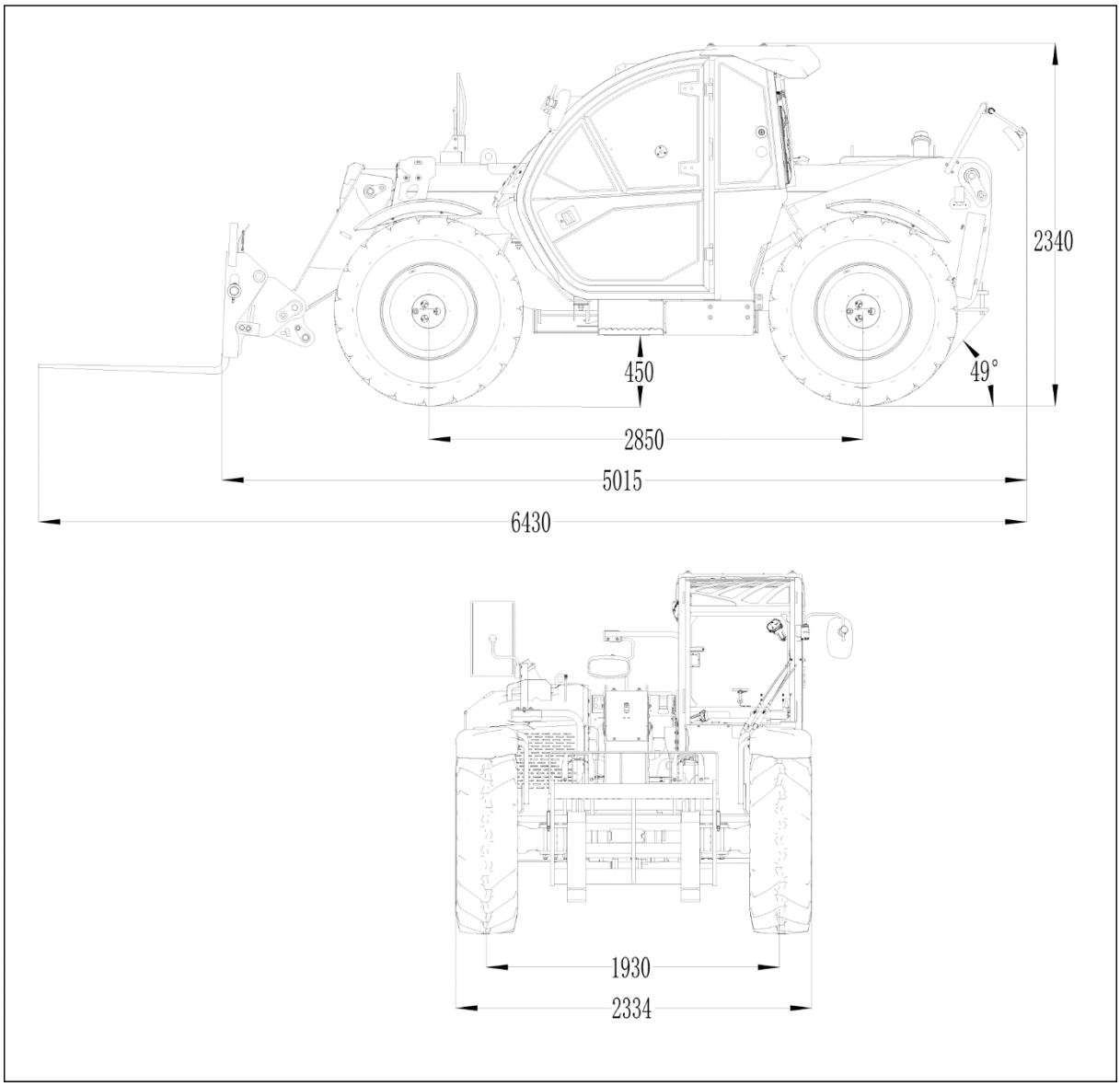
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	75 L	Front axle gear oil	9.6 L
Diesel fuel	100 L	Rear axle gear oil	9.6 L
Engine oil	8.5 L	Transmission gear oil	4 L
Antifreeze	10 L		

9. Range of motion



H735 (EU Stage Ⅴ Engine) Machine parameters



1. Overall performance parameters-1

Item	Parameter	Item	Parameter
Rated load (kg)	3500	Boom lifting time (s)	5~15
Total weight (kg)	7000	Boom lowering time (s)	5~15
Maximum working height (m)	6.9	Boom extension time (s)	5~15
Maximum horizontal reach (m)	3.9	Boom retraction time (s)	5~15
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	5~15
Second gear speed (km/h)	29	Retraction time of leveling cylinder (s)	5~15
First reverse gear speed (km/h)	5	Max. braking distance (no-load, stowed) (20 km/h) (m)	3

1. Overall performance parameters-2

Item	Parameter	Item	Parameter
Second reverse gear speed (km/h)	29	Minimum turning radius (m)	3.9
Drive type	4WD, 4WS	Theoretical max. gradeability (no-load, stowed)	45%
Towing force （kN）	42		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	5015	Wheelbase (mm)	2850
Overall width (mm)	2334	Track width (mm)	1930
Overall height (mm)	2340	Min. ground clearance (mm)	450

3. Engine system

Item	Parameter	Item	Parameter
Model	V3307-CR-TE5AB	Rated speed (r/min)	2200
Displacement (ml)	3331	Maximum torque (Nm)	261.1/1500rpm
Rated power (kW)	54.6	Emission standard	EU Stage Ⅲ

4. Drive chain

Item			Parameter
Transmission	Type		MT
	Gear		2 forward gears and 2 reverse gears
	Gear ratio	Forward gear	4.286/1.359
		Reverse gear	4.286/1.359
Front axle	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Wheel assy	Tire Model		400/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Function pump displacement (ml/r)	45
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	7.5
Driving pump displacement (ml/r)	45
Driving motor displacement (ml/r)	60

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

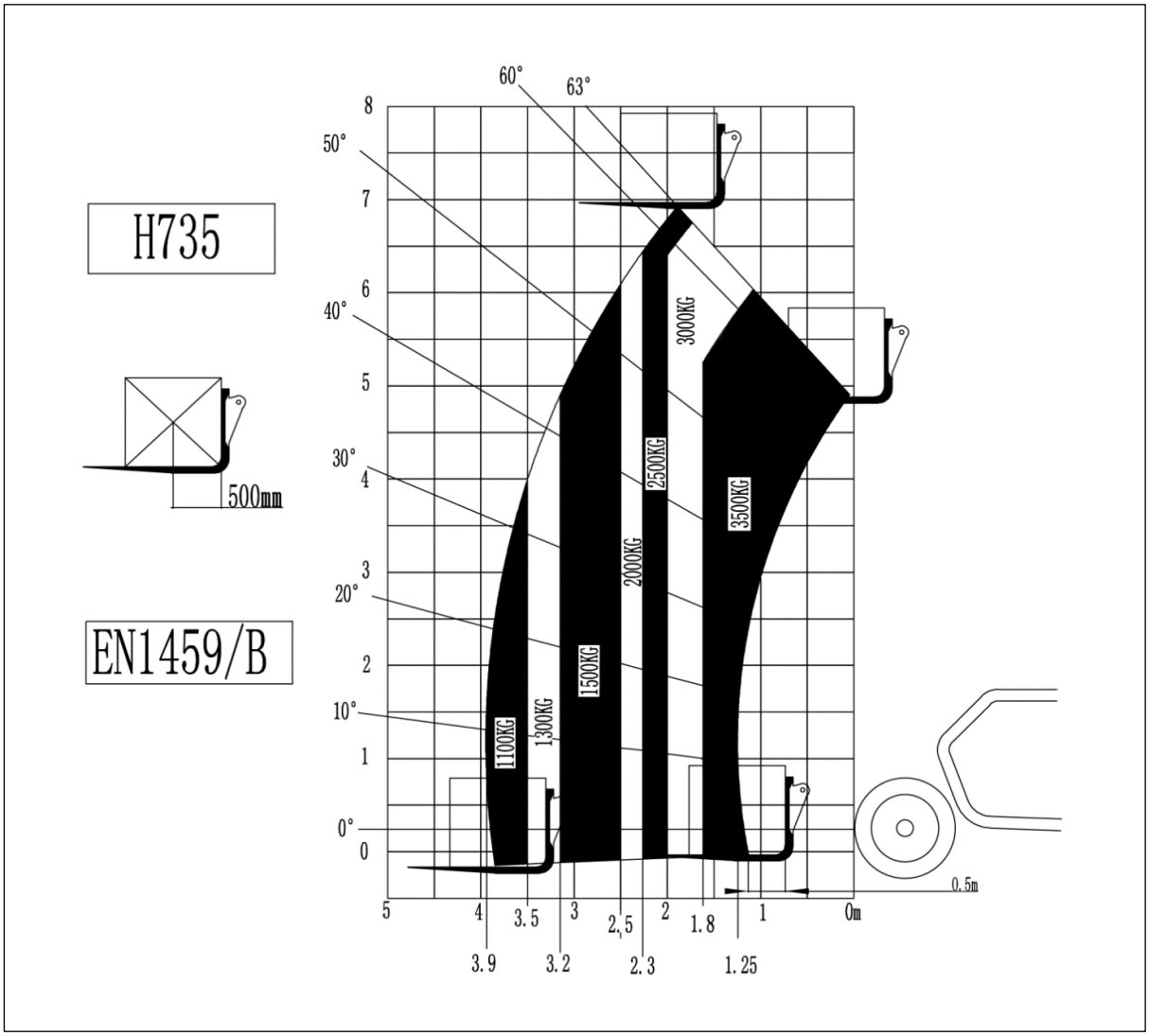
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	75L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CJ-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	100L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	10L	Meet ASTM D6210 standard

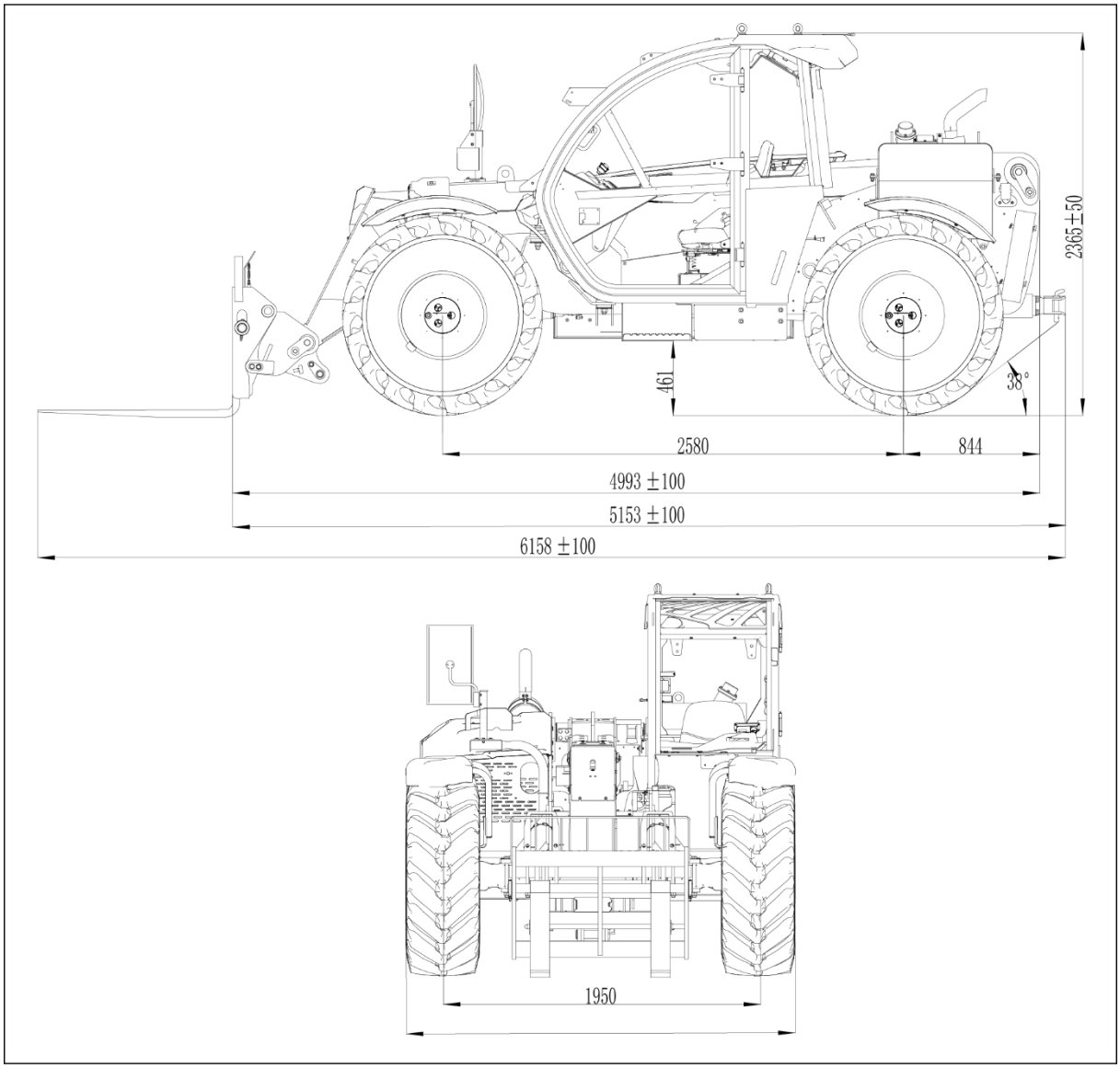
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	75 L	Front axle gear oil	9.6 L
Diesel fuel	100 L	Rear axle gear oil	9.6 L
Engine oil	8.5 L	Transmission gear oil	4 L
Antifreeze	10 L		

9. Range of motion



HA735 (China III/EU III Engine) Machine parameters



1. Overall performance parameters

Item		Parameter	Item	Parameter
Rated load (kg)		3500	Boom lifting time (s)	5~15
Total weight (kg)		7400	Boom lowering time (s)	5~15
Maximum working height (m)		7	Boom extension time (s)	5~15
Maximum horizontal reach (m)		3.9	Boom retraction time (s)	5~15
Forward	First gear speed (km/h)	4.9	Extension time of leveling cylinder (s)	5~15
	Second gear speed (km/h)	9.5	Retraction time of leveling cylinder (s)	5~15
	Third gear speed (km/h)	23	Drive type	4WD, 4WS
	Fourth gear speed (km/h)	35	Theoretical max. gradeability (no-load, stowed)	45%

Reverse	First gear speed (km/h)	4.9	Max. braking distance (no-load, stowed) (m)	≤17
	Second gear speed (km/h)	9.5	Minimum turning radius (m)	≤3.95
	Third gear speed (km/h)	23	Towing force （kN）	42

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	4995	Wheelbase (mm)	2850
Overall width (mm)	2410	Track width (mm)	1930
Overall height (mm)	2340	Min. ground clearance (mm)	450

3. Engine system

Item	Parameter	Item	Parameter
Model	YC4DK110-T301	Rated speed (r/min)	2200
Displacement (ml)	3621	Maximum torque (Nm)	42/1400-1700rpm
Rated power (kW)	73	Emission standard	China Ⅲ/EU Ⅲ

4. Drive system

Item			Parameter
Transmission	Type		AMT
	Gear		4 forward gears and 3 reverse gears
	Gear ratio	4.531/2.304/0.964/0.617	4.531/2.304/0.964/0.617
		4.531/2.304/0.964	4.531/2.304/0.964
Front axle	Loading capacity (t)		25
	Main reducer gear ratio		3.636
	Wheel-side reducer gear ratio		6
	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Rear axle	Loading capacity (t)		25
	Main reducer gear ratio		3.636
	Wheel-side reducer gear ratio		6
	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Wheel assembly	Tire model		460/70 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Pump displacement (cc/r)	63
Maximum working pressure (MPa)	27.5
Steering system pressure (MPa)	19

Brake system pressure (MPa)	5.5

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

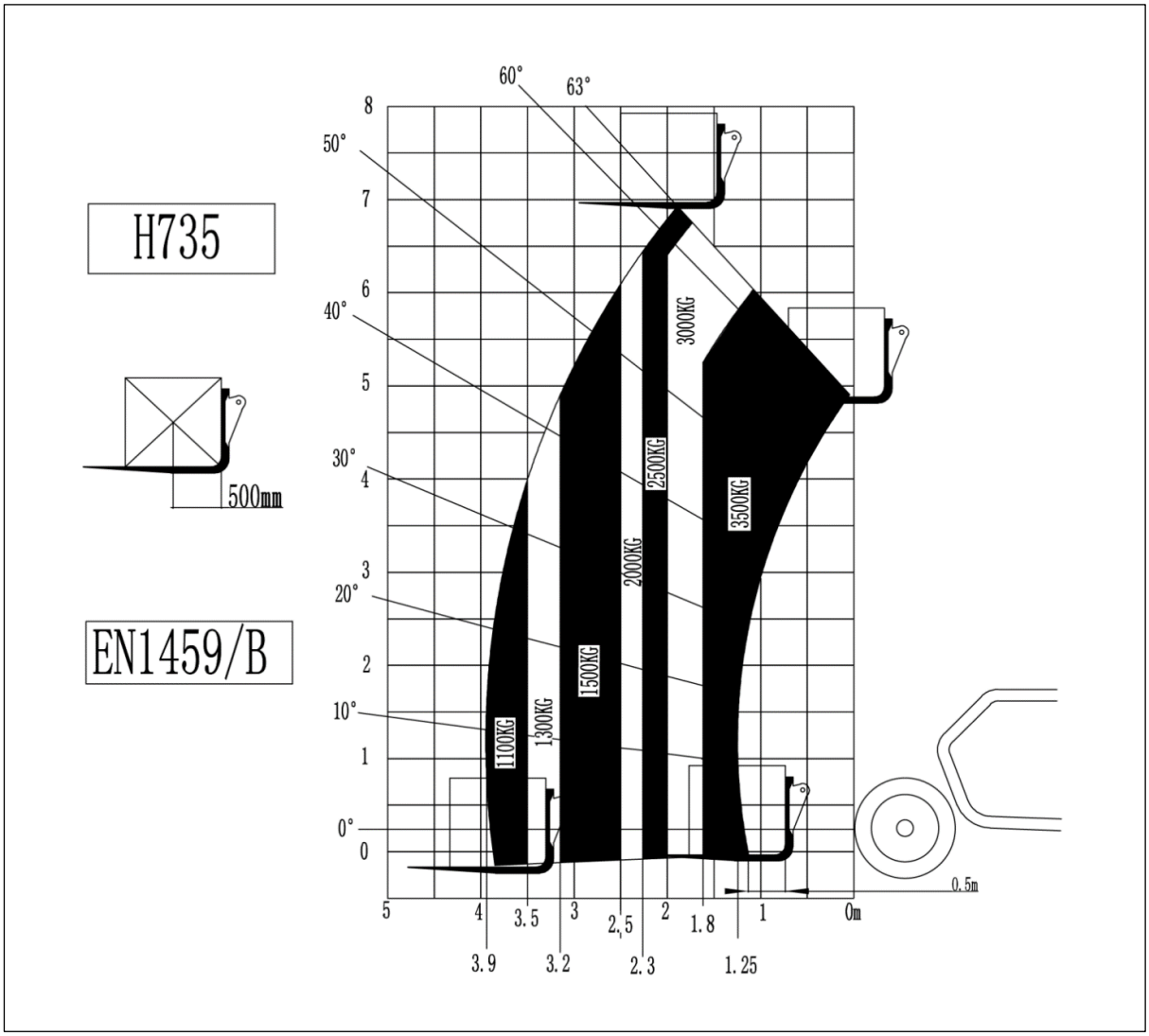
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	75L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	9.5L	API CJ-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	130L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	10L	Meet ASTM D6210 standard

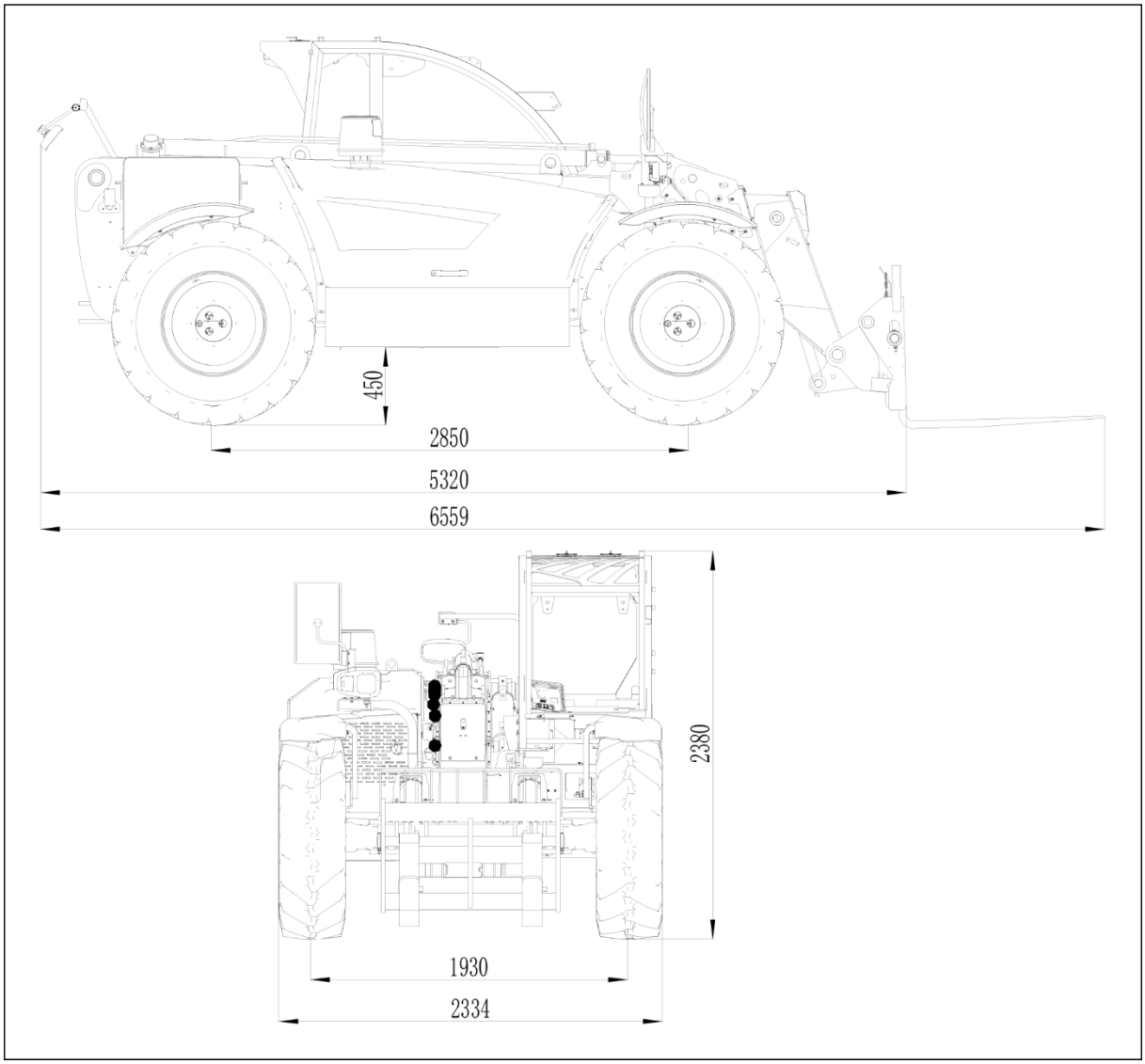
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	75 L	Front axle gear oil	9.6 L
Diesel fuel	130 L	Rear axle gear oil	9.6 L
Engine oil	9.5 L	Transmission gear oil	30 L
Antifreeze	10 L		

9. Range of motion


H735
500mm
EN1459/B
60°
63°
50°
40°
30°
20°
10°
0°
8
7
6
5
4
3
2
1
0
1100KG
1300KG
1500KG
2000KG
2500KG
3000KG
3500KG
0.5m
5
4
3.5
3
2.5
2
1.8
1
0m
3.9
3.2
2.3
1.25

H933 (EU Stage Ⅲ Engine) Machine parameters



1. Overall performance parameters

Item	Parameter	Item	Parameter
Rated load (kg)	3300	Boom lifting time (s)	5~15
Total weight (kg)	7200	Boom lowering time (s)	5~15
Maximum working height (m)	9.08	Boom extension time (s)	5~15
Maximum horizontal reach (m)	5.69	Boom retraction time (s)	5~15
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	5~15
Second gear speed (km/h)	29	Retraction time of leveling cylinder (s)	5~15
First reverse gear speed (km/h)	5	Max. braking distance (no-load, stowed) (20 km/h) (m)	3
Second reverse gear speed (km/h)	29	Minimum turning radius (m)	3.9
Drive type	4WD, 4WS	Theoretical max. gradeability (no-load, stowed)	45%

Towing force（kN）	42		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	6559	Wheelbase (mm)	2850
Overall width (mm)	2334	Track width (mm)	1930
Overall height (mm)	2380	Min. ground clearance (mm)	450

3. Engine system

Item	Parameter	Item	Parameter
Model	V3307-DI-T-ET04e	Rated speed (r/min)	2200
Displacement (ml)	3331	Maximum torque (Nm)	261.1/1500rpm
Rated power (kW)	54.6	Emission standard	EU Stage Ⅲ

4. Drive chain

Item			Parameter
Transmission	Type		MT
	Gear		2 forward gears and 2 reverse gears
	Gear ratio	Forward gear	4.286/1.359
		Reverse gear	4.286/1.359
Front axle	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		21.81
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		400/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Function Pump displacement (ml/r)	45
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	7.5
Driving pump displacement (ml/r)	45
Driving motor displacement (ml/r)	60

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

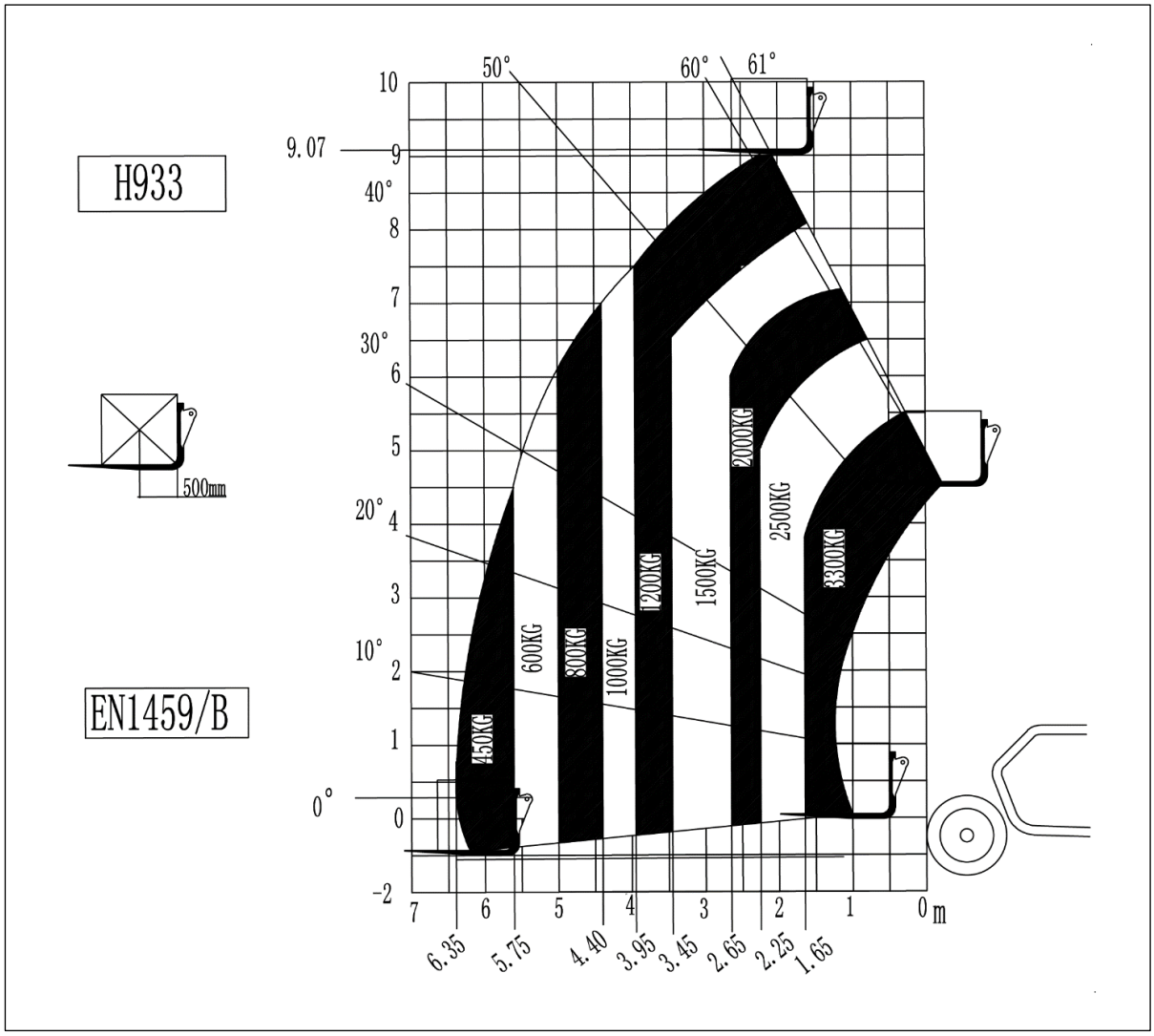
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	75L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CH-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	100L	EN590 ULSD
	Ambient temperature ≥ -5℃	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	10L	Meet ASTM D6210 standard

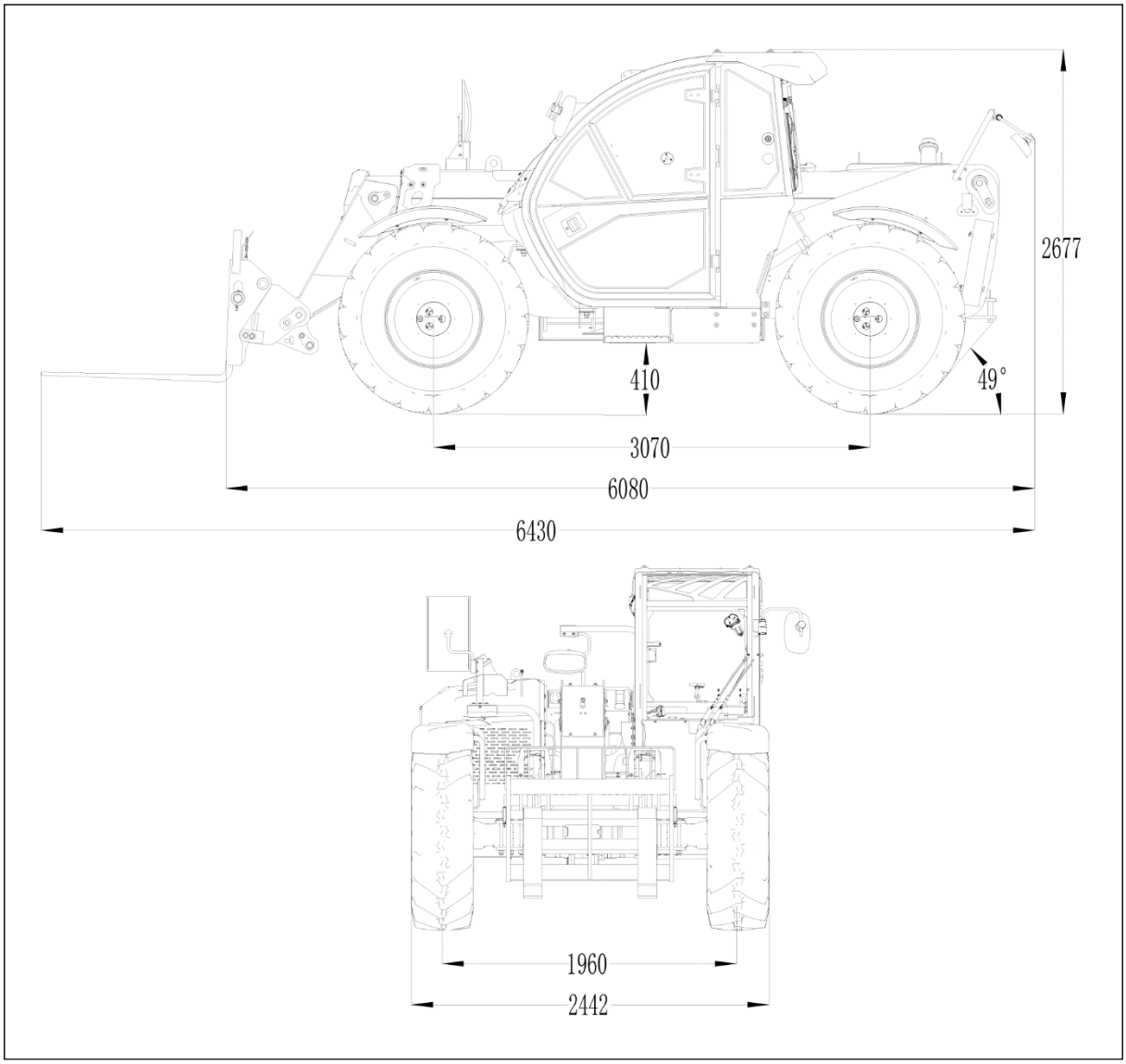
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	75 L	Front axle gear oil	9.6 L
Diesel fuel	100 L	Rear axle gear oil	9.6 L
Engine oil	8.5 L	Transmission gear oil	4 L
Antifreeze	10 L		

9. Range of motion



H1440 (EU Stage Ⅲ Engine) Machine parameters



1. Overall performance parameters-1

Item	Parameter	Item	Parameter
Rated load (kg)	4000	Boom lifting time (s)	7.5~17.5
Total weight (kg)	12050	Boom lowering time (s)	13.5~23.5
Maximum working height (m)	13.6	Boom extension time (s)	12.5~22.5
Maximum horizontal reach (m)	9.22	Boom retraction time (s)	8~18
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	4~14
Second gear speed (km/h)	12	Retraction time of leveling cylinder (s)	6~16
Third gear speed (km/h)	20	Extension time of outrigger cylinder (s)	13~23

1. Overall performance parameters-2

Item	Parameter	Item	Parameter
Fourth gear speed (km/h)	30	Retraction time of outrigger cylinder (s)	8~18
First reverse gear speed (km/h)	5	Minimum turning radius (m)	4.2
Second reverse gear speed (km/h)	12	Theoretical max. gradeability (no-load, stowed)	65%
Third reverse gear speed (km/h)	20	Leftward/rightward inclination angle of frame	±9°
Max. braking distance (no-load, stowed) (20 km/h) (m)	5.5	Drive type	4WD, 4WS
Towing force（kN）	93.3		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	6080	Wheelbase (mm)	3070
Overall width (mm)	2442	Track width (mm)	1960
Overall height (mm)	2677	Min. ground clearance (mm)	410

3. Engine system

Item	Parameter	Item	Parameter
Model	1104D-E44T	Rated speed (r/min)	2200
Displacement (ml)	4400	Maximum torque (Nm)	420/1400rpm
Rated power (kW)	73.5	Emission standard	EU Stage III

4. Drive chain

Item			Parameter
Transmission	Type		AMT
	Gear		4 forward gears and 3 reverse gears
	Gear ratio	Forward gear	4.945/2.289/1.159/0.821
		Reverse gear	4.945/2.289/1.159
Front axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		440/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Pump displacement (ml/r)	63
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	3.4

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

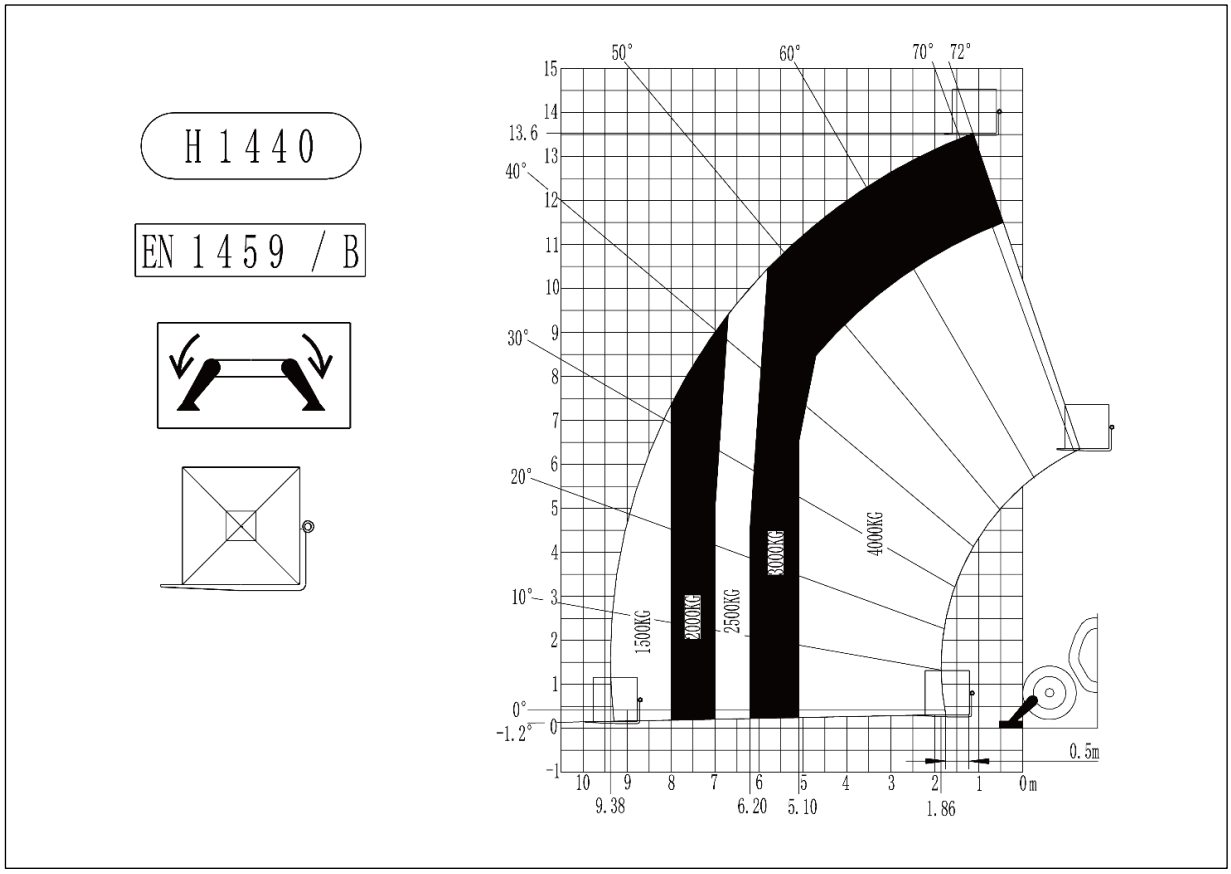
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	180L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CH-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	150L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	12.5L	Meet ASTM D6210 standard

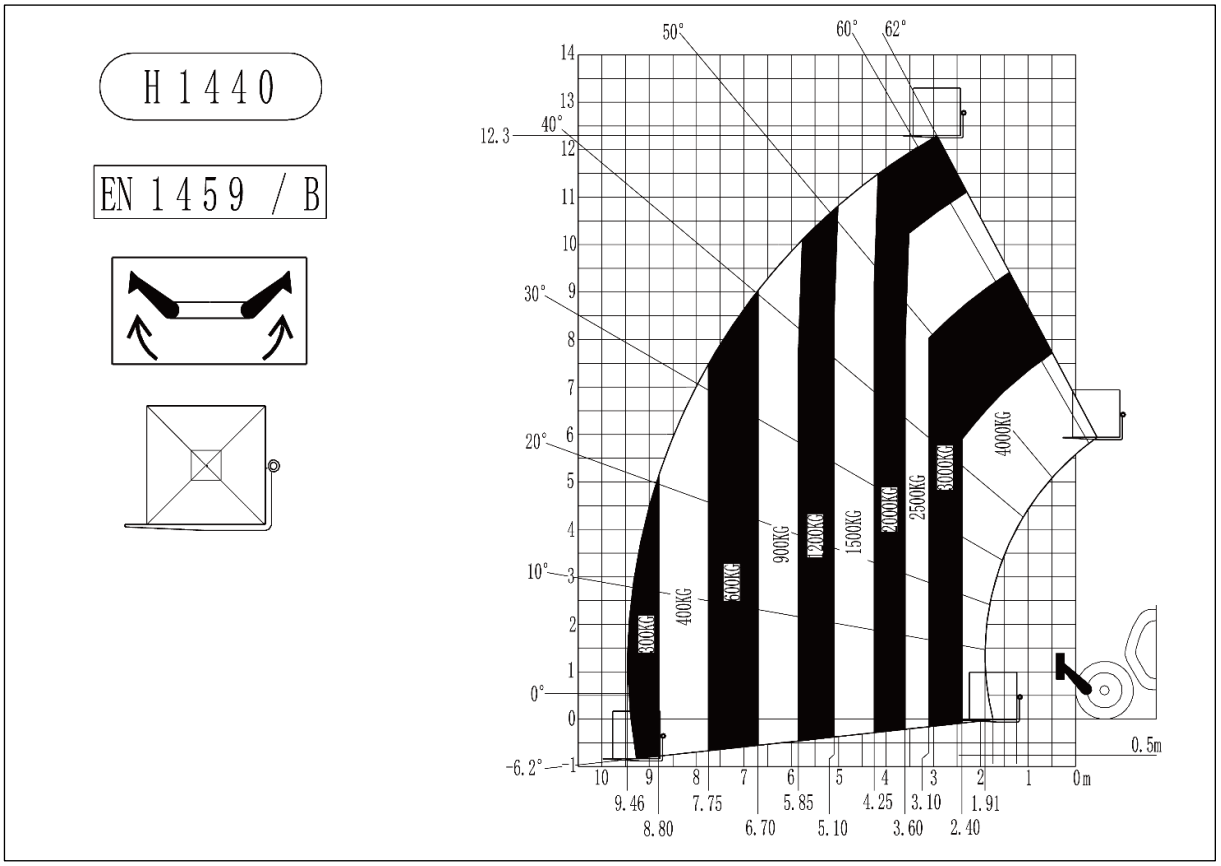
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	180L	Front axle gear oil	10.6 L
Diesel fuel	150 L	Rear axle gear oil	10.6 L
Engine oil	8.5 L	Transmission gear oil	21.75 L
Antifreeze	12.5L		

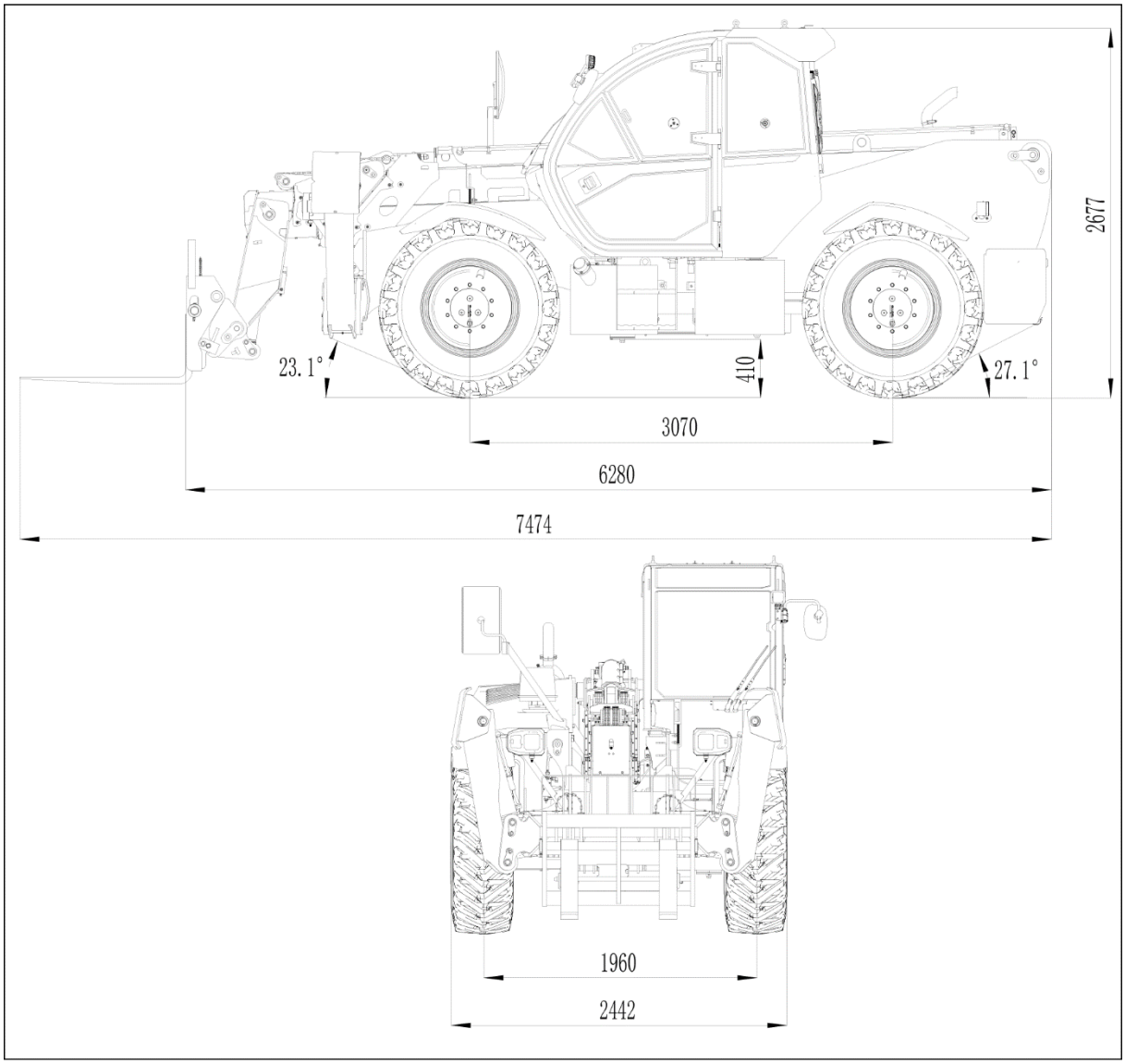
9. Range of motion-1



9. Range of motion-2



H1840 (EU Stage V Engine) Machine parameters



1. Overall performance parameters-1

Item	Parameter	Item	Parameter
Rated load (kg)	4000	Boom lifting time (s)	11~17.5
Total weight (kg)	12350	Boom lowering time (s)	16~23.5
Maximum working height (m)	17.6	Boom extension time (s)	15~22.5
Maximum horizontal reach (m)	13.1	Boom retraction time (s)	11~18
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	6~14
Second gear speed (km/h)	12	Retraction time of leveling cylinder (s)	9~16
Third gear speed (km/h)	20	Extension time of outrigger cylinder (s)	15~23

1. Overall performance parameters-2

Item	Parameter	Item	Parameter
Fourth gear speed (km/h)	30	Retraction time of outrigger cylinder (s)	11~18
First reverse gear speed (km/h)	5	Minimum turning radius (m)	4.2
Second reverse gear speed (km/h)	12	Theoretical max. gradeability (no-load, stowed)	65%
Third reverse gear speed (km/h)	20	Leftward/rightward inclination angle of frame	±9°
Max. braking distance (no-load, stowed) (20 km/h) (m)	5.5	Drive type	4WD, 4WS
Towing force（kN）	93.3		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	6280	Wheelbase (mm)	3070
Overall width (mm)	2442	Track width (mm)	1960
Overall height (mm)	2677	Min. ground clearance (mm)	410

3. Engine system

Project	Parameter	Project	Parameter
Model	904J-E36TA	Rated speed (r/min)	2400
Displacement (ml)	3620	Maximum torque (Nm)	430/1500rpm
Rated power (kW)	74.4	Emission standard	EU stage Ⅴ

4. Drive chain

Item			Parameter/Description
Transmission	Type		A/MT
	Gear		4 forward gears and 3 reverse gears
	Gear ratio	Forward gear	4.945/2.289/1.159/0.821
		Reverse gear	4.945/2.289/1.159
Front axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		440/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter/Description
Type	Load sensitive system
Pump displacement (ml/r)	63
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	3.4

6. Electronic control system

Battery(Total)	Model	6-QW-180D
	Output voltage (V)	12
	20-hour Ah	180
	Unit weight (kg)	46

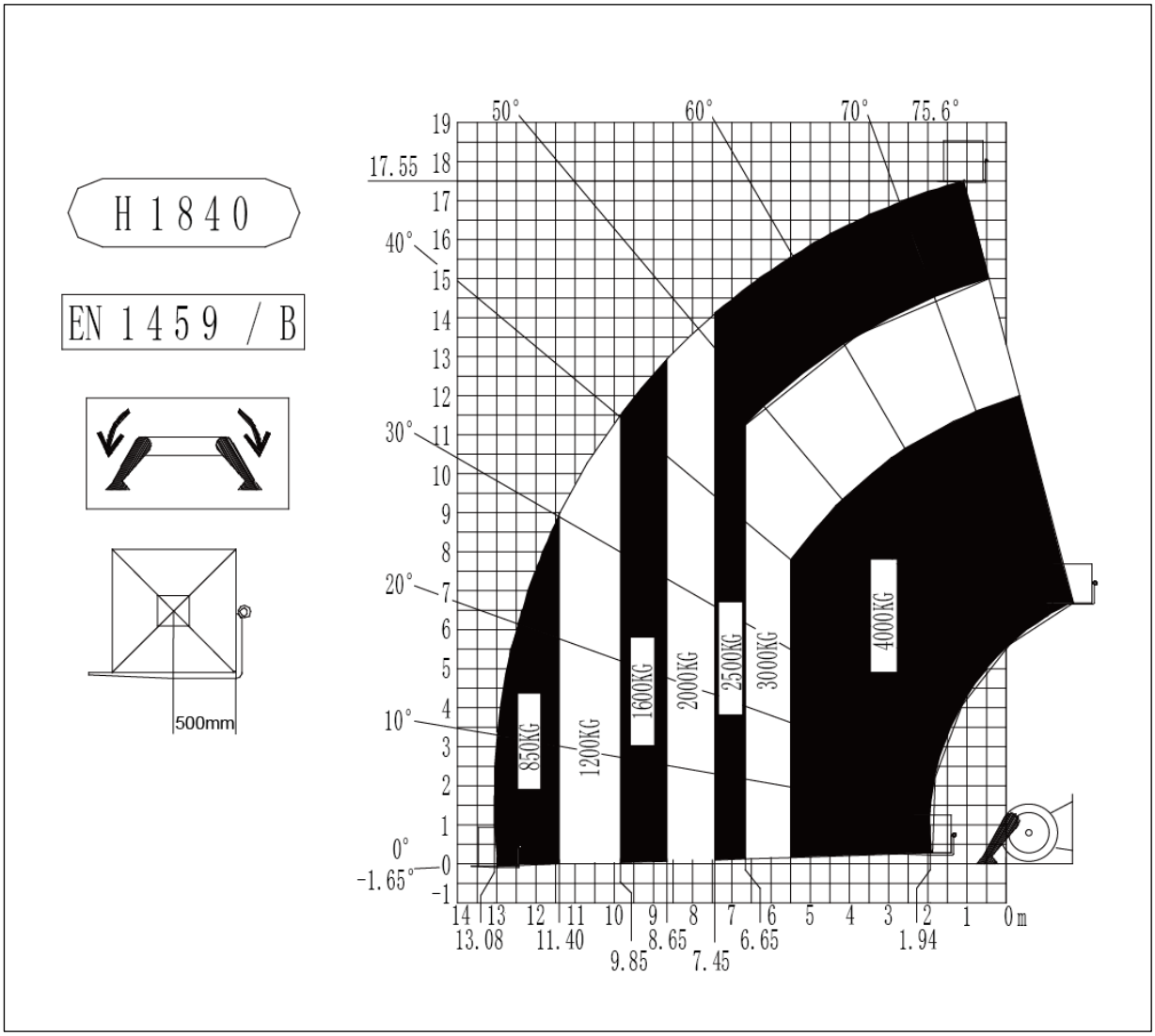
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	180L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CJ-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	150L	EN590 ULSD
	Ambient temperature ≥ -5℃	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	12.5L	Meet ASTM D6210 standard
DEF	-	-	-	ISO 22241-1

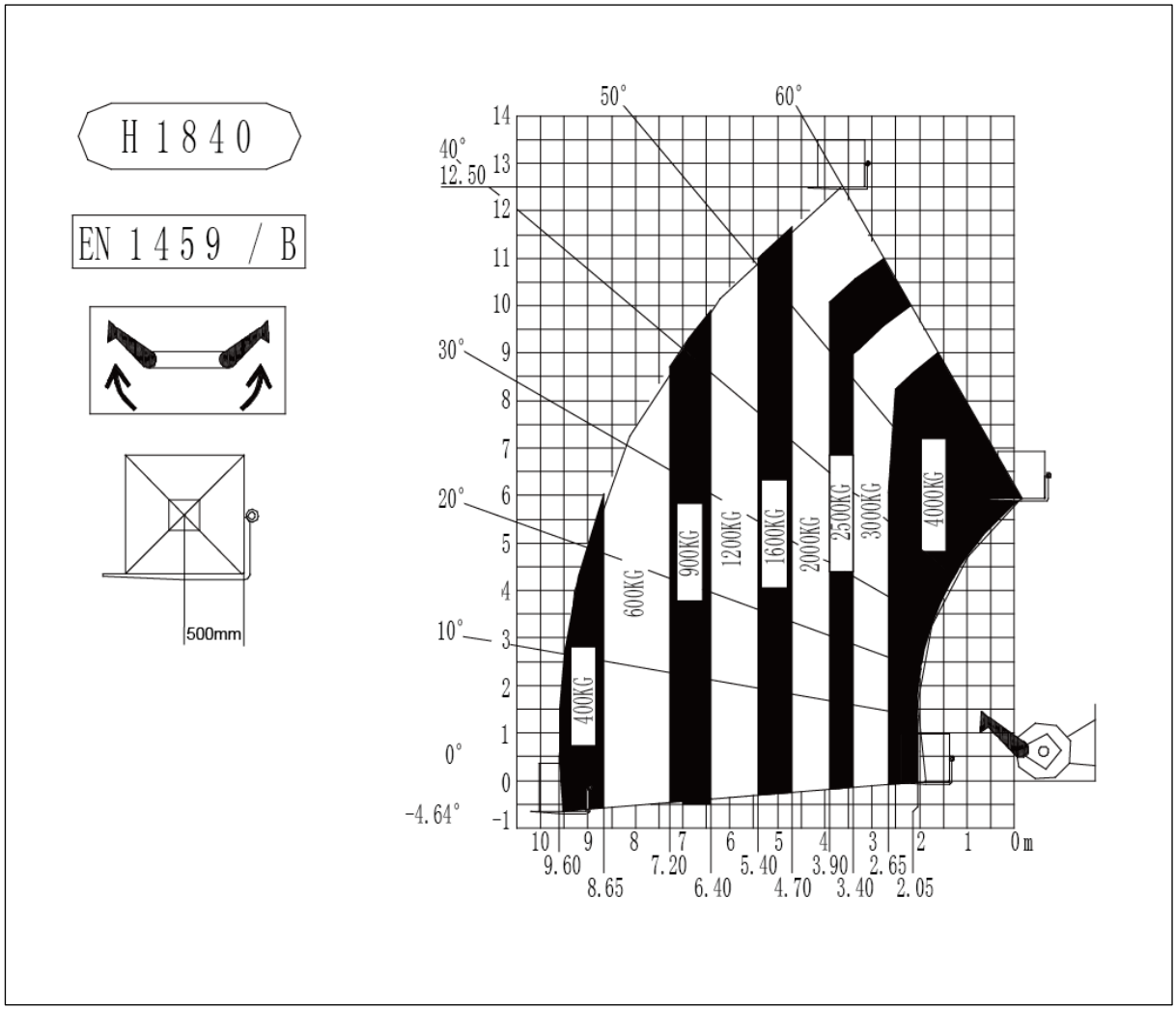
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	180L	Front axle gear oil	10.6 L
Diesel fuel	150 L	Rear axle gear oil	10.6 L
Engine oil	8.5 L	Transmission gear oil	21.75 L
Antifreeze	12.5L	Diesel exhaust fluid	-

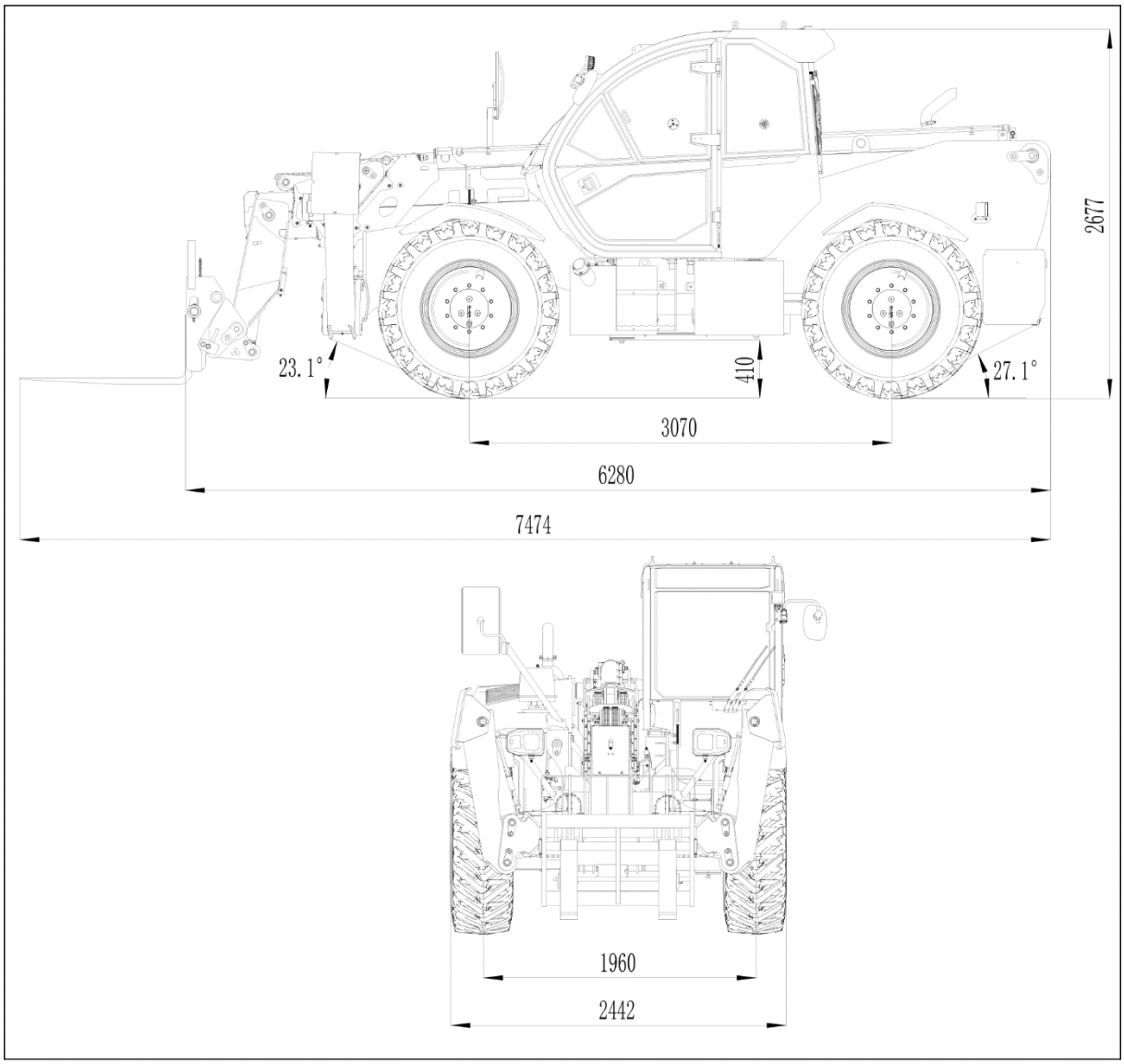
9. Range of motion-1



9. Range of motion-2



H1840 (EU Stage Ⅲ Engine) Machine parameters



1. Overall performance parameters-1

Item	Parameter	Item	Parameter
Rated load (kg)	4000	Boom lifting time (s)	11~17.5
Total weight (kg)	12350	Boom lowering time (s)	16~23.5
Maximum working height (m)	17.6	Boom extension time (s)	15~22.5
Maximum horizontal reach (m)	13.1	Boom retraction time (s)	11~18
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	6~14
Second gear speed (km/h)	12	Retraction time of leveling cylinder (s)	9~16
Third gear speed (km/h)	20	Extension time of outrigger cylinder (s)	15~23

1. Overall performance parameters-2

Item	Parameter	Item	Parameter
Fourth gear speed (km/h)	30	Retraction time of outrigger cylinder (s)	11~18
First reverse gear speed (km/h)	5	Minimum turning radius (m)	4.2
Second reverse gear speed (km/h)	12	Theoretical max. gradeability (no-load, stowed)	65%
Third reverse gear speed (km/h)	20	Leftward/rightward inclination angle of frame	±9°
Max. braking distance (no-load, stowed) (20 km/h) (m)	5.5	Drive type	4WD, 4WS
Towing force（kN）	93.3		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	6280	Wheelbase (mm)	3070
Overall width (mm)	2442	Track width (mm)	1960
Overall height (mm)	2677	Min. ground clearance (mm)	410

3. Engine system

Item	Parameter	Item	Parameter
Model	1104D-E44T	Rated speed (r/min)	2200
Displacement (ml)	4400	Maximum torque (Nm)	420/1400rpm
Rated power (kW)	73.5	Emission standard	EU Stage Ⅲ

4. Drive chain

Item			Parameter
Transmission	Type		AMT
	Gear		4 forward gears and 3 reverse gears
	Gear ratio	Forward gear	4.945/2.289/1.159/0.821
		Reverse gear	4.945/2.289/1.159
Front axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		440/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Pump displacement (ml/r)	63
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	3.4

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

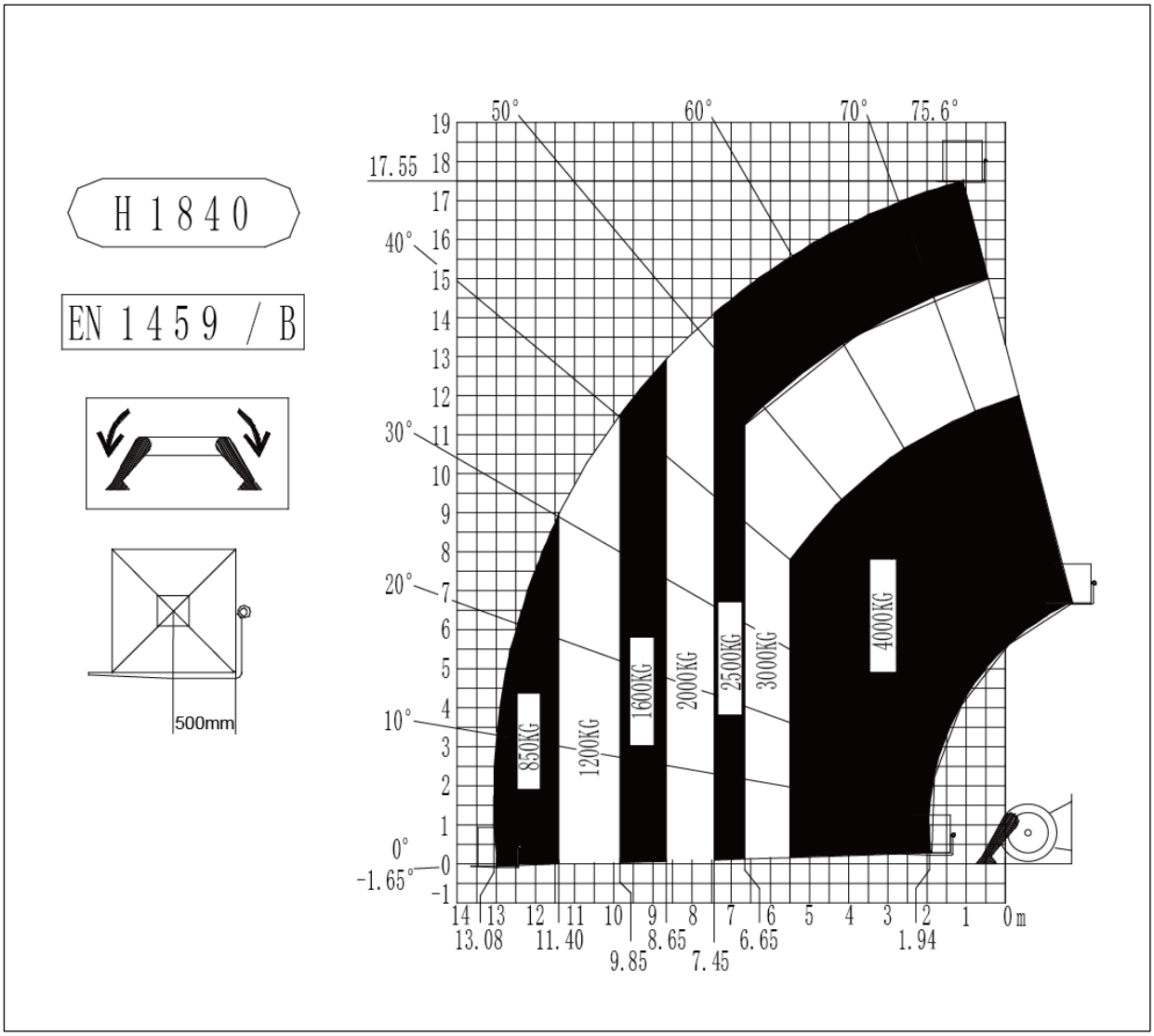
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	180L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CH-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	150L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	12.5L	Meet ASTM D6210 standard

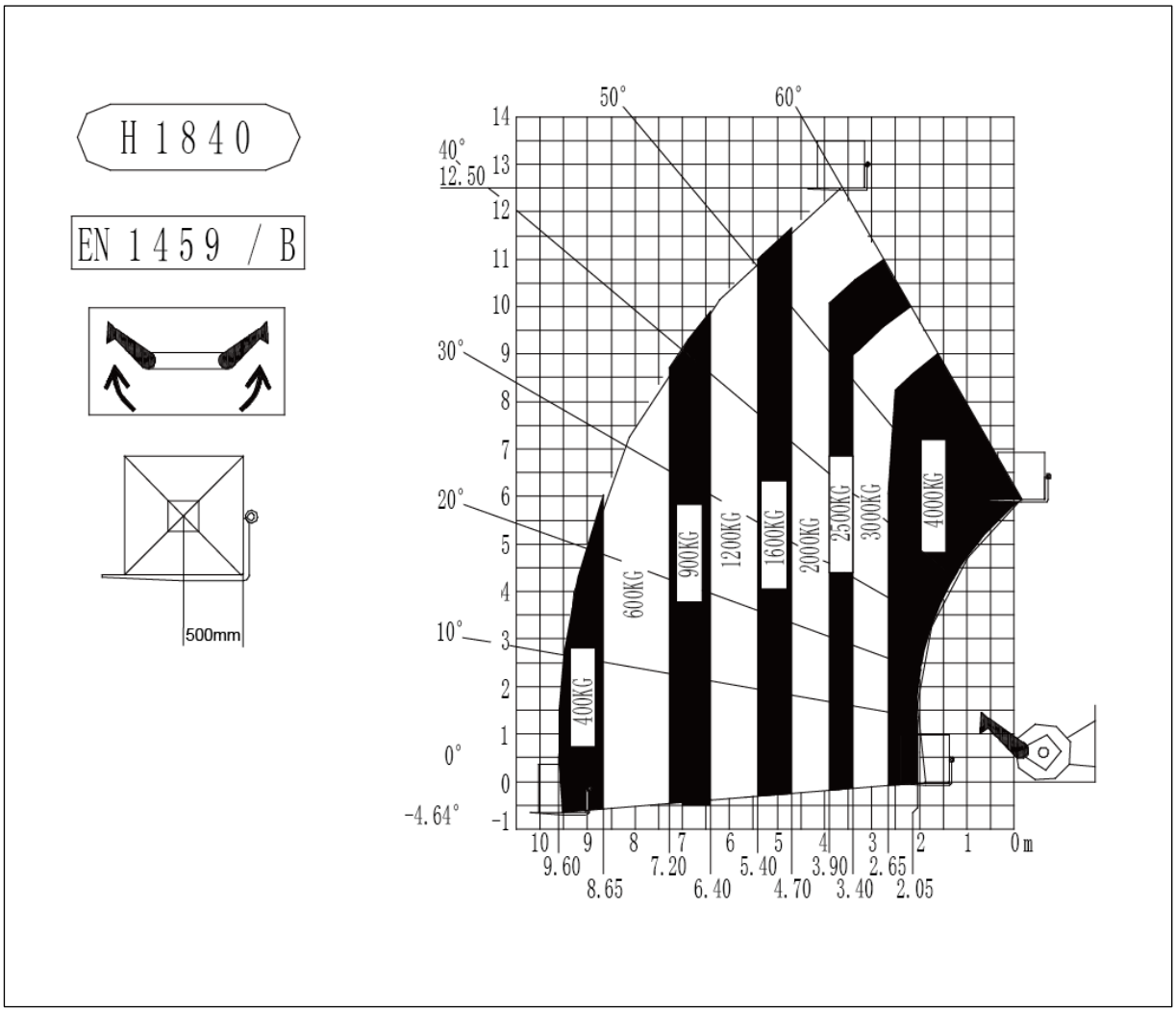
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	180L	Front axle gear oil	10.6 L
Diesel fuel	150 L	Rear axle gear oil	10.6 L
Engine oil	8.5 L	Transmission gear oil	21.75 L
Antifreeze	12.5L		

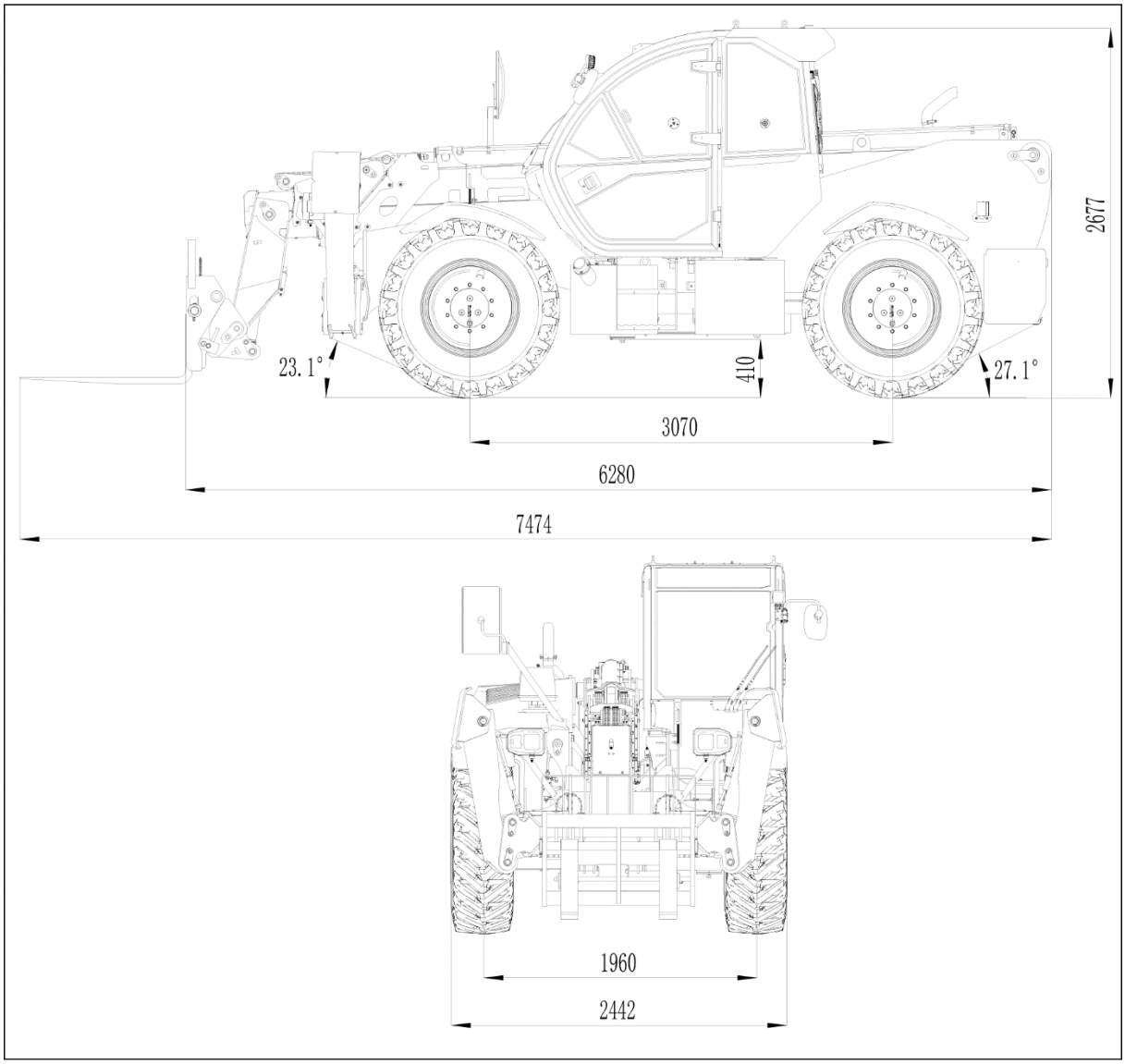
9. Range of motion-1



9. Range of motion-2



H1840 (EU Stage Ⅲ Engine) Machine parameters



1. Overall performance parameters-1

Item	Parameter	Item	Parameter
Rated load (kg)	4000	Boom lifting time (s)	11~17.5
Total weight (kg)	12200	Boom lowering time (s)	16~23.5
Maximum working height (m)	17.6	Boom extension time (s)	15~22.5
Maximum horizontal reach (m)	13.1	Boom retraction time (s)	11~18
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	6~14
Second gear speed (km/h)	30	Retraction time of leveling cylinder (s)	9~16
First reverse gear speed (km/h)	5	Extension time of outrigger cylinder (s)	15~23

1. Overall performance parameters-2

Item	Parameter	Item	Parameter
Second reverse gear speed (km/h)	30	Retraction time of outrigger cylinder (s)	11~18
Max. braking distance (no-load, stowed) (20 km/h) (m)	5.5	Minimum turning radius (m)	4.3
Theoretical max. gradeability (no-load, stowed)	65%	Leftward/rightward inclination angle of frame	±9°
Towing force （kN）	93.3	Drive type	4WD, 4WS

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	6280	Wheelbase (mm)	3120
Overall width (mm)	2442	Track width (mm)	1960
Overall height (mm)	2677	Min. ground clearance (mm)	410

3. Engine system

Item	Parameter	Item	Parameter
Model	1104D-E44T	Rated speed (r/min)	2200
Displacement (ml)	4400	Maximum torque (Nm)	420/1400rpm
Rated power (kW)	73.5	Emission standard	EU Stage Ⅲ

4. Drive chain

Item			Parameter
Transmission	Type		MT
	Gear		2 forward gears and 2 reverse gears
	Gear ratio	Forward gear	4.286/1.359
		Reverse gear	4.286/1.359
Front axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		440/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter
Type	Load sensitive system
Driving pump displacement (ml/r)	55
Driving motor displacement (ml/r)	80
Function pump displacement (ml/r)	63
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	3.4

6. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

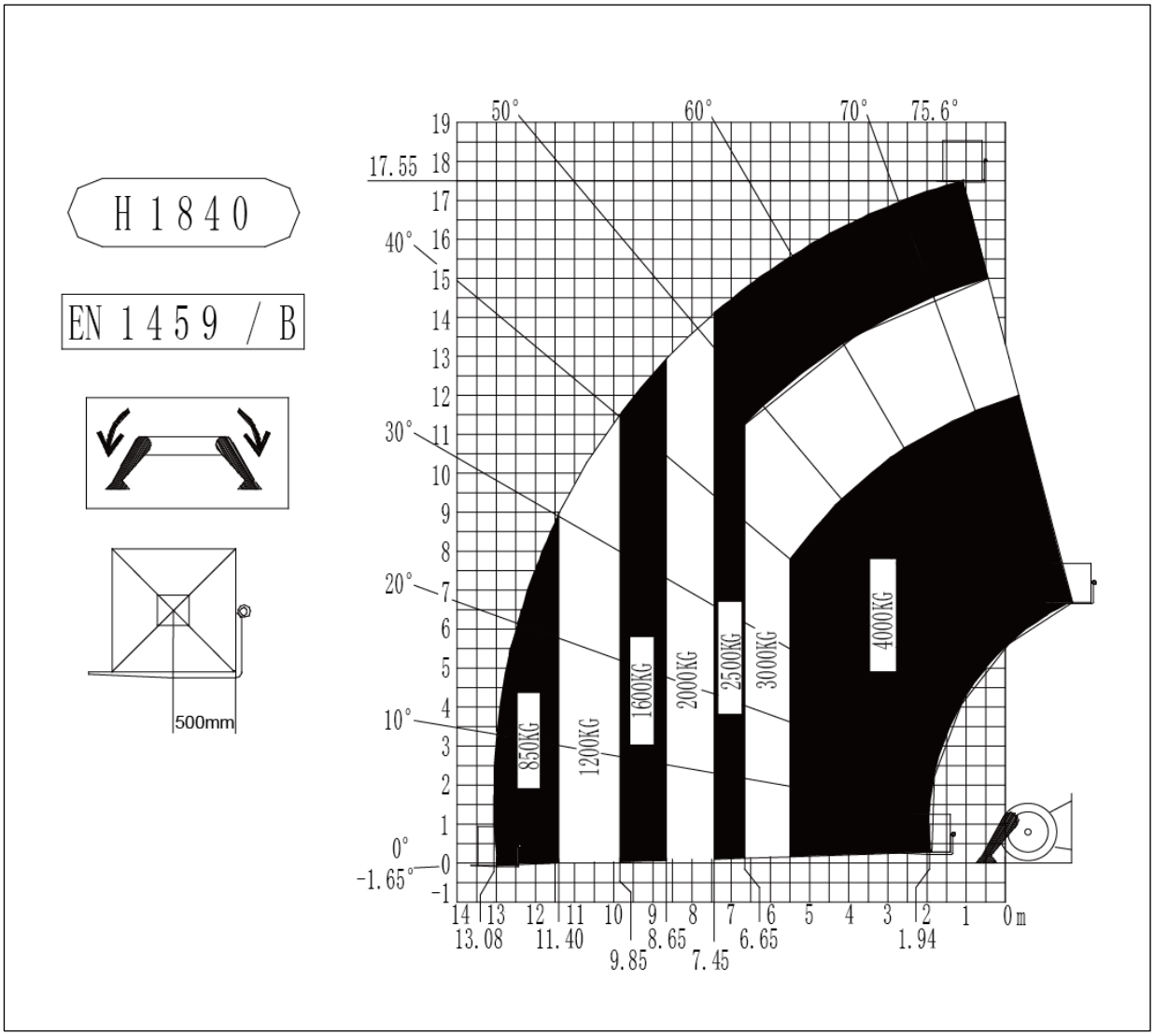
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	180L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	8.5L	API CH-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	150L	EN590 ULSD
	Ambient temperature ≥ -5℃	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	12.5L	Meet ASTM D6210 standard

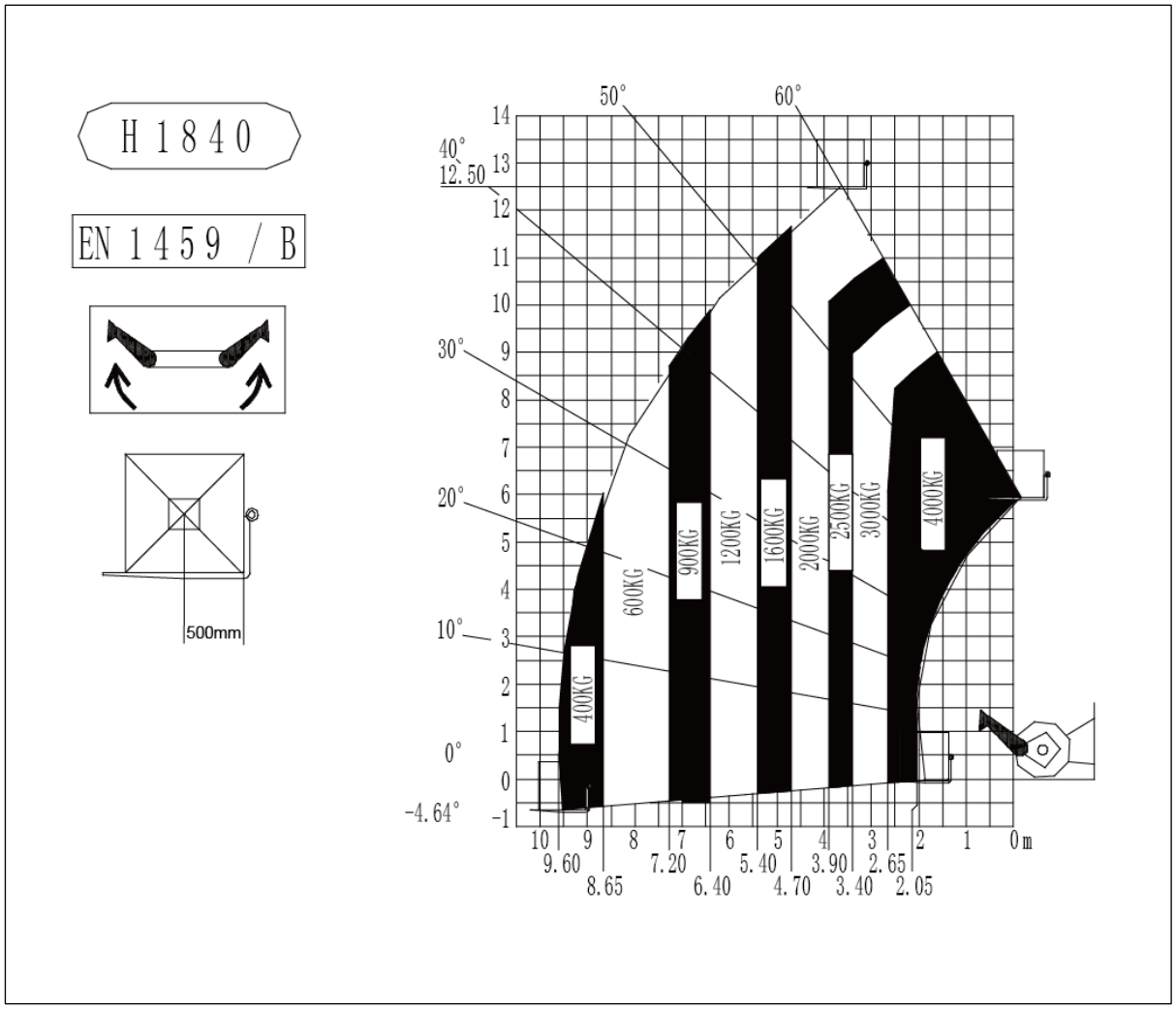
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	180L	Front axle gear oil	10.6 L
Diesel fuel	150 L	Rear axle gear oil	10.6 L
Engine oil	8.5 L	Transmission gear oil	4 L
Antifreeze	12.5L		

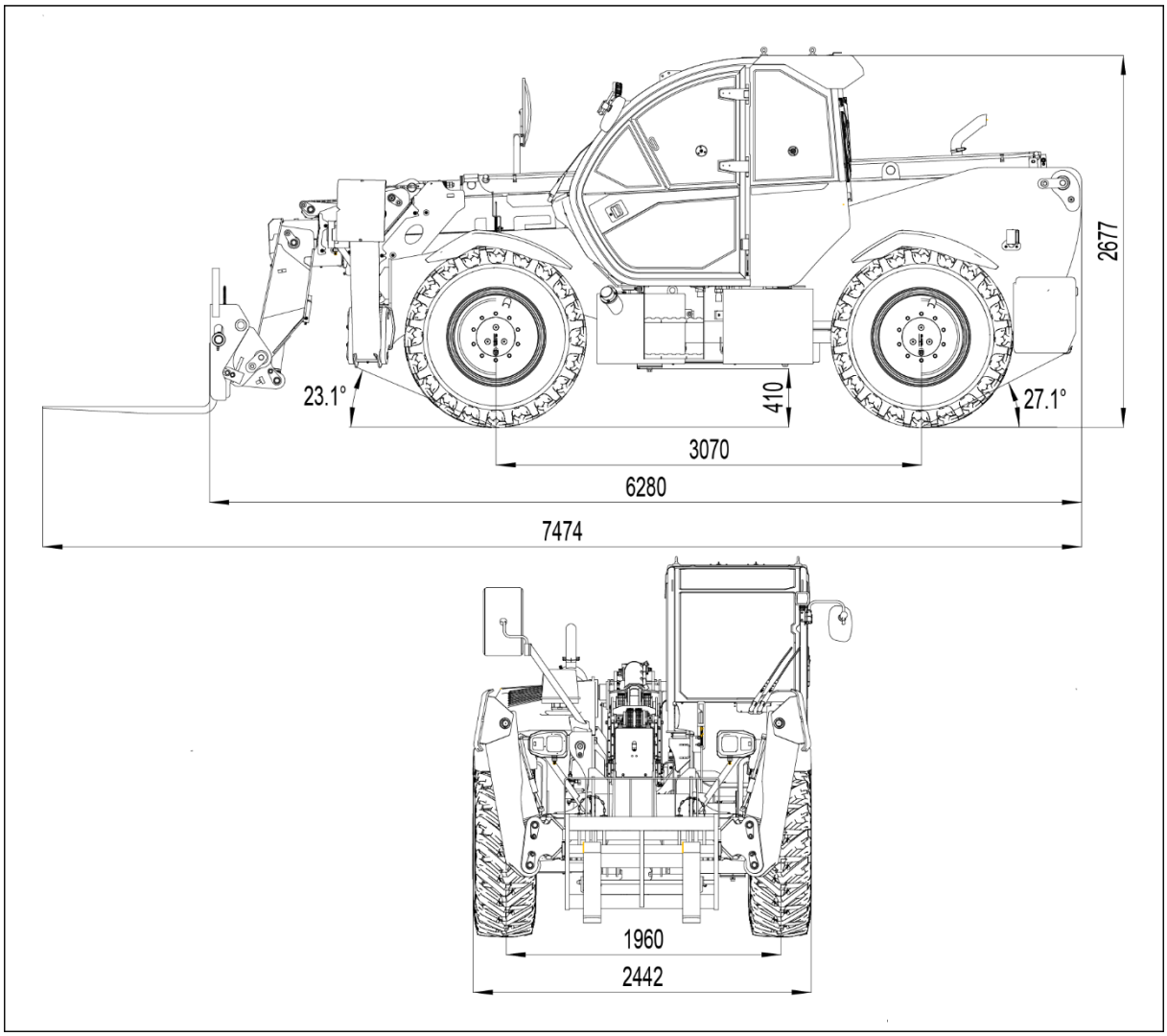
9. Range of motion-1



9. Range of motion-2



H1840-Ⅱ (EU Stage V Engine) Machine parameters



1. Overall performance parameters

Item	Parameter	Item	Parameter
Rated load (kg)	4000	Boom lifting time (s)	11~17.5
Total weight (kg)	12350	Boom lowering time (s)	16~23.5
Maximum working height (m)	17.6	Boom extension time (s)	15~22.5
Maximum horizontal reach (m)	13.1	Boom retraction time (s)	11~18
First gear speed (km/h)	5	Extension time of leveling cylinder (s)	6~14
Second gear speed (km/h)	12	Retraction time of leveling cylinder (s)	9~16
Third gear speed (km/h)	20	Extension time of outrigger cylinder (s)	15~23
Fourth gear speed (km/h)	30	Retraction time of outrigger cylinder (s)	11~18

First reverse gear speed (km/h)	5	Minimum turning radius (m)	4.2
Second reverse gear speed (km/h)	12	Theoretical max. gradeability (no-load, stowed)	65%
Third reverse gear speed (km/h)	20	Leftward/rightward inclination angle of frame	±9°
Max. braking distance (no-load, stowed) (20 km/h) (m)	5.5	Drive type	4WD, 4WS
Towing force（kN）	93		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	6280	Wheelbase (mm)	3070
Overall width (mm)	2442	Track width (mm)	1960
Overall height (mm)	2677	Min. ground clearance (mm)	410

3. Engine system

Project	Parameter	Project	Parameter
Model	904J-E36TA	Rated speed (r/min)	2400
Displacement (ml)	3620	Maximum torque (Nm)	430/1500rpm
Rated power (kW)	55.4	Emission standard	EU stage Ⅴ

4. Drive chain

Item			Parameter/Description
Transmission	Type		A/MT
	Gear		4 forward gears and 3 reverse gears
	Gear ratio	Forward gear	4.945/2.289/1.159/0.821
		Reverse gear	4.945/2.289/1.159
Front axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Rear axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
Wheel assembly	Tire Model		440/80 R24
	Inflation pressure (MPa)		0.5

5. Hydraulic system

Item	Parameter/Description
Type	Load sensitive system
Pump displacement (ml/r)	63
Maximum working pressure (MPa)	26
Steering system pressure (MPa)	19
Brake system pressure (MPa)	3.4

6. Electronic control system

Battery(Total)	Output voltage (V)	12
	20-hour Ah	180
Control system	Voltage (V)	12

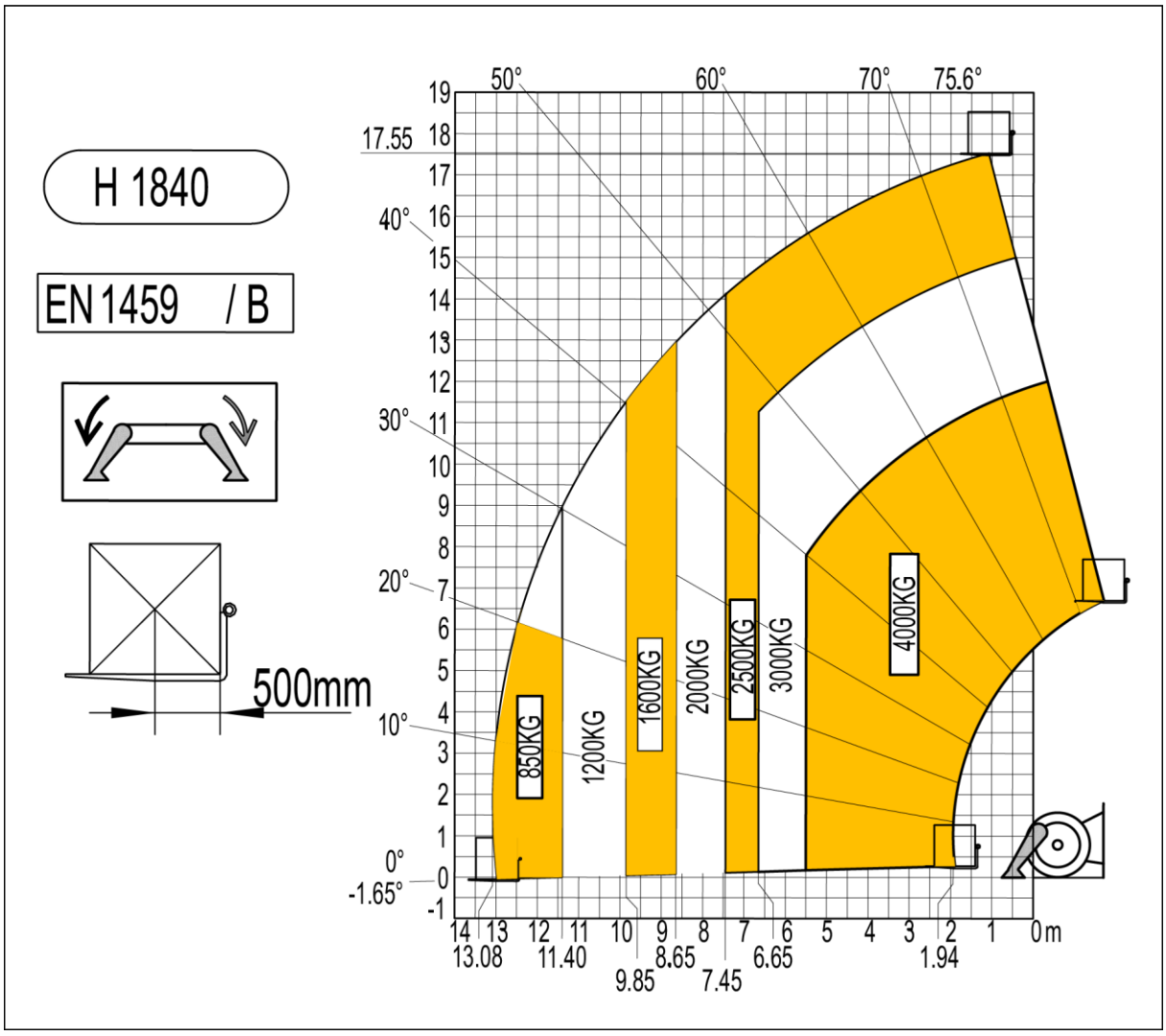
7. Refilling capacity

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	180L	Recommended Chevron
	-40 ℃ <minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature -20℃ ~ 40℃	15W-40	9.5L	API CJ-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		
	Working environment temperature: -30℃ ~ 30℃	5W-30		
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	150L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	12.5L	Meet ASTM D6210 standard

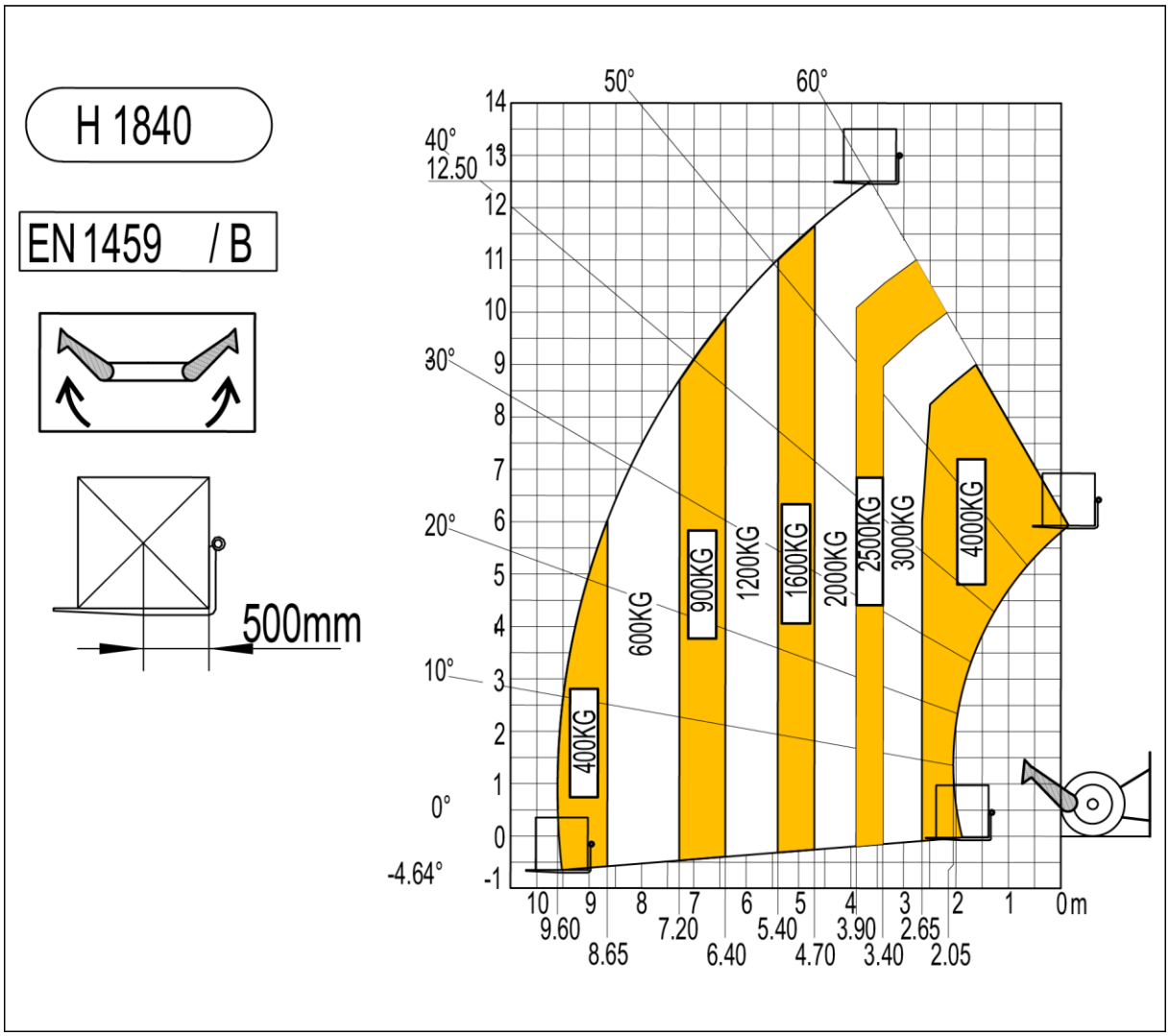
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	180L	Front axle gear oil	10.6 L
Diesel fuel	150 L	Rear axle gear oil	10.6 L
Engine oil	9.5 L	Transmission gear oil	21.75 L
Antifreeze	12.5L	Diesel exhaust fluid	-

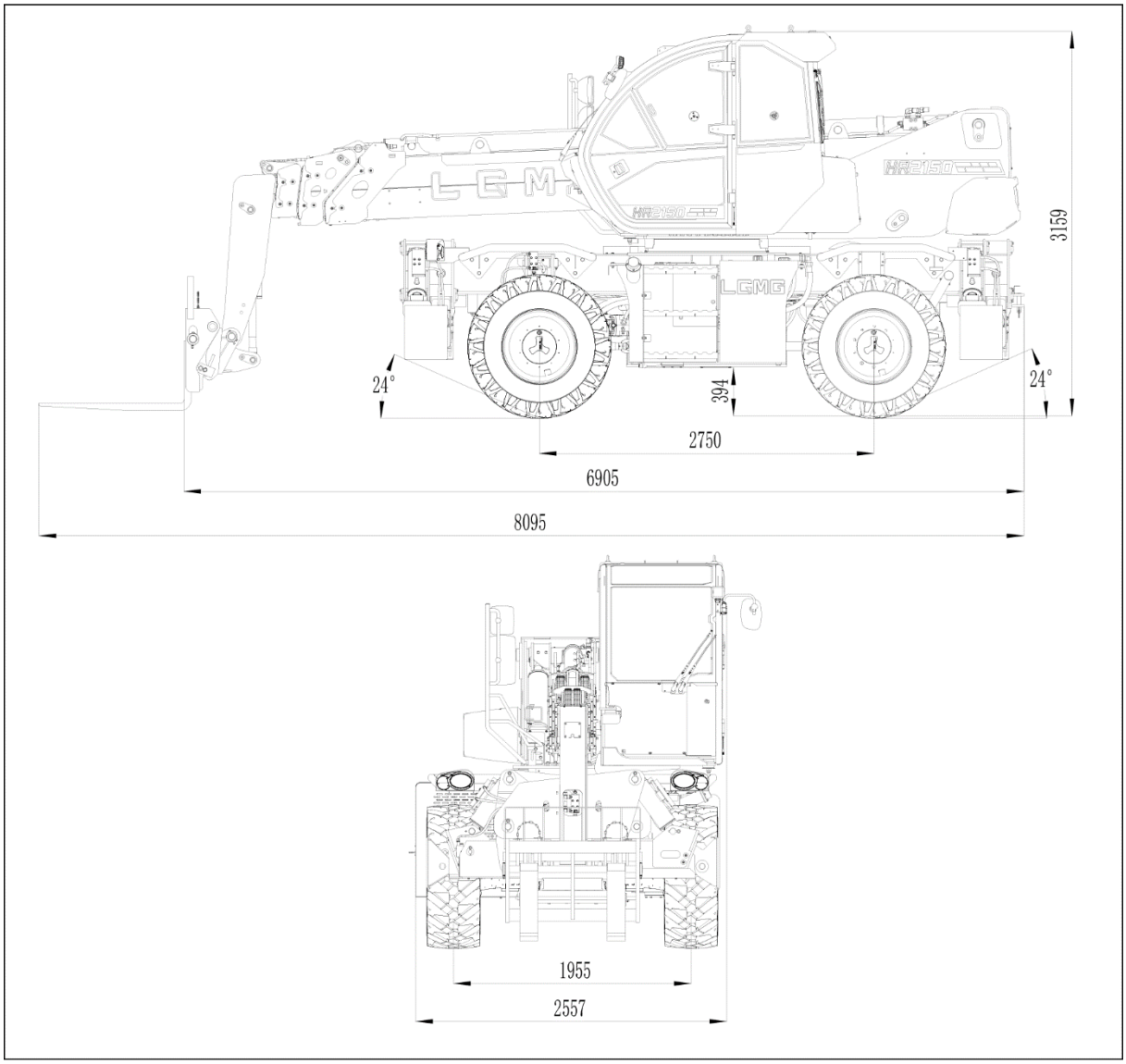
9. Range of motion-1



9. Range of motion-2



HR2150 (EU Stage Ⅲ Engine) Machine parameters



1. Machine performance parameters-1

Item		Parameter	Item	Parameter
Rated load (kg)		4999	Leveling of cylinder extending (s)	8
Maximum working height (m)		20.7	Leveling of cylinder retraction (s)	7
Maximum horizontal extension (m)		18.1	Extension (s) of outrigger cylinder	10
Forward	First forward gear speed (km/h)	5	Retraction (s) of outrigger cylinder	10
	Second forward gear speed (km/h)	30	Outrigger floor support cylinder extending (s)	12

1. Machine performance parameters-2

Item		Parameter	Item	Parameter
Reverse	First reverse gear speed (km/h)	5	Outrigger support cylinder retraction (s)	12
	Second reverse gear speed (km/h)	30	Body leveling cylinder extending (s)	10
Max. braking distance (no-load, stowed) (20Km/h)(m)		3	Body leveling cylinder retraction (s)	10
Boom lift up (s)		27	Maximum gradeability	50%
Boom lower down (s)		22	Leftward/rightward inclination angle of frame	±8°
Boom extension (s)		32	Minimum turning radius (inner/outer ring) (m)	1.85/3.65
Boom retraction (s)		23	Drive type	4WD 4WS
Towing force （kN）		98		

2. Main dimensions

Item	Parameter	Item	Parameter
Overall length (mm)	6865	Track width (mm)	1955
Overall width (mm)	2465	Wheelbase (front/rear) (mm)	2750
Overall height (mm)	3156	Minimum ground clearance (mm)	390
Total weight (kg)	17100	Tire specification	445/70R 22.5

3. Engine system

Item	Parameter	Item	Parameter
Model	1104D-E44TA	Rated speed (r/min)	2200
Displacement (ml)	4400	Maximum torque/speed (N · m)/(r/min)	558/1400
Rated power (kW)	106	Emission standard	EU Stage Ⅲ

4. Hydraulic system-1

Item	Parameter
Type	**Load sensitive system**
Travel pump displacement (ml/r)	78
Travel motor displacement (ml/r)	110
Working pump displacement (ml/r)	60
Maximum working pressure (MPa)	29

4. Hydraulic system-2

Item	Parameter
Type	**Load sensitive system**
Steering system pressure (MPa)	19
Brake system pressure (MPa)	3.4

5. Electronic control system

Battery	Output voltage (V)	12
	20-hour Ah	240
Control system	Voltage (V)	12

6. Drive chain

Item			Parameter
Transfer box	Type		Manual
	Gear		2 forward gears and 2 reverse gears
	Gear ratio	D gear	4.286/1.359
		R gear	4.286/1.359
Front axle	Overall gear ratio		20.14
Rear axle	Overall gear ratio		20.14
	Brake type		Multi-disc wet brake
	Inflation pressure (MPa)		0.75

7. Fill capacity-1

Item	Condition	Grade	Capacity	Remarks
Hydraulic oil	Minimum temperature>-25 ℃	L-HV46 low temperature hydraulic oil	260L	Recommended Chevron
	-40 ℃ <Minimum temperature ≤-25 ℃	L-HS32 ultra-low temperature hydraulic oil		
	Minimum air temperature ≤-40 ℃	No. 10 Aviation hydraulic fluid		
Engine oil	Working environment temperature: -20℃ ~ 40℃	15W-40	8.5L	API CH-4
	Working environment temperature: -25℃ ~ 30℃	10W-30		

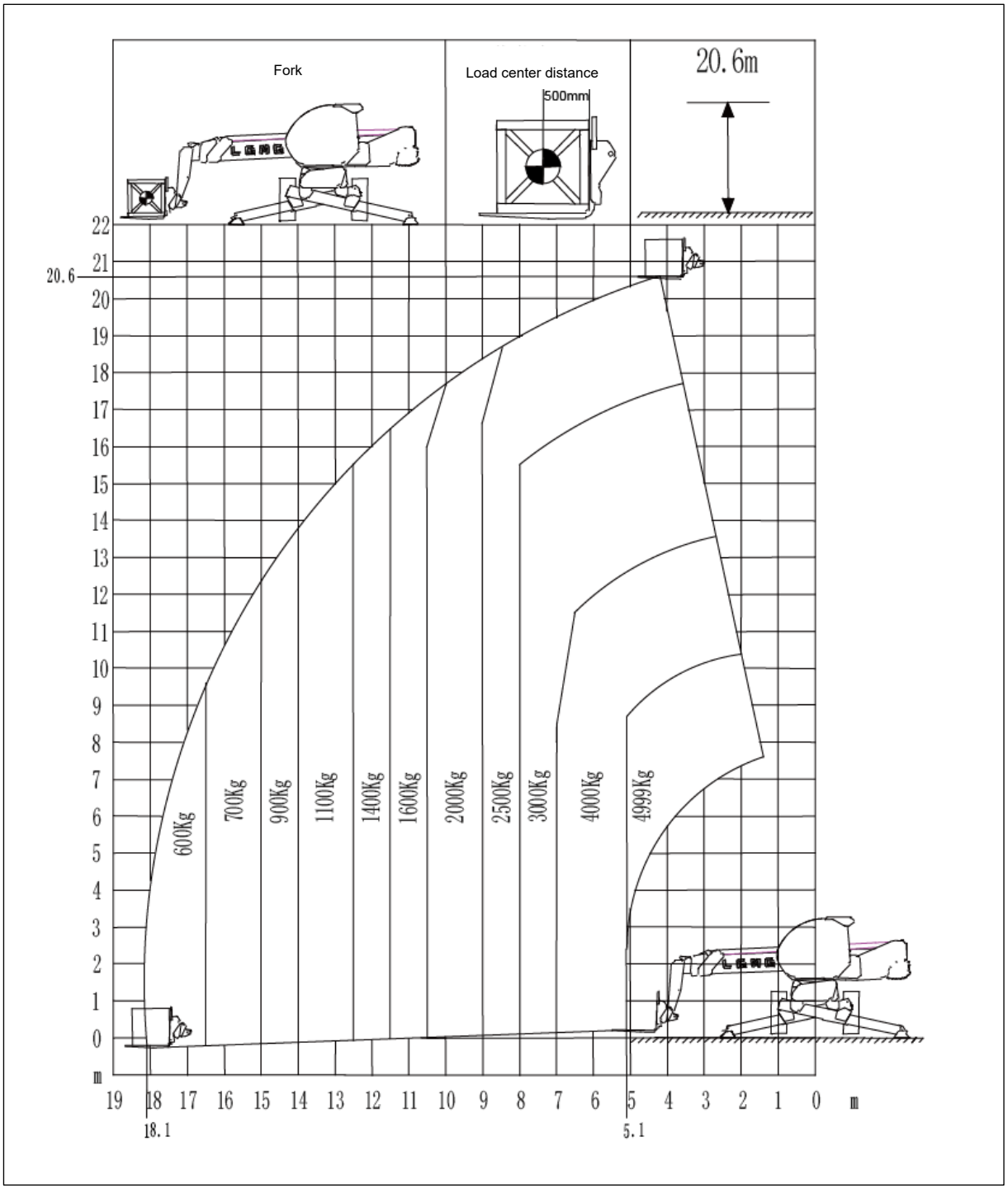
7. Fill capacity-2

Item	Condition	Grade	Capacity	Remarks
Engine oil	Working environment temperature: -30℃ ~ 30℃	5W-30	8.5L	API CH-4
	Working environment temperature: -35℃ ~ 20℃	0W-20		
Diesel fuel	Ambient temperature ≥4°C	#0 diesel fuel	170L	EN590 ULSD
	Ambient temperature ≥ -5ºC	#-10 diesel fuel		
	Ambient temperature ≥ -14°C	#-20 diesel fuel		
	Ambient temperature ≥ -29°C	#-35 diesel fuel		
Antifreeze	The lowest temperature ≥ -25°C	The ethylene glycol content is 50%	12.5L	Meet ASTM D6210 standard

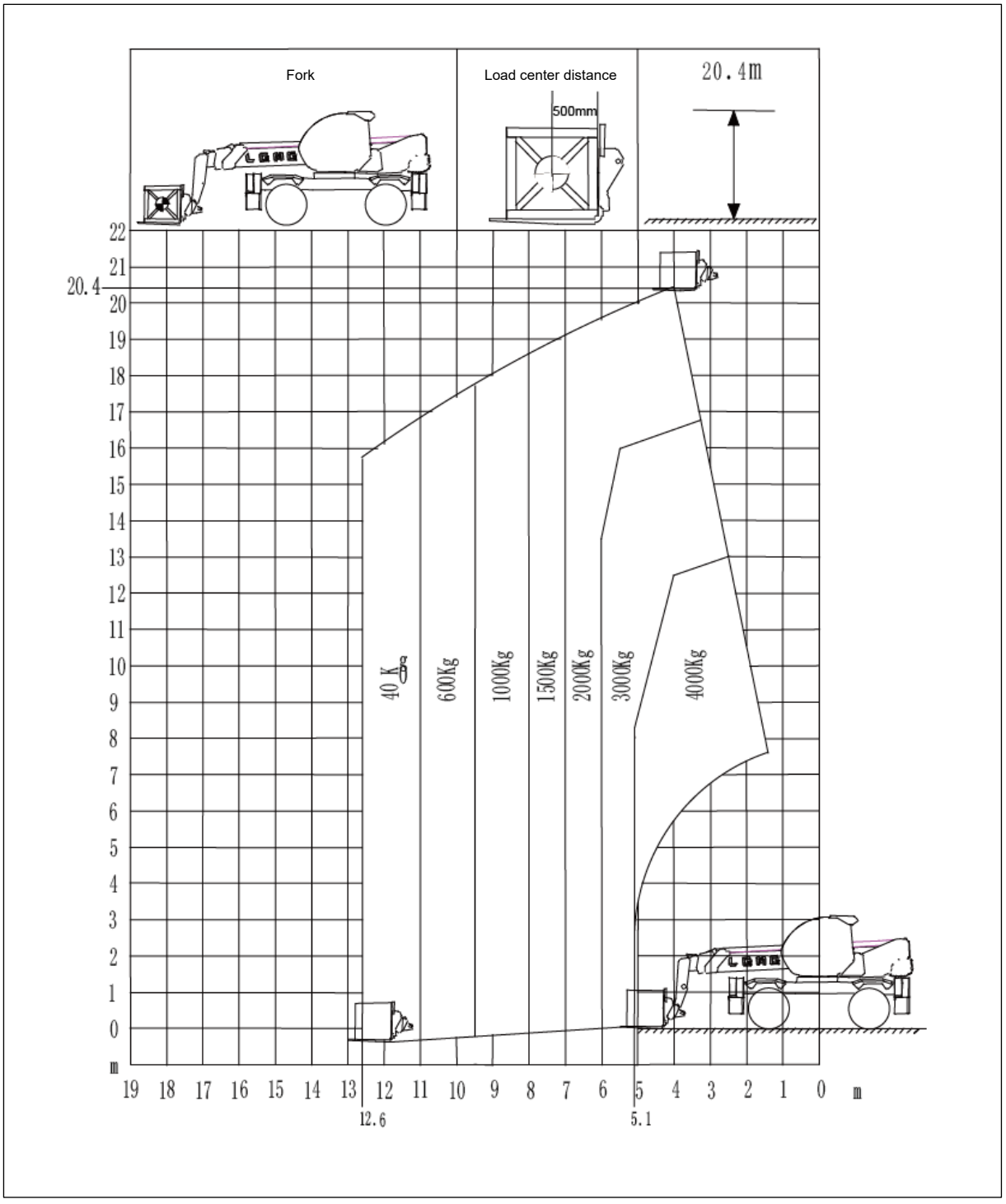
8. Fuel/oil/anti-freeze filling amount

Item	Parameter	Item	Parameter
Hydraulic oil	260L (contracted state)	Front axle gear oil	10.6 L
Diesel fuel	170 L	Rear axle gear oil	10.6 L
Engine oil	8.5 L	Transmission gear oil	4 L
Engine Antifreeze	12.5L		

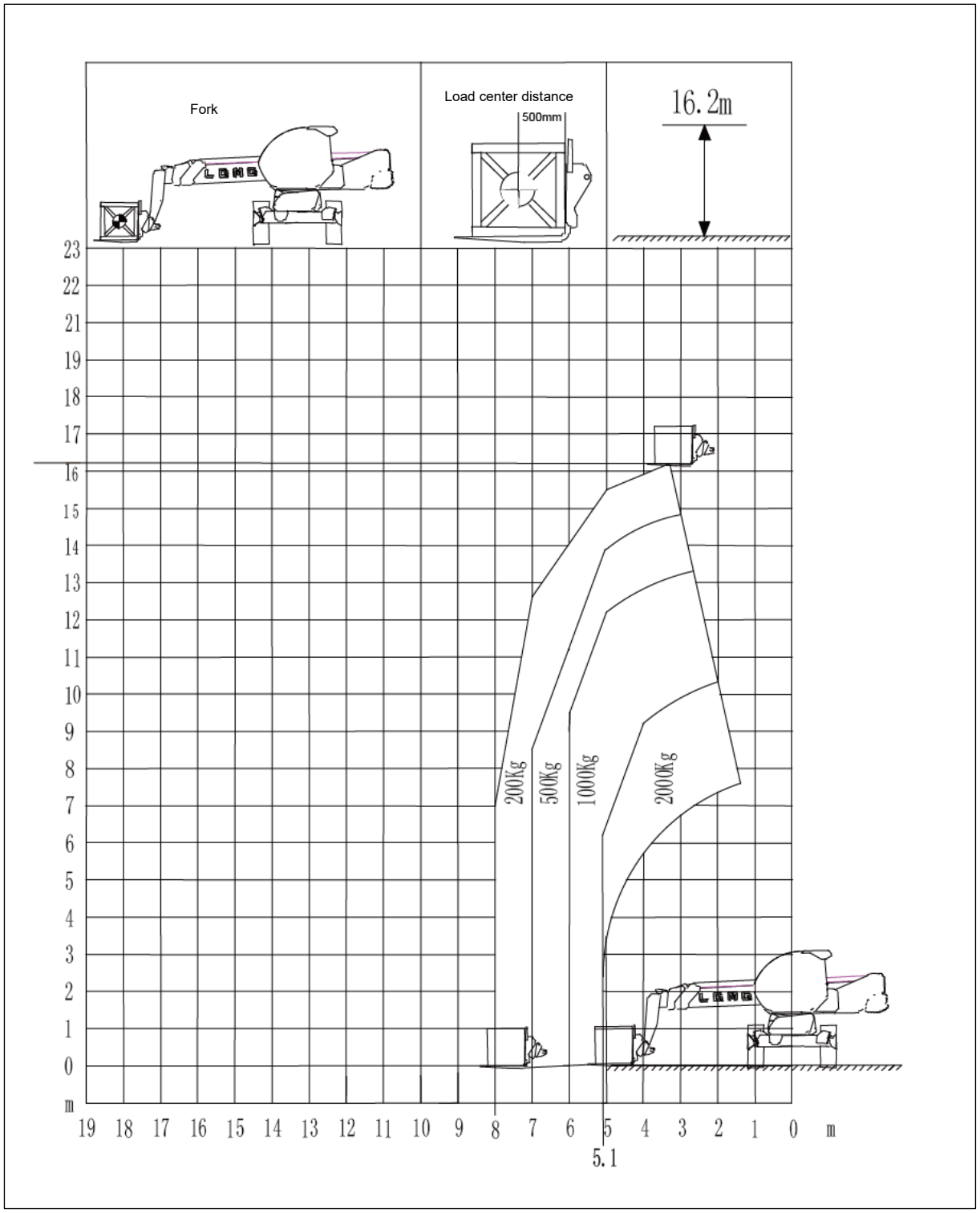
9. Range of motion-1



9. Range of motion-2



9. Range of motion-3



Chapter 3 Use of Vehicles

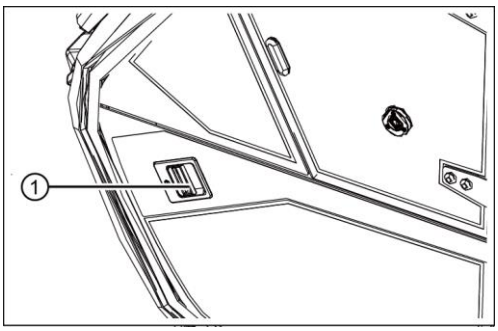


Fig. 3.1.1 Door Lock

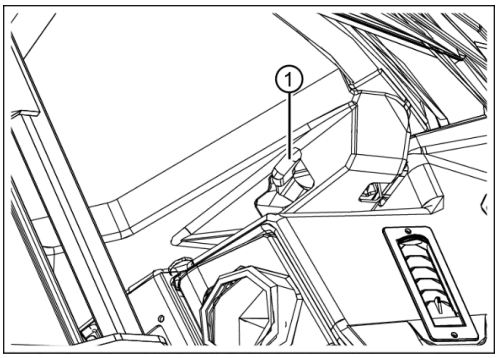


Fig.3.1.2 Door switch

3.1 Operation of doors

WARNING

Never drive before the door is closed!

3.1.1 Use door switch from outside the vehicle

Open the door: the door is in a non-locked state, and the door can be opened by pulling the handle outwards; If the door is locked, insert the key, turn it 180 degrees clockwise, and then pull the handle outward to open the door.

Close the door: just close the door.

Lock the door: after closing the door, insert the key, rotate it by 180 degrees counterclockwise and withdraw the key. After locked, the door cannot be opened by pulling the outer handle.

3.1.2 Use the door switch from the inside of the car

Open the door: as shown in figure 3.1.3, pull the door handle backward and then push the door outward to open the door.

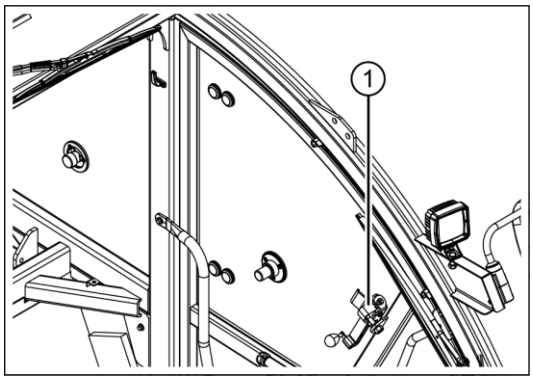
Close the door: close the door directly.

3.1.3 Door side window

Side Door Window Mode I

Side Door Window Open

1) Activate the parking brake to keep the vehicle stationary.

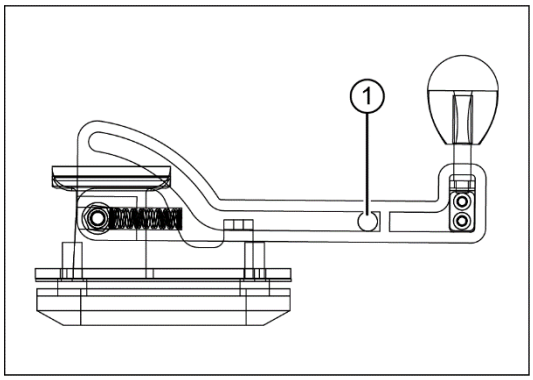


1 Glass handle

2) Pull back the glass handle to detach it from the handle groove.

⚠ Risk of Component Damage

Be careful when pulling back the glass handle to detach it from the groove. Excessive force may damage the glass handle.



1 Locating Hole

3) Rotate the glass handle downward by 90 degrees, then push the glass handle outward to secure it into the locating hole.

Closing the Side Door Window

1) To close the side door window, simply operate it oppositely.

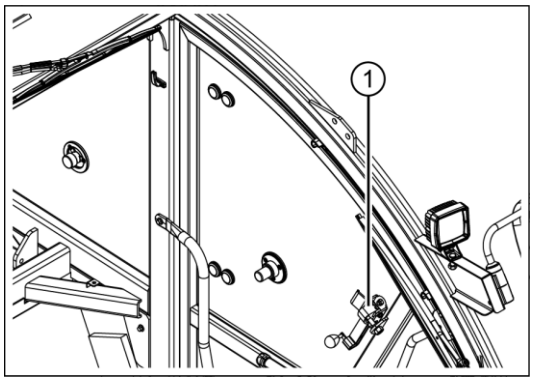
⚠ Risk of Component Damage

Be careful when pulling back the glass handle to detach it from the locating hole and groove.Excessive force may damage the glass handle.

Side Door Window Mode II

Side Door Window Open

1) Activate the parking brake to keep the vehicle stationary.



1 Glass handle

2) Pull back the glass handle to detach it from the handle groove.

3) Rotate the glass handle downward by 90 degrees, then push the side door window outward.

4) Pull the glass handle backward to detach it from the stopper groove.

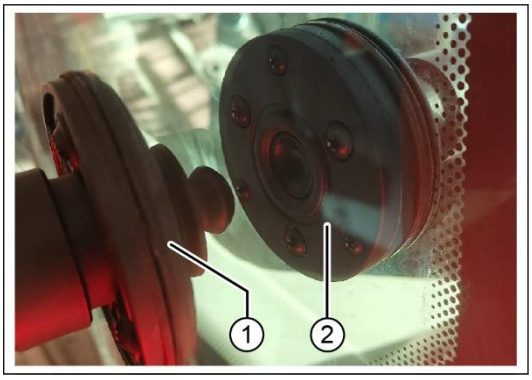
⚠ Risk of Component Damage

Be careful when pulling back the glass handle, gently detach it from the groove and stopper groove. Excessive force may damage the glass handle.

5) Rotate the glass handle upwards by 90 degrees, then insert the handle into the groove.

⚠ Risk of component damage

When the side door window is open, the glass handle must be reinserted into the groove; otherwise, the glass may be damaged.



1 Positioning lock I

2 Positioning lock Ⅱ

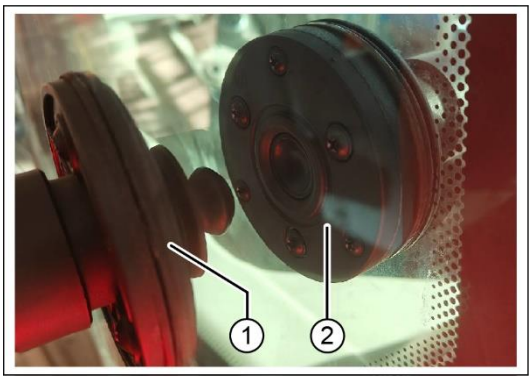
6) Push the side door window outward to engage positioning lock I into positioning lock II.

⚠ Risk of component damage

1 Before using the positioning lock to secure the front, observe whether Positioning Lock I and Positioning Lock II are concentric. If Positioning Lock I and Positioning Lock II are not concentric, adjustment is required. Please refer to the "Maintenance Manual" for specific adjustment methods.

2 When using the positioning lock to secure the side door window, gently push the side door window.

Side Door Window Closed



1 Positioning Lock Ⅰ

2 Positioning Lock Ⅱ

1) To unlock the side door windows, press the "PUSH" button corresponding to Positioning Lock I or Positioning Lock II.

Note: When the driver is inside the cab, Positioning Lock II can be pressed from within the cab; when the driver is outside the cab, Positioning Lock I can be pressed from the outside of the cab.

2) Pull the side door window inward.

3) Pull the glass handle backward to detach it from the fixed groove.

4) Insert the glass handle into the stopper groove and continue pulling the side door window inwards.

Note: Please do not insert the glass handle into the locating hole.

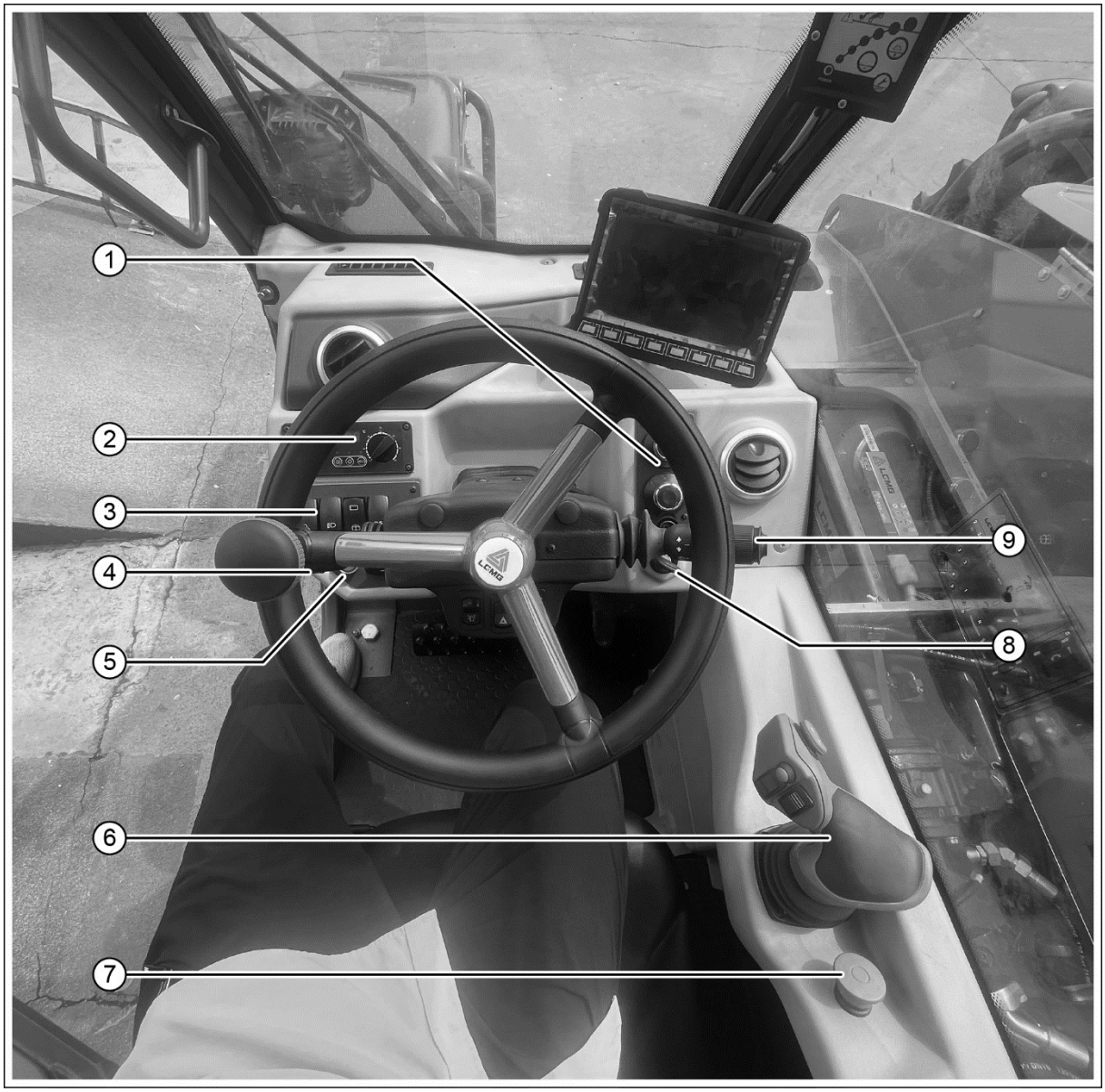
5) After rotating the glass handle upward by 90 degrees, simply reinsert the handle into the groove.

Risk of component damage

Be careful when pulling back the glass handle to detach it from the groove. Excessive force may damage the glass handle.

3.2 Cab Electrical Layout

3.2.1 H625/H735/HA735/H933

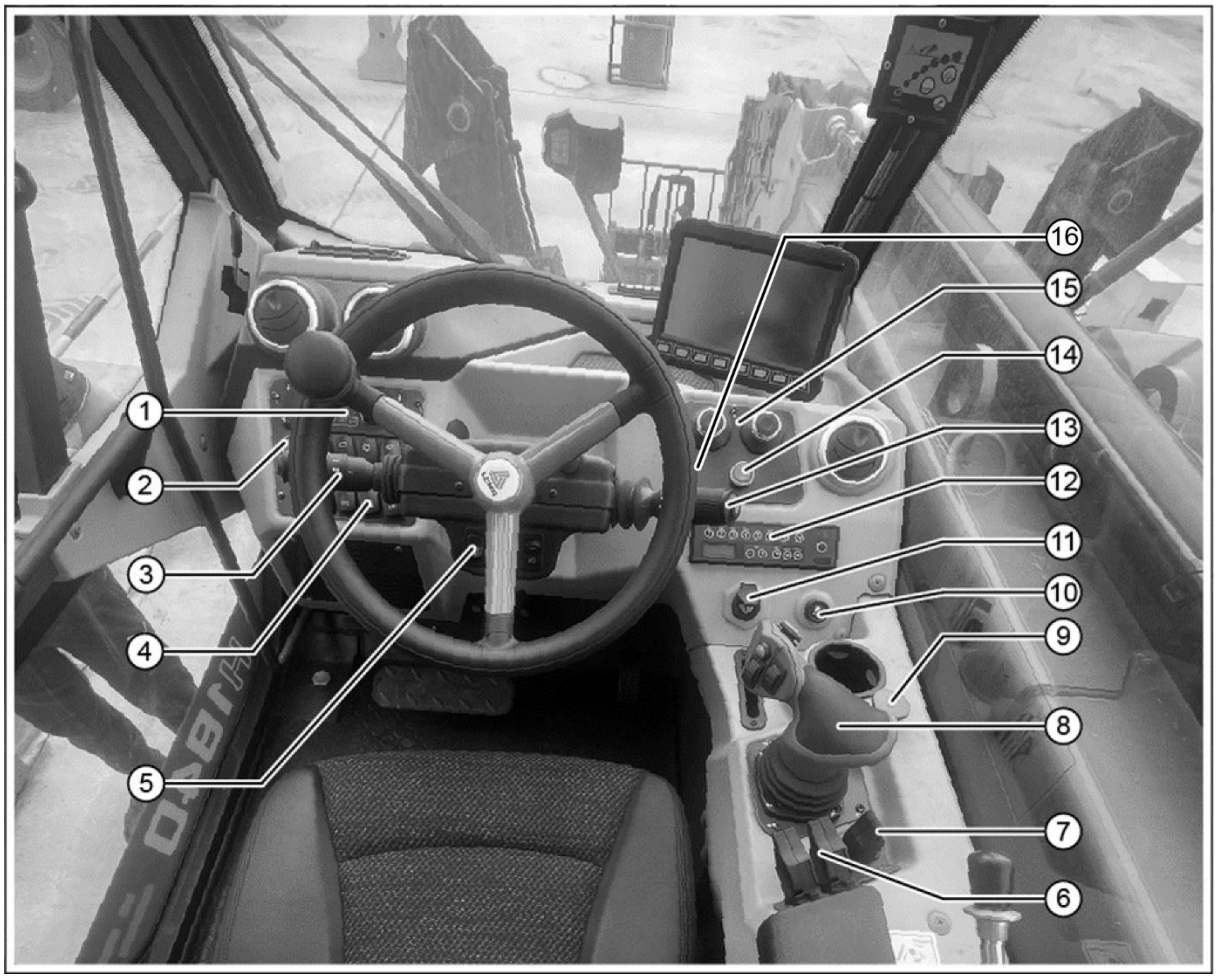


Item	Name	Item	Name
1	Mode selector switch	6	Hydraulic joystick
2	Air conditioning panel	7	Emergency stop button
3	Rocker switch	8	Key switch
4	Gear selector switch	9	Combination switch knob
5	Override switch		

3.2.2 H1440/H1840

Item	Name	Item	Name
1	Air conditioning panel	9	Emergency stop button
2	DPF Regeneration inhibit button	10	Cigarette lighter
3	Gear selector switch	11	Key switch
4	Rocker switch	12	Radio
5	Rocker switch	13	Combination switch knob
6	Outrigger controller	14	Override button
7	Vehicle tilt correction controller	15	Mode selector switch
8	Hydraulic joystick		

3.2.3 H1840-Ⅱ



Item	Name	Item	Name
1	Air conditioning panel	9	Emergency stop button
2	DPF Regeneration inhibit button	10	Cigarette lighter
3	Gear selector switch	11	Key switch
4	Rocker switch	12	Radio
5	Rocker switch	13	Combination switch knob
6	Outrigger controller	14	Electronic parking brake
7	Vehicle tilt correction controller	15	Mode selector switch
8	Hydraulic joystick	16	Override button

3.2.4 HR2150

Item	Name	Item	Name
1	Air conditioning panel	9	Emergency stop button
2	DPF Regeneration inhibit button	10	Key switch
3	Rocker switch	11	Cigarette lighter
4	Gear selector switch	12	Rocker switch
5	Rocker switch	13	Combination switch knob
6	Outrigger controller	14	Override button
7	Vehicle tilt correction controller	15	Mode selector switch
8	Hydraulic joystick		

Project	Parameter
Seat width	566mm
Seat height	1039mm
Fore-and-aft adjustment travel	76mm
Backrest angle adjustment	Forward tilt 20°
	Back tilt 15°
Driver weight adjustment range	45~145kg
Floating travel	±40mm

Table 3.2.1

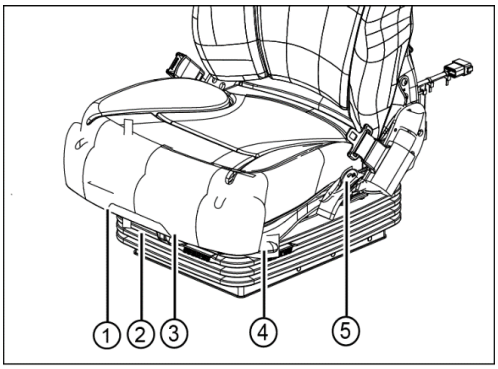


Fig.3.2.1 Seat

3.3 Cab interior device

3.3.1 Seat

Type 1

1. See Table 3.2.1 on the left for the main parameters of the seat
2. Seat adjustment operation method:
   1) Seat cushion inclination adjustment: move the adjusting handle 3 upward, apply a downward force or upward force to the front end of the seat cushion, lower or raise the front end of the seat cushion to the required position, and release the handle.
   2) Damping effect adjustment: according to the driver's weight and road conditions, rotate handle or joystick 2 to adjust to a suitable position.
   a) Adjustment of front and rear slip of seat cushion: lift up the slide rail joystick 1, adjust the seat cushion to the required position, and release the slide rail joystick.
   b) Fore-and-aft adjustment of the seat: lift up the slide rail joystick 4, adjust the seat to the required position, and release the slide rail joystick.
   c) Backrest angle adjustment: move the

adjusting handle 5 upward, adjust to the required position, and loosen the handle.

d) Dirt may adversely affect the correct functioning of the seat. For this reason, make sure your seat is always clean.

Project	Parameter
Seat width	529mm
Seat height	830mm
Fore-and-aft adjustment travel	±80mm
Backrest angle adjustment	Forward tilt 27.5 °
	Back tilt 12.5 °
Driver weight adjustment range	45~130kg
Floating travel	±45mm

Table 3.3.2

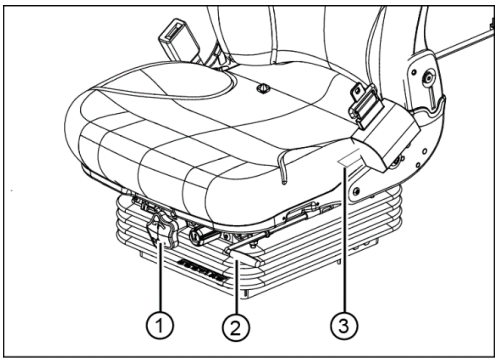


Fig.3.3.2 Seat (if equipped)

Type 2

As shown in Fig 3.3.2

1. See Table 3.3.2 on the left for the main parameters of the seat.
2. Seat adjustment operation method:

1) Damping effect adjustment: according to the driver's weight and road conditions, rotate the joystick 1 to adjust to a suitable position.

2) Fore-and-aft adjustment of the seat: lift up the slide rail joystick 2, adjust the seat to the required position, and release the slide rail joystick.

3) Backrest angle adjustment: move the adjusting joystick 3 upward, adjust it to the required position, and loosen it.

4) Dirt may adversely affect the correct functioning of the seat. For this reason, make sure your seat is always clean.

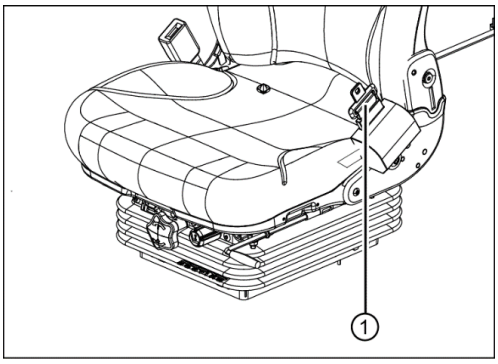


Fig.3.3.2-1 Seat belt

3.3.2 Seat belt

1) Sit on the seat correctly.
2) Check whether the seat belt is twisted or not.
3) Place the seat belt at the hip horizontal position.
4) Tie the seat belt and check whether it is locked or not.
5) Adjust the Seat belt to fit your body shape. Do not squeeze your hips or relax too much.
6) Release the Seat belt: press the red button lock catch, and then pull out the Seat belt.

DANGER

In any case, if the seat belt is defective (fixing, locking, cutting, tearing, etc.), telescopic handler shall not be used. The seat belt should be repaired or replaced immediately.

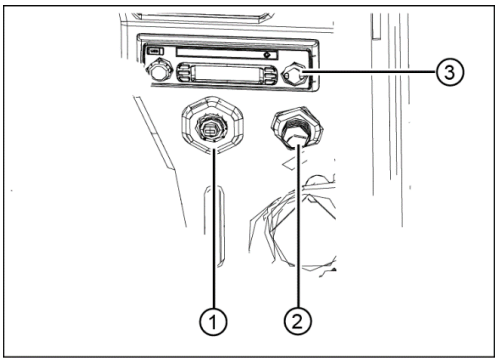


Fig.3.3.3

1. Key switch
2. Cigarette lighter
3. Radio (If equipped)

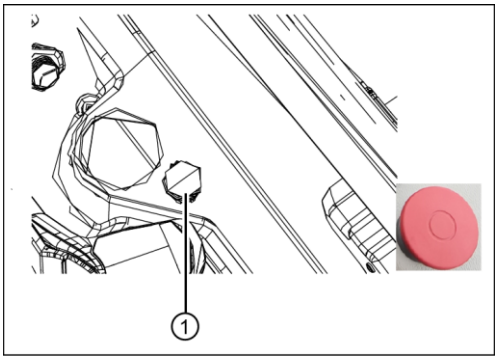


Fig.3.3.4 Emergency stop button

3.3.3 Key switch

Rotation position	Purpose	Remarks
P	Initial position	
O	/	
I	Engine off, instrument lamp on, driving position	
II	/	
III	Starting engine	Automatic reset to drive gear

3.3.4 Emergency stop button

Once a dangerous situation occurs, press the button and the engine will stop immediately.

Reset the emergency stop button before restarting the vehicle, otherwise it cannot be started.

WARNING

Before press the button, be sure to be prepared for the sudden stop of all hydraulic actions.

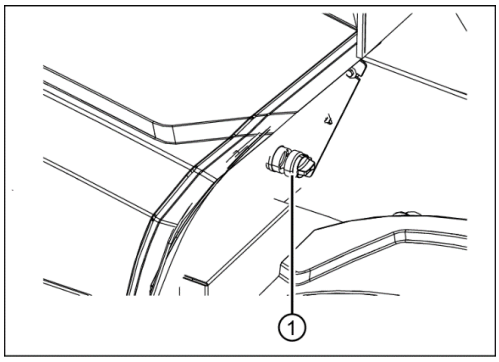
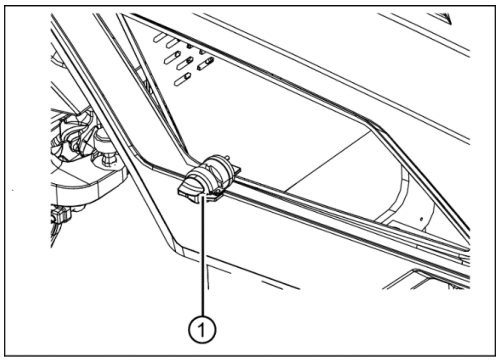
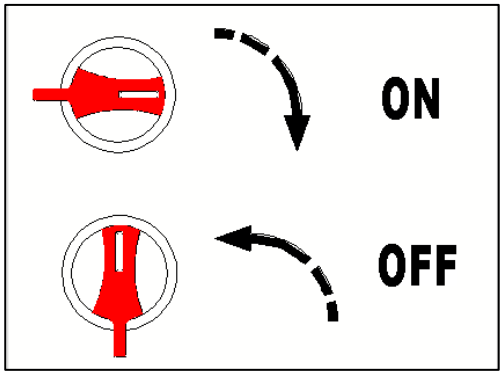


Fig.3.3.5 DC power switch



DC power switch (HR2150)



3.3.5 DC Power Switch

The power master switch is located on the front side of the hood.

Horizontal position means connected. Vertical position indicates disconnected.

DANGER

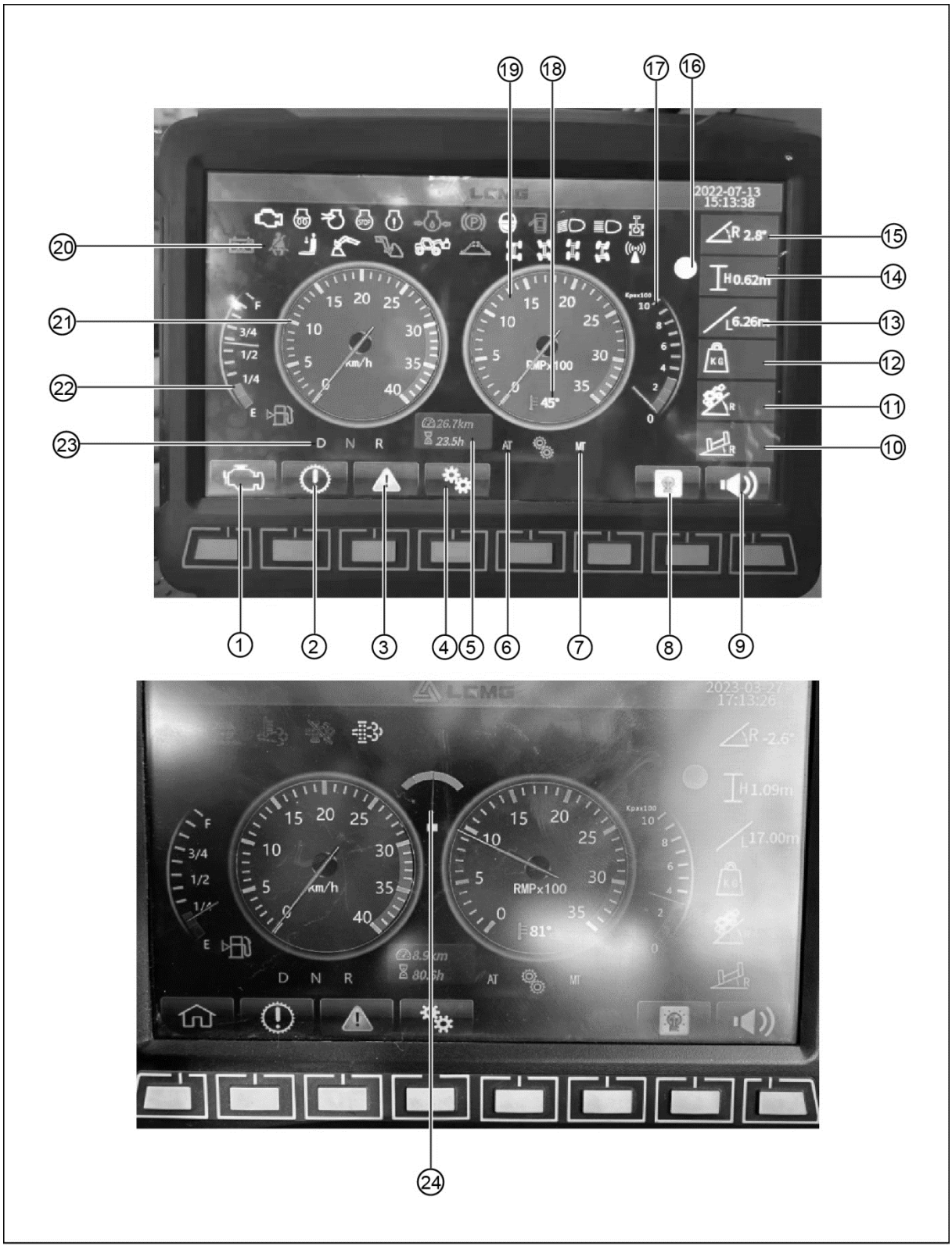
The power switch shall be disconnected during circuit inspection or welding.

CAUTION

When the machine is deactivated for a long time, please turn off the power master switch to avoid accidents. Don't turn off the power master switch until the engine stops working and the key switch is placed in P position.

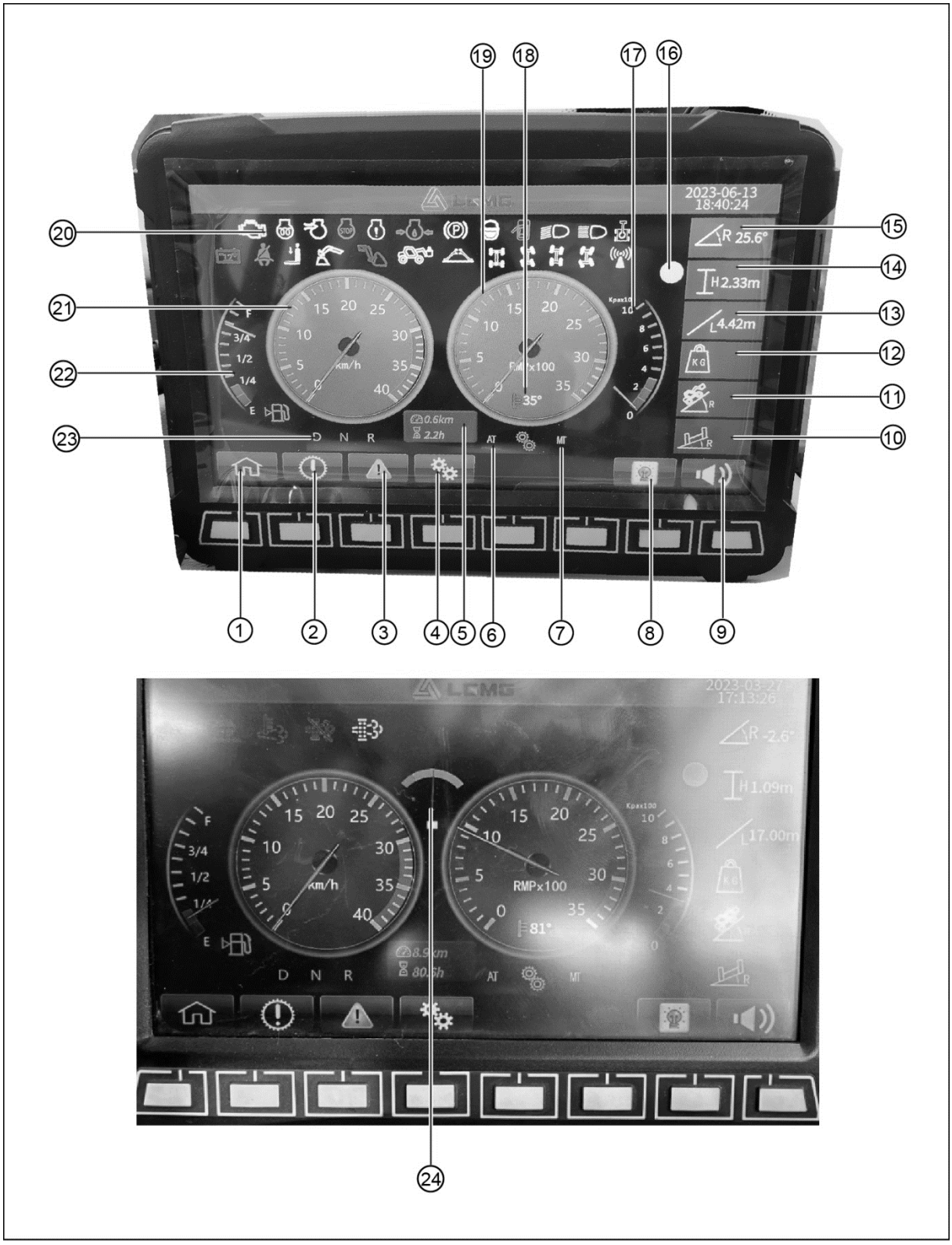
3.3.6 Instrument panel

Type 1



NO.	Name	NO.	Name
1	Engine system	13	Boom extension length
2	Vehicle information query	14	Boom height
3	Fault alarm/Historical fault query	15	Boom derricking angle
4	Complete machine settings	16	Enable button Indicator
5	Usage time and total mileage	17	Brake system pressure
6	Automatic gear display	18	Cooling system temperature
7	Manual gear display	19	Engine speed
8	Screen brightness adjustment	20	Alarm symbol
9	Voice/mute	21	Driving speed
10	Left and right inclination angle of vehicle	22	Fuel level
11	Front and rear inclination angle of vehicle	23	Gear display
12	Accessory weight	24	DEF liquid level (if equipped)

Type 2


19
18
17
16
20
15
21
14
13
22
12
11
23
10
1
2
3
4
5
6
7
8
9
24
2023-06-13
18:40:24
R 25.6°
H 2.33m
L 4.42m
km/h
RMPx100
35°
0.6km
2.2h
D N R
AT
MT
2023-03-27
17:13:26
R -2.6°
H 1.09m
L 17.00m
81°

No.	Name	No.	Name
1	Return to Main Interface	13	Boom extension length
2	Vehicle information query	14	Boom height
3	Fault alarm/Historical fault query	15	Boom derricking angle
4	Complete machine settings	16	Enable button Indicator
5	Usage time and total mileage	17	Brake system pressure
6	Automatic gear display (if equipped)	18	Cooling system temperature
7	Manual gear display (if equipped)	19	Engine speed
8	Screen brightness adjustment	20	Alarm symbol
9	Voice/mute	21	Driving speed
10	Left and right inclination angle of vehicle	22	Fuel level
11	Front and rear inclination angle of vehicle	23	Gear display
12	Accessory weight	24	DEF liquid level (if equipped)

1. Back to main interface button

Press the back to main interface button to return to the main interface:

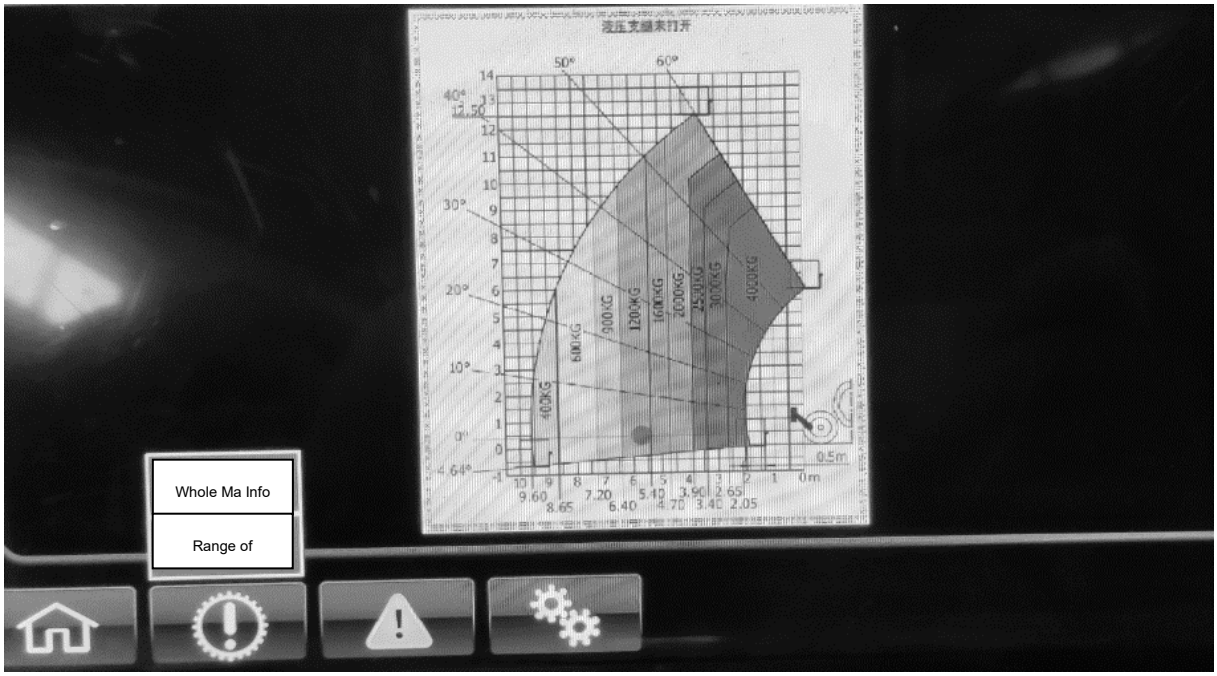
Engine system button

Press the engine system button to display engine information.

2. Machine information query button

Press the machine information query button to display complete machine information / amplitude curve.

Amplitude curve (when the hydraulic outrigger is not open):



When using the machine, please operate within the range allowed by the amplitude curve.

Tip-over danger

The rated load shown on the amplitude curve is based on the fact that the machine is on a fixed level ground and the goods on the fork are evenly arranged; Tire pressure is normal and the vehicle is in good working condition.

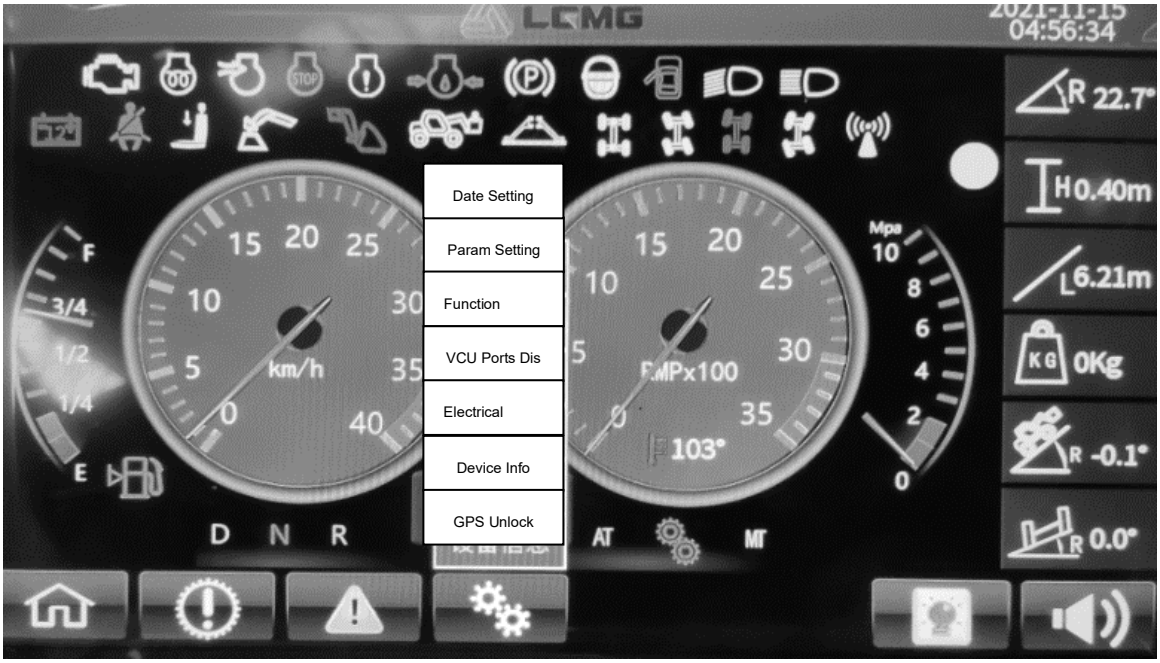
3. Fault alarm/historical fault query button

Press fault alarm/historical fault query button to display fault alarm/historical faults.

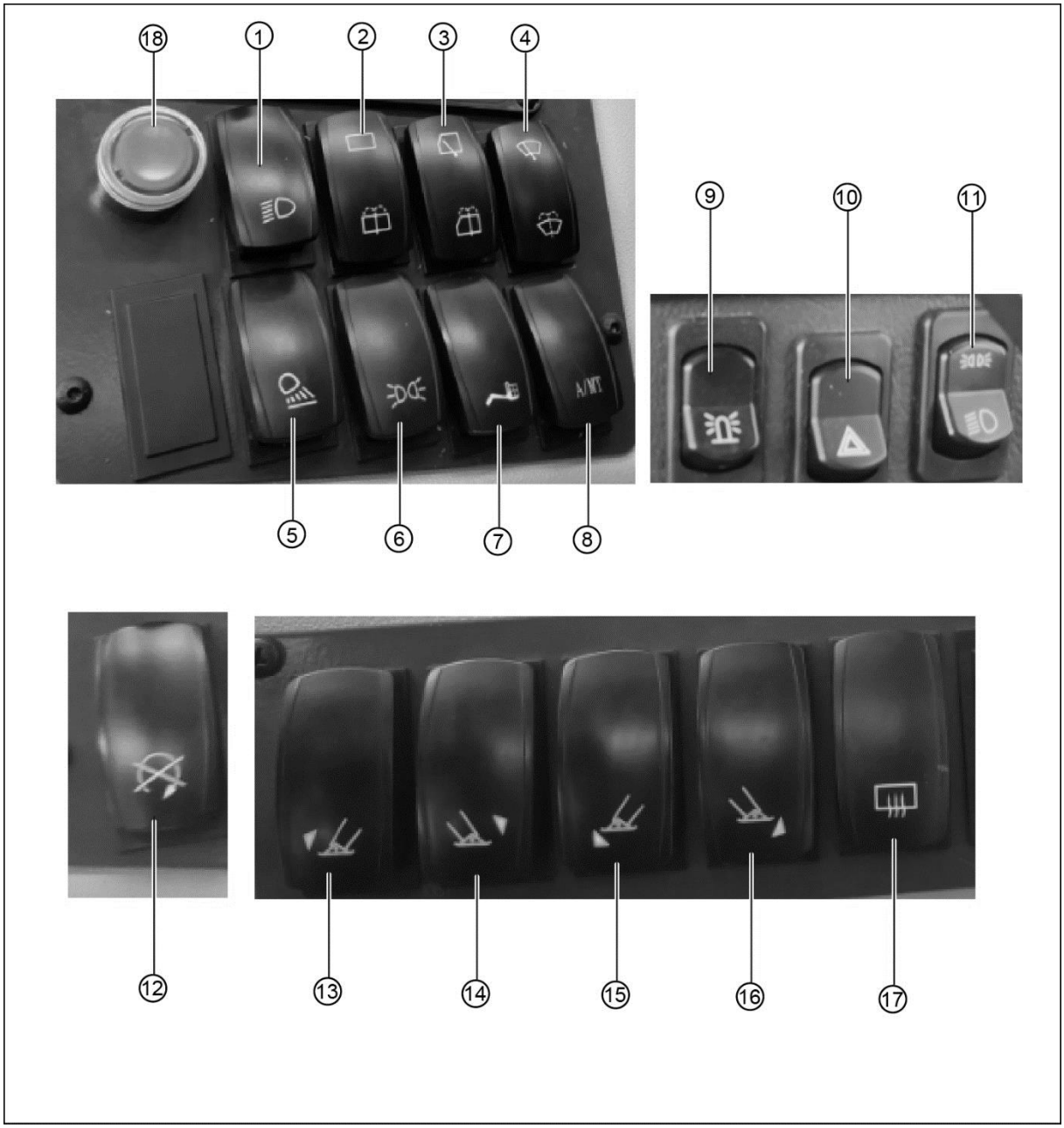
Current fault display:

4. Machine setting button

Press the machine setting button to set other options such as date modification, parameter setting, function query, and port query.



3.3.7 Rocker switch and symbol



No.	Name	Status	Function	Remarks
1	Front working lamp switch	0	Front working lamp function disabled	
		1	Front working lamp function enabled	Front working lamp on
2	Rear window wiper spray switch	2	Rear window wiper function on	
		0	Function disabled	
		1	Rear window spray function on	Automatic reset
3	Side window wiper spray switch	2	Side window wiper function on	
		0	Function disabled	
		1	Side window spray function on	Automatic reset
4	Top window wiper spray switch (if equipped)	2	Top window wiper function on	
		0	Function disabled	
		1	Top window spray function enabled	Automatic reset
5	Rear working lamp switch	0	Rear working lamp function disabled	
		1	Rear working lamp function enabled	Rear working lamp on
6	Rocker switch of outline lamp	0	Function disabled	
		1	Function enabled	
7	Rocker switch of platform switching (if equipped)	0	Function disabled	
		1	Function enabled	
8	Manual/Auto rocker switch (if equipped)	1	Automatic gear engaged	
		2	Manual gear engaged	
9	Warning dome light switch	0	Function disabled	
		1	Function enabled	
10	Warning light switch	0	Function disabled	
		1	Function enabled	
11	Lamp switch	1	Outline light on	
		0	Function disabled	
		2	Lamp switch	
12	Slewing prohibition switch (If equipped)	0	Function disabled	
		1	Function enabled	The slewing function is prohibited
13	Left front outrigger switch (If equipped)	0	Function disabled	
		1	Function enabled	Left front outrigger function enabled
14	Right front outrigger switch (If equipped)	0	Function disabled	
		1	Function enabled	Right front outrigger function enabled
15	Left rear outrigger switch (If equipped)	0	Function disabled	
		1	Function enabled	The left rear outrigger function is enabled.
16	Right rear outrigger switch (If equipped)	0	Function disabled	
		1	Function enabled	The right rear outrigger function is enabled.
17	Front window glass heating (If equipped)	0	Function disabled	
		1	Function enabled	
18	Models equipped with EU stage V engines: DPF regeneration inhibit button Other modes: Not used		Press the DPF regeneration disable button and the corresponding light will light up. DPF regeneration will be reset after the machine is shut down, and to disable it, please press the button again.	

Symbol and description

Symbol diagram	Description	Description
	Left turn light	When left steering or hazard warning switch is activated, it is always on or flashing
	Engine fault lamp	Light up red when Engine Fault alarm
	Engine preheating	Engine light up yellow when preheating
	Air cleaner blockage alarm lamp	When the A/C filter element is blocked, the indicator lights up red and the main filter element needs to be cleaned or replaced. (Refer to maintenance manual for replacement instructions)
	Engine stopped	Indicate when engine stops
	Engine fault indication	illuminate when the engine reports a fault
	Oil pressure alarm	Engine oil pressure failure
	Parking indication	Lights up when the parking brake is engaged, Release the foot brake after the parking indicator P illuminates red.
	Door open indication	The indicator lights up when the door is not fully closed
	Low beam	Low beam on indication
	High beam	High beam on indication
	Right turn light	When right steering or hazard warning switch is activated, it is always on or flashing
	Seat belt indication	When the seat belt is not tied, the indicator lights up
	Passenger departure indication	Determine if there are occupants on the cab seat After the alarm is given, the vehicle cannot move. The enable button needs be pressed before it resumes.
	Hook mode	The indicator will be on if the hook mode is enabled.
	Cage mode	The indicator will be on if the cage mode is enabled.
	Fork mode	When the fork mode is enabled, the indicator lights up
	Outrigger touchdown	Indication of outrigger touchdown

Symbol diagram	Description	Description
	Front and rear axle centering	Indication of front and rear axle centering
	4WS	Indication of 4WS mode enabled
	Crab	Crab mode enable indication
	2WS	2WS mode enable indication
	Battery power loss indication	It lights up when the battery voltage is lower than 9 V
	Wireless handle connection indicator light	This indicator light goes on when the wireless handle is connected
	Water-in-fuel indicator light	This indicator light goes on when the water content in the fuel filter is high, indicating that water draining is required
	Low DEF level indicator light (If equipped)	This indicator light goes on when the DEF level is low, indicating that the DEF of specified quality needs to be added immediately
	Emission fault indicator light (If equipped)	
	Engine Emissions System Temperature	Indicates that the Exhaust System may be hot as a DPF Regeneration is Active.
	Engine Emission Filter Active Regeneration Disabled	Indicates that the Aftertreatment Regen has been Inhibited due to the Inhibit Switch
	Engine Emission Filter Active Regeneration Required	Indicates that Active Regeneration of the DPF is required. For details on DPF active regeneration, refer to section “Active Regeneration”
	Turntable alignment indicator light (If equipped)	This indicator light goes on when the turntable is align

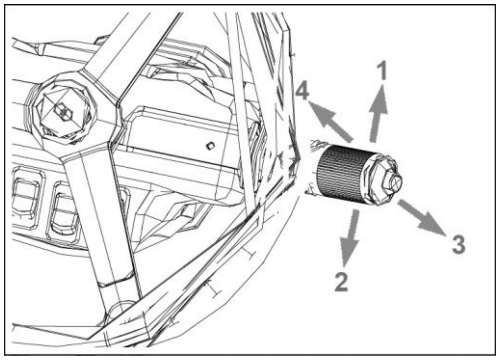


Fig.3.3.8 Combination switch knob

3.3.8 Combination switch

3.3.8.1 Turn signal lamp

Pull the combination switch forward (1) to turn on the left turn light; Pull the combination switch backward (2) to turn on the right turn light.

3.3.8.2 Headlamps

Press the rocker switch of the lamp switch, the middle on-position of the combination knob is the low beam, move the combination switch knob downward (3) in the middle position to turn on the high beam, move the combination switch knob upward (4) to turn on the instant beam, and release the joystick for the automatic reset of the low beam.

3.3.8.3 Wiper switch

Rotate the combination switch and select the required wiper swing gear.

0-closed position

J-Wiper intermittent gear

I-Wiper slow gear

II-Wiper fast gear

NOTE

Do not add ordinary water or other washing liquid into the washer fluid filler, and must add washer fluid for professional windshield washing.

Fig.3.3.9 Front windshield spray switch

Enable switch（Red）

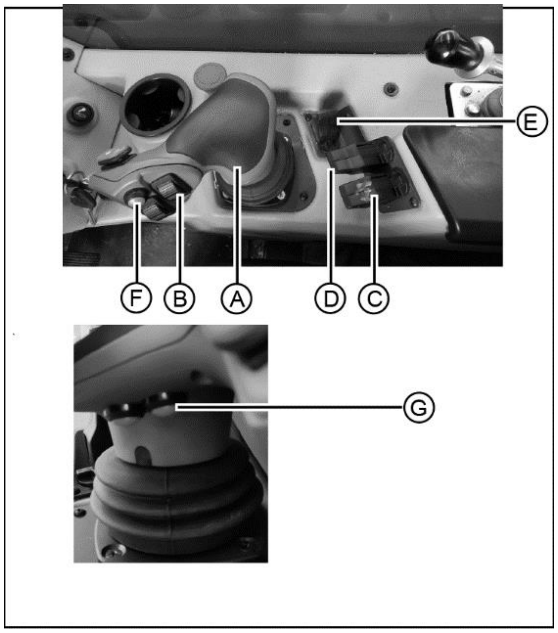
3.3.8.4 Front windshield spray switch

Press the front windshield spray switch located at the end of the combination switch knob, then the front windshield sprays water, and the wiper works for 1-2 turns.

3.3.9 Enable switch

CAUTION

It is necessary to press the enable switch (F) for 1 second before boom luffing, boom extension and retraction, fork leveling, left and right outrigger, and frame adjustment. There will be a warning tone, and the white indicator on the control panel will turn green. If there is no action within 20s, you need to press the enable key again.



Hydraulic joystick (take H1840 as an example)

A. Boom lifting and fork tilting controllers

B. Boom extension and retraction control pulley

C. Left outrigger controller (H1440/H1840/H1840-Ⅱ)

C. Outrigger horizontal telescopic controller (HR2150)

D. Right outrigger controller (H1440/H1840/H1840-Ⅱ)

D. Outrigger vertical telescopic controller (HR2150)

E. Vehicle tilt correction controller (If equipped)

F. Enable switch

G. Fork leveling enable switch

3.3.10 Hydraulic joystick

3.3.10.1 Boom lifting (luffing)

Press the Enable switch “F” and the White indicator will turn green.

1) Move the controller “A” backward and the boom will rise.
2) Move the controller “A” forward and the boom will drop.

CAUTION

When the outrigger is not opened, the maximum derricking angle of the boom is 60 degrees. (If equipped with outriggers)

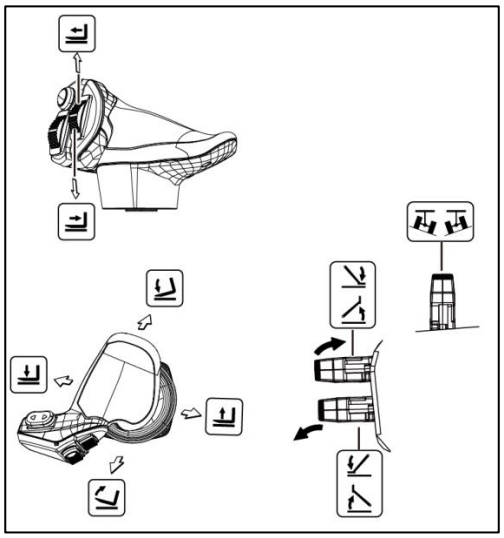


Fig. 3.3.11 Schematic diagram of manipulation

3.3.10.2 Fork leveling

Press the Enable switch “F” and the White indicator will turn green.

1) Press and hold the fork leveling enable switch G, while moving the controller A to the left, the fork is tilted backward.
2) Press and hold the fork leveling enable switch G, while moving the controller A to the right, the fork is tilted forward.

3.3.10.3 Boom extension and retraction

Press the Enable switch “F” and the White indicator will turn green.

1) Roll up pulley B, then the boom will extend.
2) Roll down pulley B, then the boom retracts.

3.3.10.4 Outrigger operation

Press the Enable switch “F” and the White indicator will turn green.

H1440/H1840//H1840-Ⅱ:

1) Outrigger extending: move the controller CD down.
2) Outrigger retraction: move the controller CD up.

HR2150:

When operating on one or more outriggers, press the rocker switch to enable corresponding outrigger function.

1) Outrigger horizontal extension: move controller C downwards.
2) Outrigger horizontal retraction: move controller C upwards.
3) Outrigger vertical extension: move controller D downwards.
4) Outrigger vertical retraction: move controller D upwards.

CAUTION

When the boom is extended, the outrigger can be extended, but cannot be retracted; When the boom is retracted, the outrigger can be retracted after the derricking angle is less than 60°(H1440/H1840/H1840-Ⅱ); 55°(HR2150, the turret rotation is less than 15°).

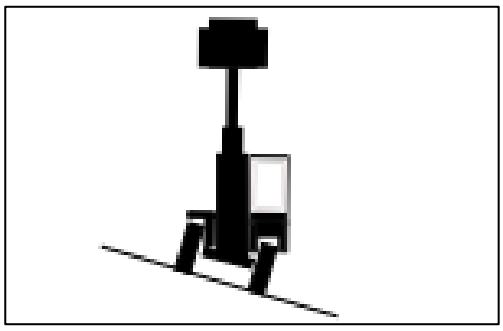


Fig.3.3.12 Tilt correction

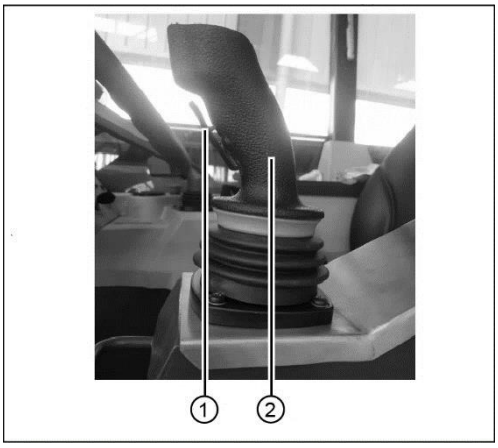


Fig.3.3.13 Turret Rotation Joystick (HR2150 only)

1. Enable switch

2. Turret rotation Joystick; Located on the left side of the seat

3.3.10.5 Tilt correction of vehicle (If equipped)

Press the Enable switch “F” and the White indicator will turn green.

1) Move the joystick E to the left to tilt the telescopic handler to the left.
2) Move the joystick E to the right to tilt the telescopic handler to the right.

CAUTION

Tilt correction can only be carried out when the derricking angle of the boom is less than 30 °(H1440/H1840/H1840-Ⅱ); 22° (HR2150).

3.3.10.6 Turret rotation (If equipped)

Press the enable switch, move the joystick control handle to the left, and the turret rotates to the left; Press the enable switch, move the joystick to the right, and turn the turret to the right.

When the Turret drives the vehicle in the slewing state, always pay attention to the forward direction of the vehicle.

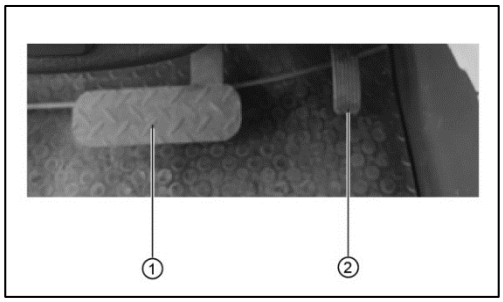


Fig.3.3.14
1. Brake pedal 2. Accelerator pedal

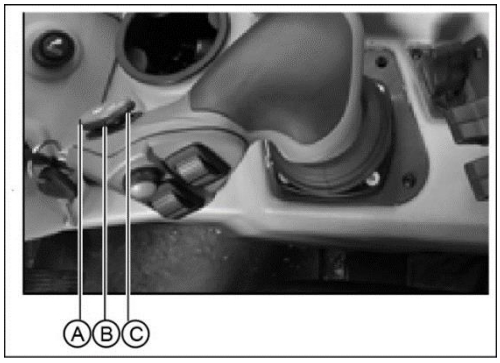


Fig.3.3.15 D Gear/N Gear/R Gear
(take H1840 as an example)

3.3.11 Accelerator pedal

Accelerator pedal control Engine speed.

3.3.12 Service brake pedal

The Service brake pedal acts on the front and rear wheels by boosting the hydraulic Brake system to slow and stop the Telescopic handler.

3.3.13 D-gear/N gear/R gear

1) D gear: press the front of the switch (position A).
2) N gear: middle position (position B).
3) R gear: press the rear of the switch (position C), and the reversing lamp and reversing alarm sound to indicate that the vehicle is reversing.

CAUTION

When gear from D gear to R gear or from R gear to D gear, switch gears to N gear and pause briefly. During gear switching, the vehicle shall be kept stationary and the brake pedal to the bottom.

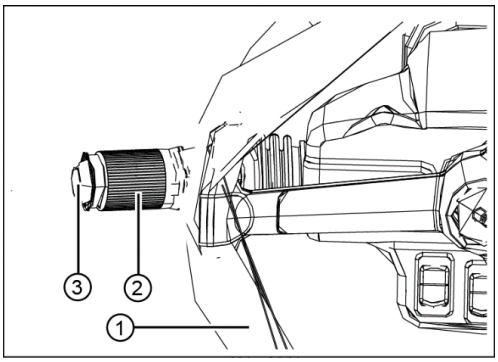


Fig.3.3.16 gear switch

1. Steering wheel 2. Gear switch 3. Horn

3.3.14 Variable speed gear switch

CAUTION

The gear shall be carefully selected according to the nature of the work performed. Improper selection will cause the transmission fluid temperature to rise rapidly, which may lead to serious damage to the transmission.

If the telescopic handler fitted with four gears

In general, we recommend that you use the following gears according to the nature of your work.

- On the road: Start at 3rd gear, if the road conditions and status permit, then rise to 4th gear. In hilly areas, if conditions and road conditions permit, you can start in 2nd gear and then in 3rd gear.
- When the trailer is on the road: start in 2nd gear and shift to 3rd gear if road conditions and conditions permit.
- Carrying earth: 1st gear.
- Loading fertilizer, etc.: 2nd gear.

CAUTION

When increasing or decreasing gears, reduce gears step by step and increase gears step by step.

If the telescopic handler equipped with two gears

- When driving on the road for a long distance without load, select 2nd gear.
- When going uphill, select 1st gear.
- When shifting gears, place the right joystick on N gear, step on the brake pedal, and switch from the first gear to the second.

H1440/H1840/ H1840-Ⅱ/HR2150:

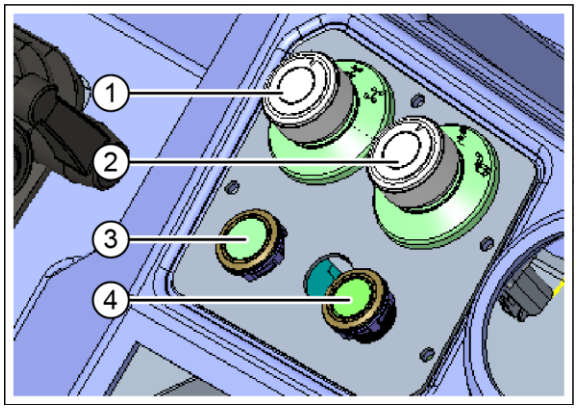


Fig.3.3.17 selector switch

1 Steering mode selector switch

2 Driving mode selector switch

3 Override button (If equipped)

4 Electronic parking brake (If equipped)

H625/H735/HA735/H933:

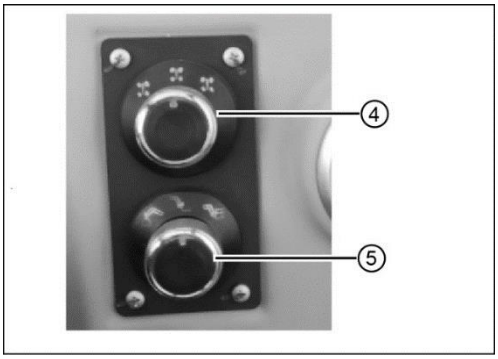


Fig.3.3.17-1 selector switch

4. Steering mode selector switch

5. Driving mode selector switch

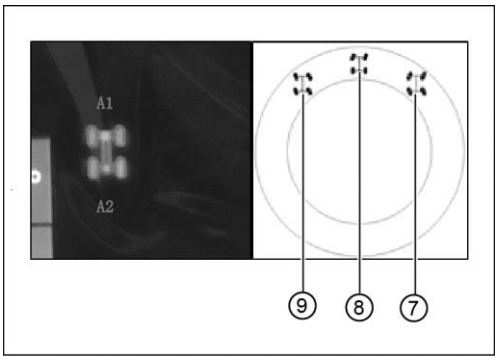


Fig.3.3.18 Steering Mode Selector Switch

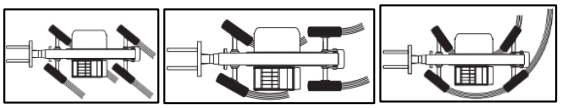


Fig.3.3.18-1 Steering Diagram

3.3.15 Steering mode

1. Steering positioning indicator

As shown in Fig.3.3.18:

These lights come on to indicate the location of the wheel relative to the body. Lamp A1 is used for the front wheel and lamp A2 is used for the rear wheel.

2. Positioning control of the wheel

As shown in Fig.3.3.17:

Turn steering mode selector switch 4 to position 7 (4WS). Turn the antifreeze and align the rear wheels until light A2 comes on. Turn steering mode selector switch 4 to position 8 (2WS). Turn the antifreeze and align the front wheels until light A1 comes on.

3. Steering shift switch

As shown in Fig.3.3.18:

7: Front/rear drive wheel steering direction is opposite (4WS).

8: 2WS.

9: Front/rear drive wheel steering direction is the same (Crab).

This is an option which can be specified on some machines to improve the traction in difficult conditions. Thi is achieved by transferring a high proportion of the available driving torque from the spinning wheel to the gripping wheel. The LSD (Limited Slip

Differential) operates automatically and should not be confused with differential locks.

Wheel slip is an indication that the limited slip limit has been reached. On high traction surfaces (concrete etc.) noise and judder may be experienced when the LSD is operating, particularly on full steering lock. The level of noise depends on the weight of the machine, the ground conditions and steering angles. Noise in the LSD is not an indication of axle damage.

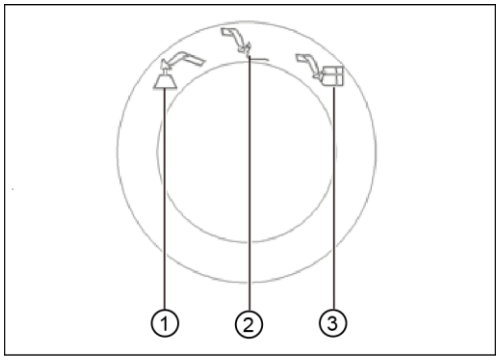


Fig.3.3.18-2 Driving Mode Selector Switch

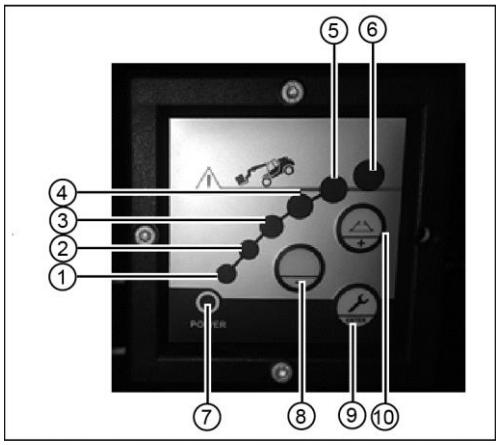


Fig.3.3.19 Longitudinal Stability Limit and Alarm

1. Green indicator light is on, with no sound
2. Green indicator light is on, with no sound
3. The yellow indicator light is on, the alarm makes intermittent sound, and the vehicle is nearly overloaded
4. The yellow indicator light is on, the alarm makes intermittent sound, and the vehicle is nearly overloaded
5. The red indicator light is on, and the alarm makes a continuous sound Vehicle overloaded
6. The red indicator light is on, and the alarm makes a continuous sound Vehicle overloaded
7. Power indicator
8. Backspace key
9. OK button
10. Multiply key/Indicator of outrigger in proper position

3.3.16 Driving mode

1. Hook mode: can be used with crane.
2. Handling mode: applicable to fork and adjustable accessory and bucket on fork.
3. Platform mode: reserved.

3.3.17 Longitudinal stability limit and alarm

The machine is equipped with a longitudinal torque monitoring device to measure the longitudinal stability of the vehicle. The reduction calibration of the monitoring device is carried out in the rear wheel alignment when the machine is stationary on the horizontal ground.

WARNING

Longitudinal stability limit and alarm are directly related to the stability of the machine. It is not allowed to modify or calibrate without permission. If you need to modify or calibrate, please contact our service personnel.

Type 1-H735/HA735/H933/H1440/H1840/ H1840-Ⅱ/HR2150:

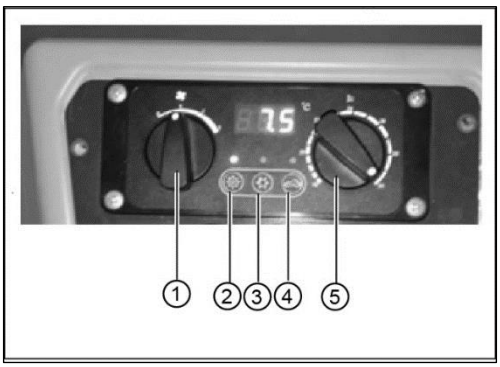


Fig.3.3.43 Air conditioning panel

Type 2-H625:

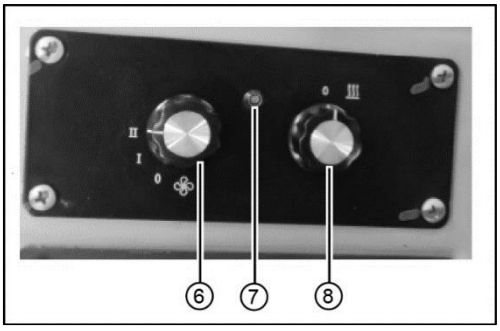


Fig.3.3.43-1 Air conditioning panel

3.3.18 Air Conditioner

Type 1

1. Air volume knob: rotating to the right will increase the air volume.
2. Heating switch: press the button and the indicator will light up, indicating that the heating mode is on .
3. Cold air switch: press the button and the indicator will light up, indicating that the cold air mode is on.
4. External circulation: press the button and the indicator lights up, indicating that the external circulation is on
5. Temperature adjustment knob: increase the temperature by rotating the knob to the right.

DTC	Description
ER1	Overvoltage (voltage> 32 V): check the generator supply circuit
ER2	Undervoltage (voltage <18 V): check the generator supply circuit
ER3	System pressure fault: check the pressure switch circuit and system pressure
ER4	Defrost sensor open or short circuit
ER5	Return air temperature sensor open circuit or Short circuit

Type 2

1. Air supply knob: Turn the knob to the “0” position to cut off air supply; turn the knob clockwise to increase the air supply.

2. Heating lamp.
3. Heating knob: Turn the knob to the “0” position to stop heating; turn the knob to the  position and the heating lamp will come on, indicating that the heating mode has been activated.

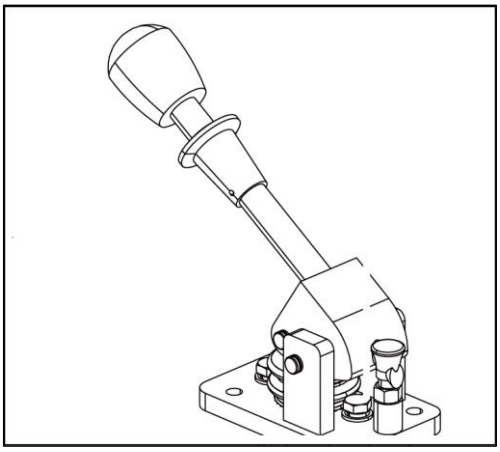


Fig.3.3.44 Parking brake handle

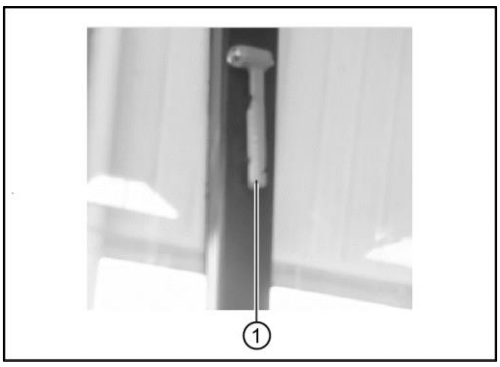
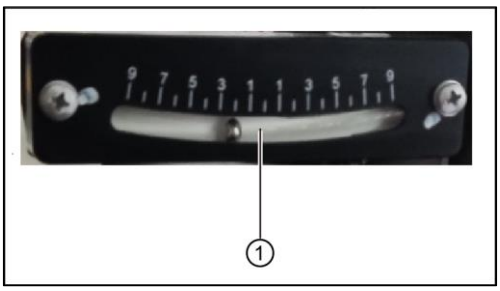


Fig.3.3.45 Emergency hammer



3.3.46 Inclinometer

3.3.19 Parking brake handle

The Parking brake handle (If equipped) is on the right side or left side of the seat. Pull up the parking handle to braking state, lower the handle and release the brake.

WARNING

Do not start the vehicle until the parking brake signal lamp goes out!

3.3.20 Emergency Hammer

It is located on the right side window of the cab and used in case of emergency.

In an emergency, use the escape hammer to tap the four corners of the front window, side window or rear window glass to break the glass and escape.

3.3.21 Inclinometer

As shown in Figure 3.3.46

1. Angle indicator plate

2. Rolling steel balls

Located above the longitudinal stability limit and alarm device, the measurement angle is ± 9 °; the display value of the angle indicator panel is the horizontal inclination angle of the cab, and it can assist with forklift operation according to the angle measured by the angle indicator panel.

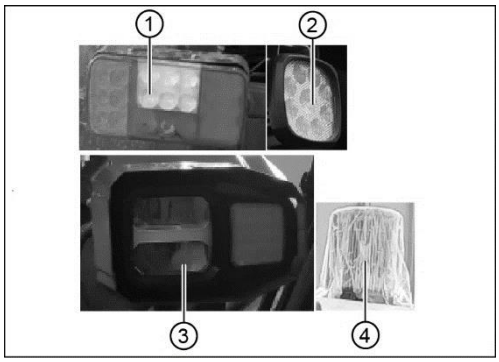


Fig.3.3.1 Working lamp

1. Rear combination lamp
2. Cab front/rear working lamp
3. Front combination lamp
4. Warning lamp

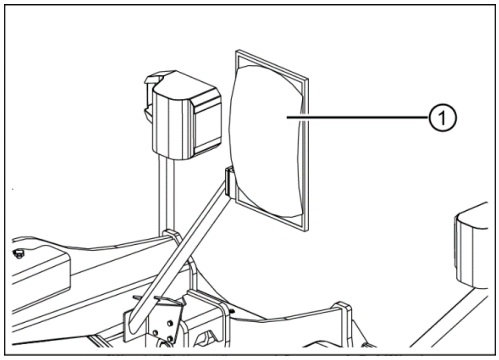


Fig.3.3.3 Rearview mirror

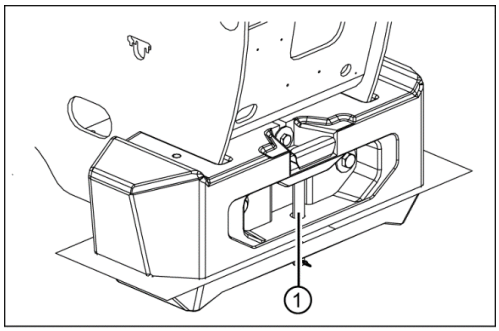


Fig.3.3.3 Towing pin and hook

3.4 Cab exterior device

3.4.1 Working lamp

1. Rear combination lamp (including position lamp, brake lamp, reversing lamp, turn signals).
2. Cab front/rear working lamp.
3. Front combination lamp (including turn signals, low beams, high beams, wide lamp).
4. Warning lamp.

3.4.2 Rearview mirror

One on the left and one on the right

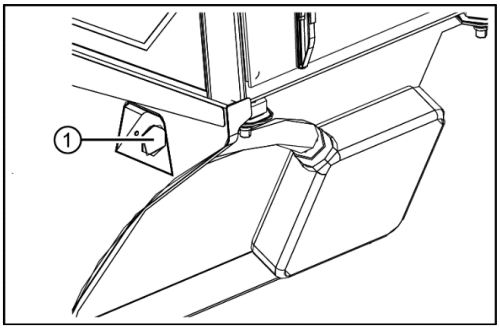
Before driving, adjust the rearview mirror to the appropriate angle.

3.4.3 Towing pin and hook

The device is located at the rear of the telescopic handler and is used to connect the trailer and the fixed points when the vehicle is transported.

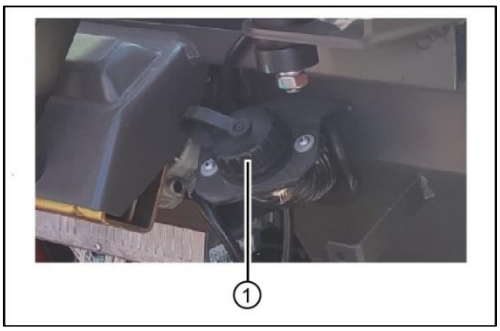
Check the condition of the trailer (tire condition and pressure, electrical connection, Hydraulic hose, Brake system, etc.) before using the trailer.

H625 Washer fluid filler:

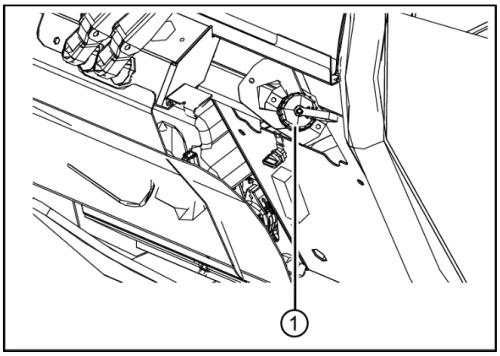


HA735 Washer fluid filler

H735/H933 Washer fluid filler:



H1440/H1840/ H1840-Ⅱ/HR2150 Washer fluid filler:



3.4.4 Washer fluid filler

Open the washer fluid filler cap and fill the glass water, and the washer fluid level cannot be less than 1/4.

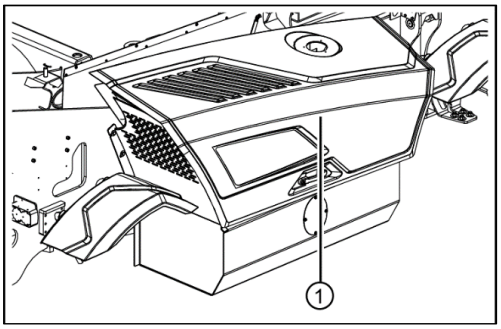


Fig.3.4.5 Hood assy

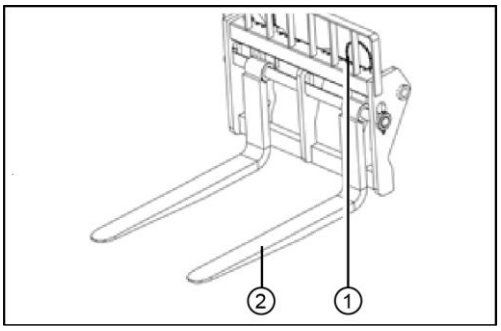


Fig.3.4.6 Fork assembly

1. Limit bar 2. Fork

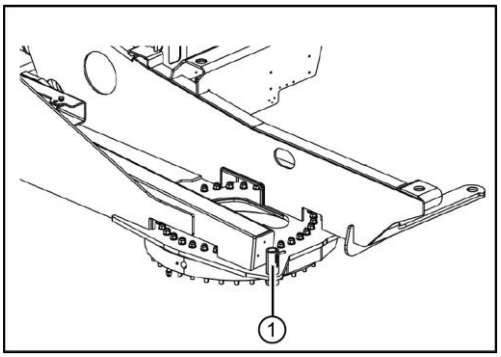


Fig.3.4.7 Turret rotation lock pin

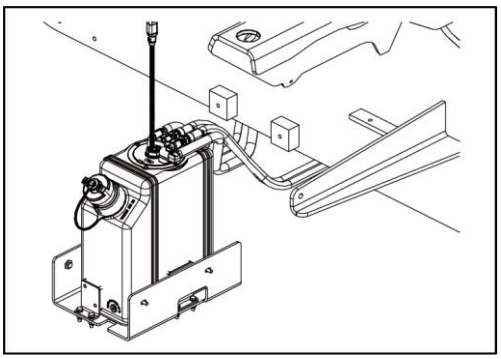


Figure 3.4.8 DEF tank

3.4.5 Hood assy

Do not step on it!

Please open the cover when repairing or maintaining the engine system and transmission system.

3.4.6 Fork assy

Adjust the fork spacing to an appropriate distance when using.

DANGER

No people shall be allowed on the fork!

3.4.7 Turret rotation lock pin (If equipped)

Make sure that the turret is fixed with a turret rotation lock before transportation.

Make sure to unlock the turret during operation.

3.4.8 DEF tank (If equipped)

Please ensure that the DEF is not contaminated and at an appropriate level.

WARNING

When the DEF level is low, an alarm will be given, and in worse cases, the engine will be power limited or even be forced to stop.

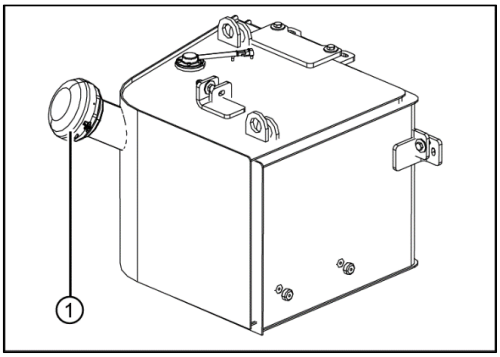


Figure 3.4.9 Fuel tank (take H1840 as an example)

1. Fuel tank filler port

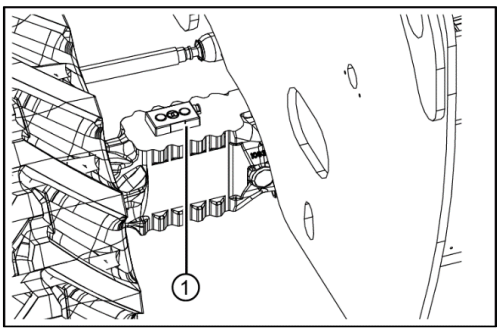


Figure 3.4.10 Force limiter

3.4.9 Fuel tank

Fill the fuel tank as full as possible to minimize the effects of diesel fuel condensation due to cold weather.

WARNING

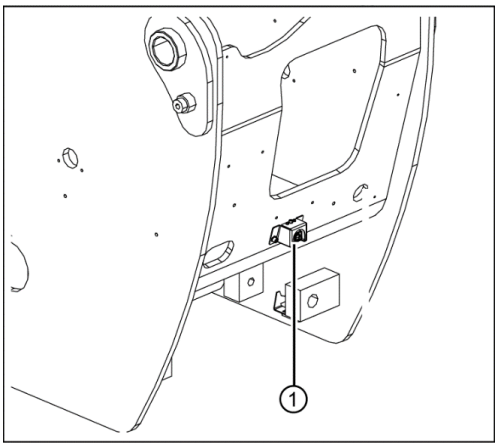
Do not fill the fuel while the engine is running and do not allow the fuel system to work near open flames, sparks or high-temperature areas. Engine fuel is flammable and can lead to fire disaster and explosion.

1. Check the fuel level through the instrument panel.
2. If necessary, fill fuel through the filler port.
3. Visually check the fuel tank and fuel line for leaks.

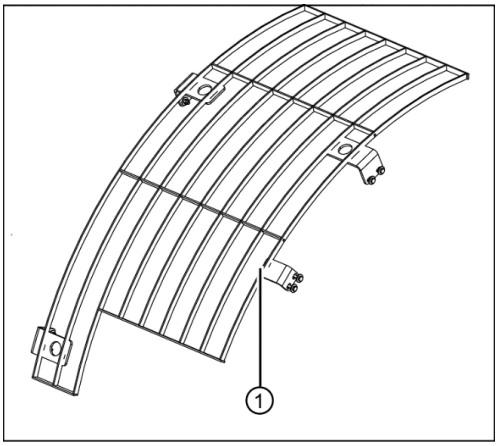
3.4.10 Longitudinal stability limit and alarm

WARNING

Longitudinal stability limit and alarm are directly related to the stability of the machine. It is not allowed to modify or calibrate without permission. If you need to modify or calibrate, please contact our service personnel.



3.4.11 Rear view camera



3.4.12 Front protection for cab

3.4.11 Rear View Camera (If equipped)

Turn on the DC battery switch, turn the key switch to the Ⅰ position, and shift the gear to Reverse. And then the view from the rear view camera will be full screened on the display.

3.4.12 Cab Front Protection (If equipped)

The cab front protection can effectively reduce the risk of damages to cab front caused by falling objects.

If the front protection deforms due to the collision by falling objects, its reduced strength will not allow it to continue providing effective protection. Consult LGMG for repair or replacement. Do not repair on your own without our permission.

3.4.13 Wireless joystick-HR2150 only

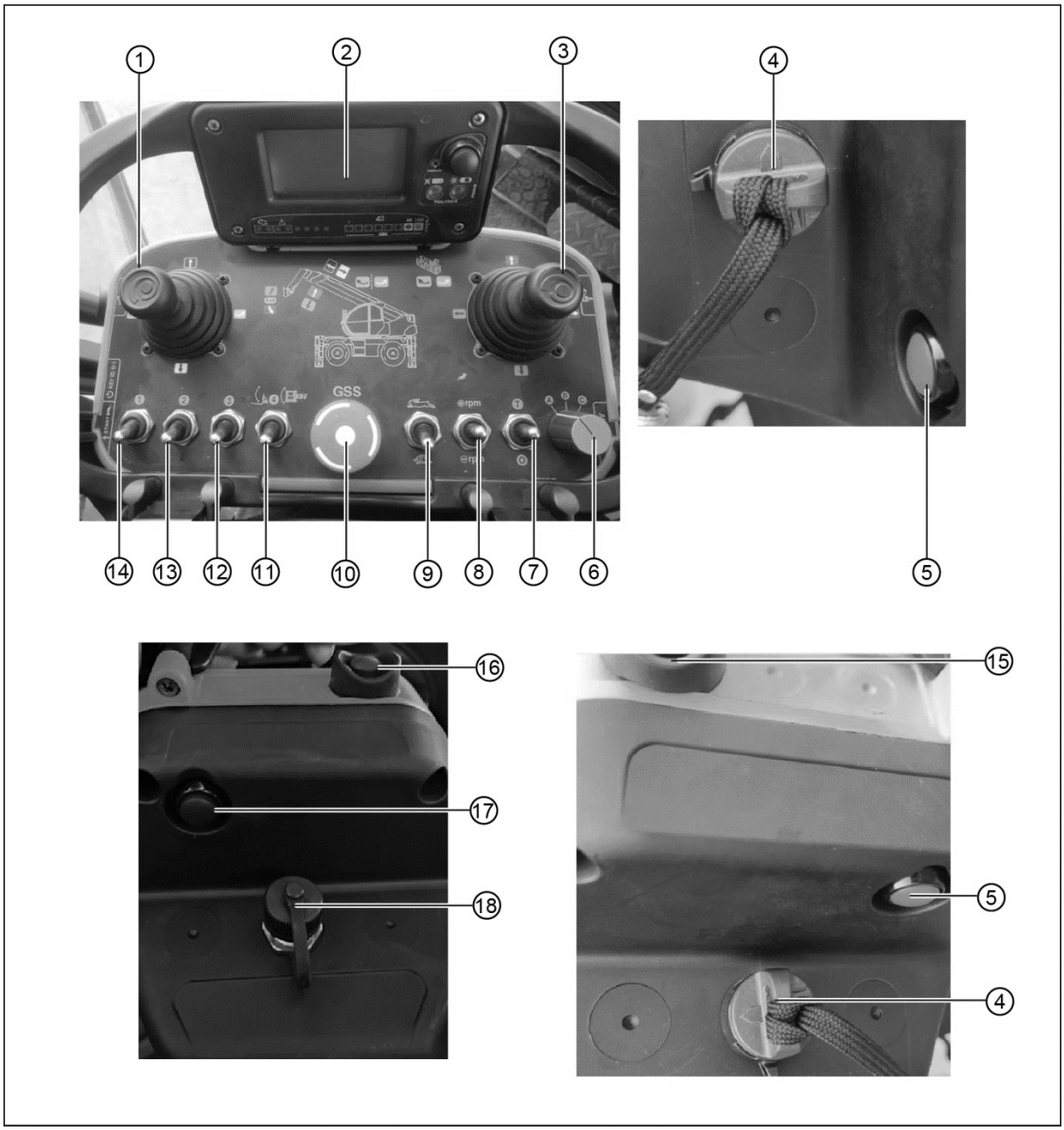


Figure 3.4.13 Wireless joystick

No.	Name	Function description
1	The boom extension/retraction and turret rotation control handle	Turn on and connect the wireless controller, toggle the enable button upward and then move the joystick upward, the boom will extend; Move the Joystick down, and the boom will retract. Move the joystick to the left, and the turret rotates to the left; Move the joystick to the right, and the turret rotates to the right;
2	Display screen	Display the machine status information (alarm code; Engine speed; Controller power, etc.)
3	The boom lifting/lowering and aids leveling control handle	Open and connect the wireless controller, toggle the enable button upward and then move the joystick upward, the boom will rise; Move the joystick downward, and the boom will drop. Toggle the leveling enable button upward and then move the joystick to the left, and the aids level will rise; Move the joystick to the right, and the aids level will lower.
4	Power switch	Controller power switch, it is open vertically and closed horizontally.
5	Connection button	Long press the button for about 3 seconds to connect the controller to the whole machine
6	Reserved	
7	Reserved	
8	Manually adjust the engine speed toggle switch	Continuously lift the toggle switch to increase the engine speed; When the speed increases, the increase of engine sound can be obviously detected. Continue to move the toggle switch downward to reduce the engine speed
9	Reserved	
10	GSS button	
11	Leveling enable switch	
12	Enable toggle switch	When using the joystick function, you need to toggle the enable toggle switch
13	Reserved	
14	Reserved	
15	Engine start-up switch	Turn on and connect the wireless controller, press this button to start the engine.
16	Reserved	
17	Horn	
18	Harness interface	

Turn on and connect the wireless controller

Press the wireless connection rocker switch located in the cab. As shown in the below figure:

The rotating controller power switch (4) is in the vertical position, and the controller power is turned on. Screw out the GSS button (10) and press the connection button (5) for about three seconds to connect the controller.

After use, restore the controller and cab rocker switch to the original state, and charge the battery if necessary.

.

Chapter 4 Operating Instructions

4.1 Precautions

1) Perform routine maintenance.
2) Ensure that the lights, indicator and windshield wipers are working properly.
3) Ensure that the rearview mirror is in good condition, clean and adjusted correctly.
4) Make sure the horn works properly.
5) When entering and leaving the driver's seat, always face the vehicle and keep 3 contact points (hands and feet) on the steps and armrests.
6) Do not use headphones to listen to radio or music during operation.
7) Do not operate the machine when oil is stuck on your hands or feet.
8) Under no circumstances can the seat be adjusted while the vehicle is moving.
9) It is forbidden to extend an arm or leg or any part of the body out of the cab.
10) Seat belt must be worn.
11) It shall be forbidden to carry people on the telescopic handler or in the cab.
12) No person shall be close to the working area of the telescopic handler or pass under the boom load.
13) Before lifting or removing the load, ensure that the ground under the wheels and the outrigger is stable and firm.
14) Never pile up goods on uneven ground, otherwise it may tip over.

4.2 Inspection before operation

4.2.2 Basic principles

1) Inspection and routine maintenance before performing the operation are side window's responsibilities.
2) The pre-operation inspection is a very intuitive inspection process, which is performed by the side window before each job change. The purpose of the inspection is to find out if there is an obvious problem with the machine before the side window is used.
3) Inspection before operation can also be used to determine whether routine maintenance procedures are required. Side window can only perform routine maintenance items specified in this manual.
4) Please refer to the list on the next page and check each item.
5) If damage or any unauthorized change from the factory state is found, mark the machine and stop using it.
6) Only qualified maintenance personnel can repair the machine. After the

maintenance, perform the inspection before operation again.

7) According to the manufacturer's regulations and the requirements listed in the manual, regular maintenance inspections shall be performed by qualified maintenance personnel.

4.2.3 Inspection before operation

1) Ensure that the manual is complete, easy to read, and kept in the file box on the platform. To replace any manual, please contact the service personnel of LGMG.
2) Ensure that all labels are clear, legible and properly located. Please see the "Label" section. To replace the labels, please contact the service personnel of LGMG.
3) Please refer to the "Maintenance" section to check if the hydraulic oil leaks; check if the oil level is appropriate, and add hydraulic oil as needed.
4) Check if the battery fluid leaks and the wiring is firm.
5) Please refer to the 'maintenance' section to check whether the engine oil leaks and whether the oil level is appropriate, and add oil as needed.
6) Check whether the engine fuel leaks and whether the fuel level is appropriate. When the fuel level is low, please add fuel in time.
7) Check the engine indicator, if the indicator is on, immediately make sure the engine is off, and mark the machine. Contact service personnel for troubleshooting.
8) Refer to the "maintenance" section, check whether the engine coolant leaks and whether the lithium-based grease is appropriate, and add coolant as required.
9) Inspect the following parts for damage, improper installation, loose or missing parts and unauthorized alteration:
   - Electrical plugs, wiring and cables
   - Joystick, rocker switch.
   - Inclination sensor, long angle sensor, pressure sensor.
   - Display screen, alarm indicator, flashing light, horn.
   - Valve block, hose, hydraulic connector, cylinder, motor, reducer.
   - Fuel tank and hydraulic oil tank.
   - Boom slider lubrication, tire pressure, slewing bearing.
   - Front axle, rear axle.
   - Outrigger.
   - Engine and its accessories.

- Rearview mirror.
- Fork and other attachments.
- Nuts, bolts and other fasteners.
- Inspect the entire machine to check:
- The welds or structural parts for cracks.
- The machine for dent or damage.
- Serious rust, corrosion or oxidation.
- Ensure the integrity of all structural parts and other key components. All relevant fasteners and pins are in the correct position and tightened.
- After completing the inspection, ensure that the hood is properly positioned and locked.

4.3 Workplace inspection

4.3.1 Basic principles

1) Workplace inspection can help side window judge whether the workplace can ensure the safe operation of the machine. The side window shall first perform this work before moving the machine to the workplace.
2) It is the duty of the side window to understand and remember hazardous matters in the workplace, which can be noted and avoided when moving, installing and operating the machine.

4.3.3 Workplace Inspection

Be careful and avoid the following dangerous situations:

- Steep slope or cave
- Protrusions, ground barriers or debris
- Inclined surface
- Unfirm or smooth surface
- Obstacles in the air and high voltage wires
- Surface support insufficient to withstand all the load forces exerted by the machine
- Instantaneous wind speed
- The temperature and humidity of the operating environment exceeding the temperature and humidity requirements.
- Unauthorized personnel appear
- Other possible unsafe situations

4.4 Startup

4.4.1 Safety precautions

1) Only when the side window is sitting in the cab, adjusting and fastening the seat belt can the fork loading be started or operated the telescopic handler.
2) Do not start telescopic handler by pushing or pulling. This operation may cause serious damage to the

transmission. If necessary, the transmission must be in neutral when the traction fork is loaded in an N gear.

3) If starting with an emergency battery, please use a battery with the same characteristics, first disconnect the power switch, and follow the battery polarity when connecting. Connect the positive terminal first and then the negative terminal.

4) Check the closing and locking of the hood.

5) Check whether the cab door is completely closed.

6) Check if the D gear / N gear / reverse selector is in N gear

4.4.2 Start-up

1) Place the gear selector in the N gear.

2) Turn the key switch, start the electrical system and preheat (automatically preheat).

3) Check whether the symbol of the control panel and longitudinal stability limit and alarm device is normal. If not, troubleshoot the problem before starting the machine.

4) Check whether the fuel level on the indicator is normal, and if it is not normal, add fuel. Set the key switch to P gear when adding fuel.

5) Turn the key switch to gear III, start the engine, and reset the key switch to the driving gear. Run the engine at idle speed for 3 to 5 minutes and run the engine at idle speed in cold weather for at least 5 minutes. The engagement time of the starter motor shall not exceed 15 seconds. If the engine does not start successfully, wait 2 minutes before starting again.

6) If the meter display is incorrect, stop the internal combustion engine and perform the necessary operations immediately.

4.5 Driving

4.5.1 Safety precautions

1) Always follow your national traffic regulations.

2) Do not perform operations beyond the telescopic handler or fork capacity.

3) Retract the boom, and lower the fork to 300mm level from the ground. (Transport location)

4) Only load balanced and properly secured load to avoid the risk of load falling off.

5) When loading, the driving speed of the telescopic handler shall not exceed 12

Km/h.

6) When the vehicle is running, it is forbidden to operate the boom.
7) It is forbidden to change the steering mode when driving.
8) It is forbidden to change the forward/reverse mode when driving.
9) When braking, apply the brake and do not suddenly brake.
10) Never drive on ditch edges or steep slopes.
11) Drive slowly on wet, slippery or uneven terrain.
12) Ensure that the service brake is working properly.

4.5.2 Driving

1) Retract and lower the boom.
2) Select the appropriate gear.
3) Select a suitable steering mode. Before changing the steering mode, set the wheel to the center. For more information about the wheel centering, see 3.4.15 steering mode.
4) Press the horn before driving to remind others that the vehicle is about to start.
5) Press the foot brake pedal.
6) Release the parking brake.
7) Select the forward/reverse mode according to the driving direction. Slowly release the foot brake pedal (Some models of vehicles will gain initial speed), then accelerate slowly, and use the lights and rearview mirror reasonably.

! DANGER:

Starting or parking a vehicle on a slope is very dangerous.

There is an increased risk when telescopic handler are loaded or towed. In this case, please remain highly vigilant.

If the telescopic handler starts on a slope, follow these instructions:

1) Select 1st gear.
2) Depress the foot brake pedal.
3) According to the direction of travel, select the forward/backward mode.
4) Release the foot brake pedal and depress the accelerator pedal.

4.5.3 Braking

! CAUTION:

- **When the vehicle is stopped, the hand brake valve joystick must be pulled down!**
- **Do not start the vehicle until the parking brake symbol goes out!**

- **In some cases, the braking force of the parking brake may not be sufficient to park a fully-loaded vehicle on an uphill/downhill road, so when parking on a hill, the wheel shall be chocked.**

  To stop the vehicle smoothly, follow the following steps:

  1) When the car is running, loosen the accelerator pedal first and reduce the speed.
  2) Gently press the brake pedal to stop the vehicle when it is about to approach the parking place.
  3) After the car is stopped steadily, put the gear selector in neutral position, and then pull down the parking brake handle to make it in braking state.

  When braking, pay attention to the following matters:

  1) When braking, if there is no emergency, avoid stepping on the brake pedal to the end quickly and violently and without loosening it. Excessive braking may cause personal injury or damage to the whole vehicle parts.
  2) When driving, if the low hydraulic pressure alarm symbol of the brake system is on, stop the vehicle immediately to find out the cause and eliminate it.

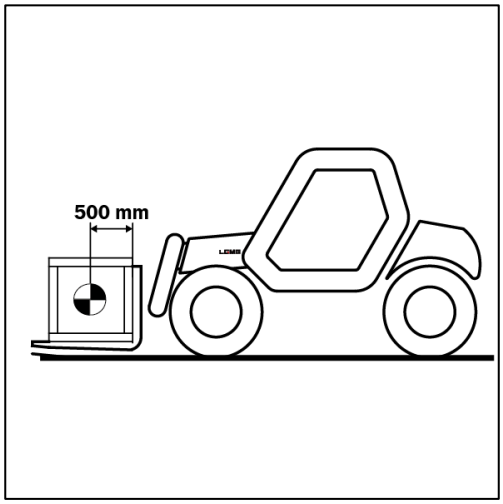
4.6 Parking

1) Park the telescopic handler on level ground and pull up the parking brake.
2) Place the gear selector in the N gear.
3) Fully retract the boom and lower the fork to the ground.
4) Close the light switch.
5) After the machine works for a long time, the engine shall be idled for several minutes to reduce the temperature of the cooling system.
6) Turn off the engine, remove the key and lock the door.

4.7 Loading

4.7.1 Quality and center of gravity of load

1) Before carrying the cargo, you must know its quality and center of gravity.



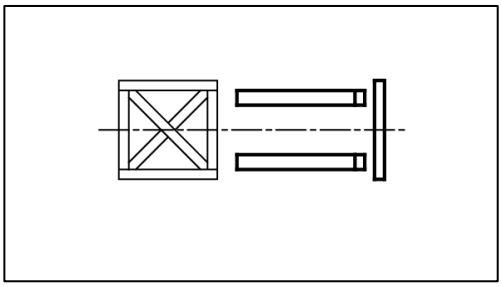
2) The load chart is applicable to load with a distance of fork 500mm from the longitudinal position of the center of gravity.

⚠ It is forbidden to move the weight beyond the load specified on the telescopic handler load sheet.

⚠ DANGER: for loads with moving center of gravity (such as liquid), the change of center of gravity shall be considered.

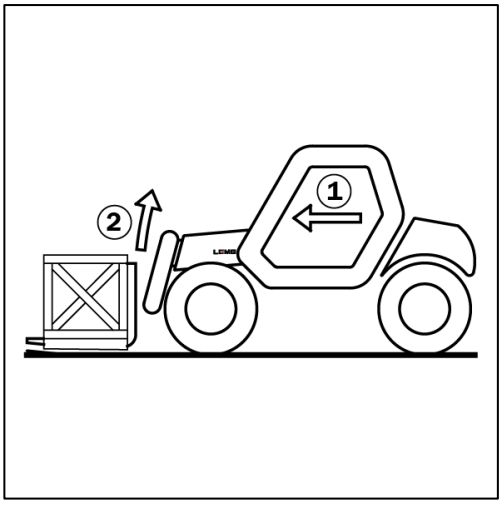
⚠ When picking up and placing goods on the ground or at high altitude, always pay attention to the lateral stability and longitudinal stability of the vehicle and the alarm device.

4.7.2 Cargo on the ground

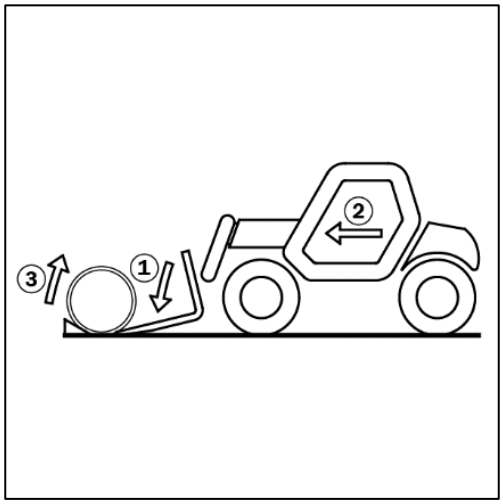


1) Retract and lower the boom so that the fork is in the horizontal position, and adjust the distance between the two forks according to the load.

⚠ Never use a single fork to lift the cargo.



2) Move the telescopic handler forward slowly and lift the boom slightly to the transport position. Tilt the fork backwards to ensure cargo stability.

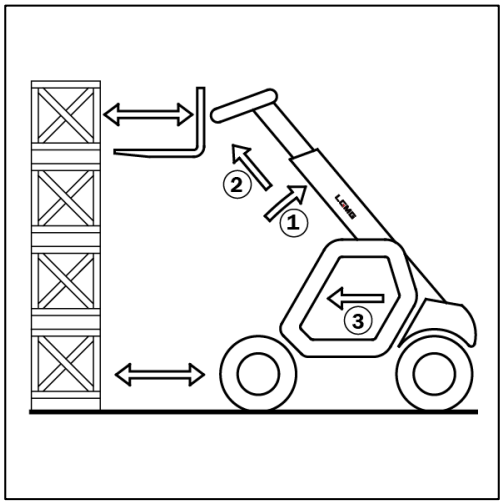


3) For the non-pallet load, tilt the fork forward before lifting the load, and then insert the fork under the load (prevent the load from moving if necessary).

4.7.3 Take the goods in the air

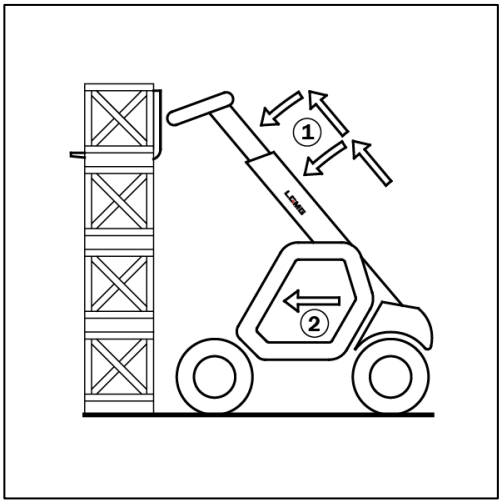
Before raising the boom, check whether the lateral position of the telescopic handler is horizontal.

Pickup

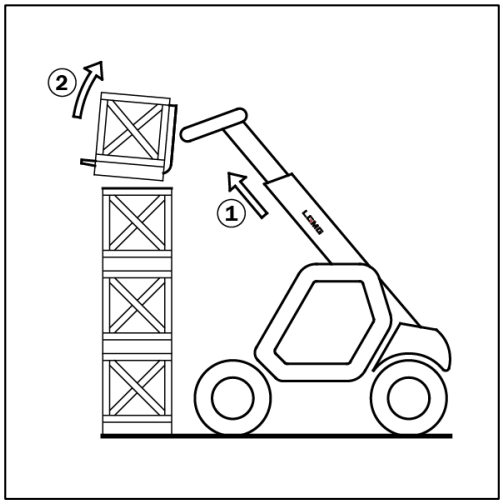


1) Lift and extend the boom until the fork is level with the load, if necessary, slowly move the telescopic handler forward.

2) A certain distance should always be kept between the load and the telescopic handler and the shorter boom should be extended as far as possible.

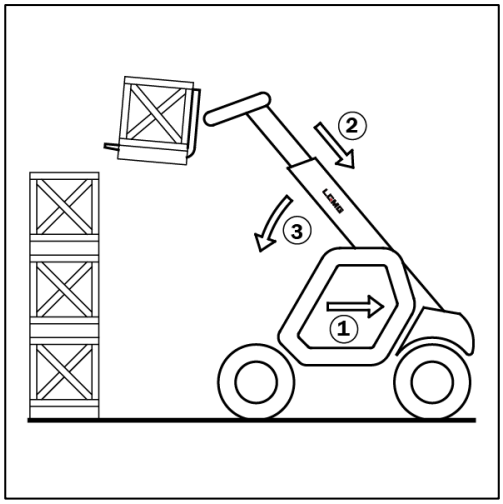


3) Insert the fork into the bottom of the load by alternately telescoping the boom or moving the telescopic handler forward (if necessary), then pull up the parking brake and put the D/R gear selector in N gear.



4) Raise the load slightly and tilt the fork backward to stabilize the load.

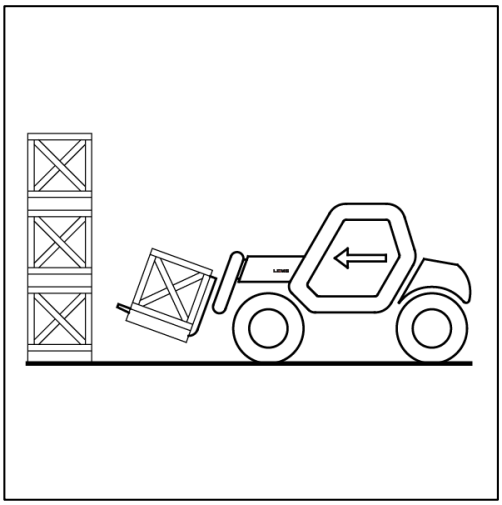
5) If the load is too heavy, the load shall be returned to its original position.



6) Move the vehicle backwards (if necessary), retract and lower the boom to bring the goods into the transport position.

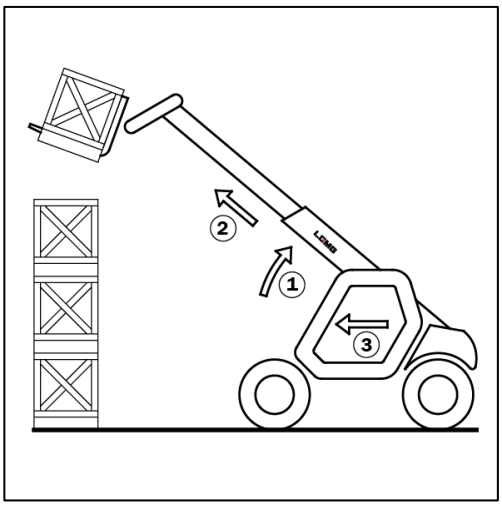
Release

Before raising the boom, check whether the lateral position of the telescopic handler is horizontal.

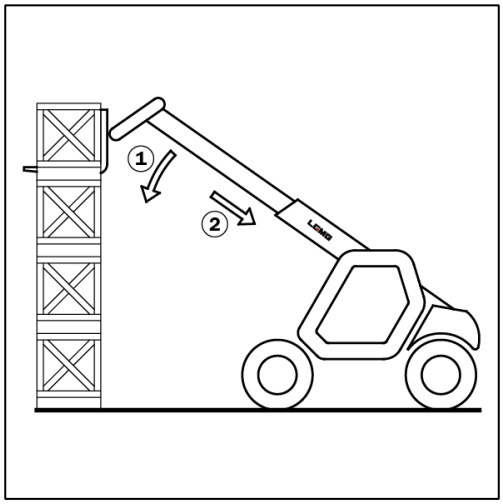


1) Drive the machine to the place for loading up goods.

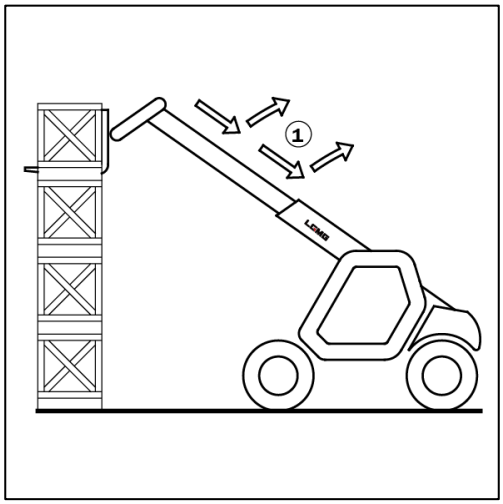
2) Pull up the parking brake and push the D/R gear selector to the N gear.



3) Lift and extend the boom until the fork is above the release position, and if necessary, move the vehicle forward.



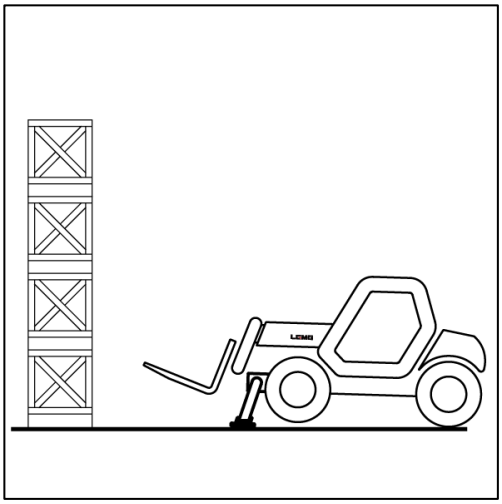
4) Keep the Load in a horizontal position. Placing the goods by lowering and retracting the Boom.



5) Retract the Fork to the transport position by retracting and lowering the boom. (Move the vehicle backwards if necessary)

4.7.4 Outrigger use

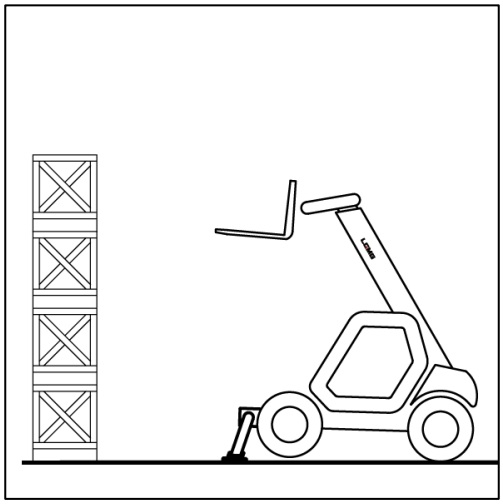
Raise the Outrigger when the Fork is in the shipping position



1) The vehicle shall be provided at a sufficient distance from the position where the goods are taken and placed.
2) Pull up the Parking brake and place the D/R gear in the N gear.
3) Raise the outrigger, keep the front wheels away from the ground, and level the body.
4) Pick up or release freight.

⚠ WARNING: Always maintain a horizontal stable row when raising the outrigger and lifting the boom.

Raise the outrigger in the raised state of the boom.

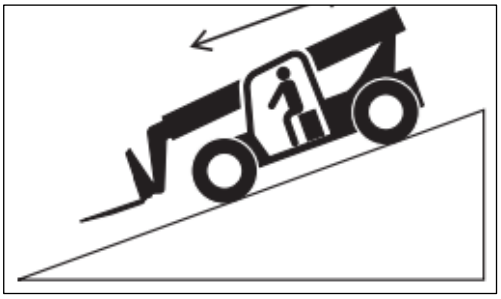


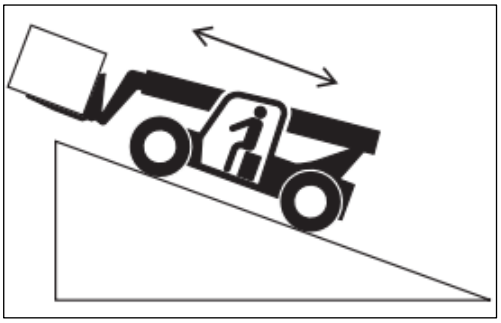
1) Keep the boom up and retract the boom completely.
2) Pull up the Parking brake and place the D/R gear in the N gear.
3) Raise the outrigger slowly and the lateral position must remain stable.
4) Pick up or release freight.

4.8 Operate on slope

To maintain sufficient traction and braking performance, follow the instructions below when driving on the slope:

1) Drive and brake gently.
2) When going uphill: the fork shall go up the ramp in the upward direction regardless of no-load or load.
3) Downhill: if it is no-load, the fork goes downhill along the downward direction of the ramp; If there is a load, the fork goes downhill in the upward direction of the ramp.





CAUTION

When going downhill, downshift to a lower gear, use service brake if necessary to maintain low speed.

CAUTION

If the vehicle must be parked on the slope, the wheel needs to be chocked.

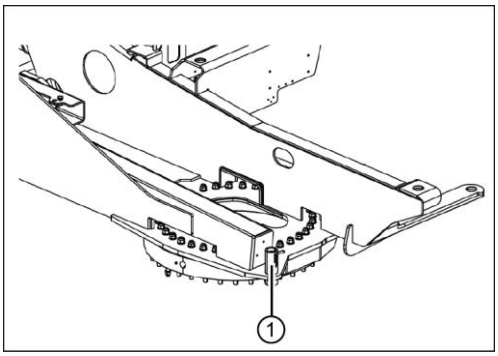
4.9 Machine transportation lifting instructions

Observe and obey

1) The driver shall be responsible for ensuring that the machine is properly secured and that the appropriate trailer is selected in accordance with local traffic

regulations.

2) Only personnel qualified for lifting operation above the ground can lift the machine.
3) The trailer for transportation shall be parked on the level ground.
4) When loading the machine, the transport vehicle shall be fixed to prevent movement.
5) Ensure that the vehicle capacity, loading surface, chain and belt are sufficient to support the weight of the machine. See "nameplate" for the machine weight.



Turret rotation lock pin

6) Ensure that the turret has been fixed with turret rotation lock before transportation, as shown in the figure. Make sure to unlock the turret during operation.

Lift the machine

1) Only qualified lifting and sling assembly persons can assemble the sling and lift the machine.
2) Ensure that the lifting capacity, belt or rope of the crane is sufficient to support the weight of the machine. See "nameplate" for the machine weight.
3) Fully lower and retract the arm lever, and remove all moving parts and items on the machine.
4) Fasten the turret with the turret rotation lock.
5) Only connect the sling to the specified lifting point on the machine.
6) Adjust the sling to avoid damage to the machine and keep the machine at horizontal level.
7) Lift the vehicle slowly by the hook connected to the fastening points provided.

Transport machine

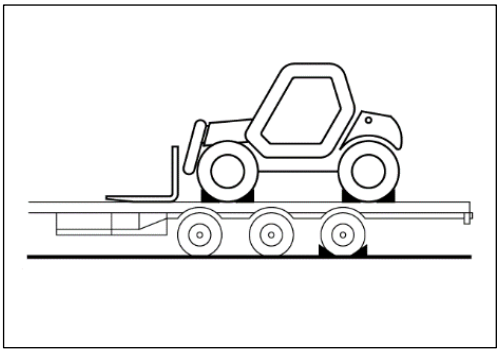
CAUTION

Ensure that the platform has sufficient size and load capacity for transporting the telescopic handler. And check whether the pressure of the contact surface between the platform and the telescopic handler is within the allowable range.

CAUTION

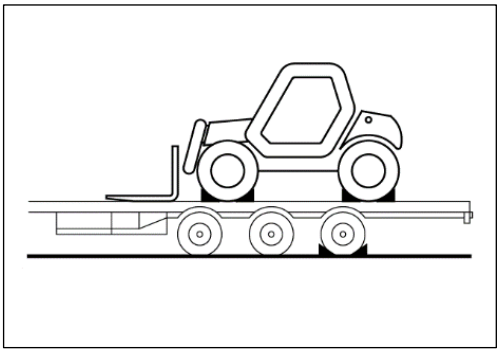
For telescopic handler equipped with turbocharged engine, block the exhaust port to avoid engine rotation.

Loading vehicle

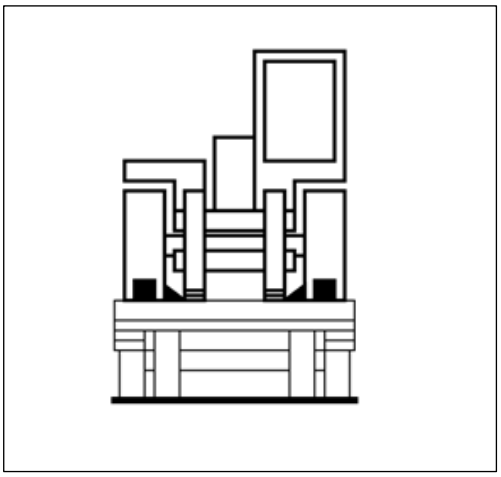


- The tires of the transport vehicle will be secured with wedge.
- Secure the loading ramp in order to obtain the smallest possible angle to lift the vehicle.
- Load vehicles parallel to the platform.
- Stop the telescopic handler.

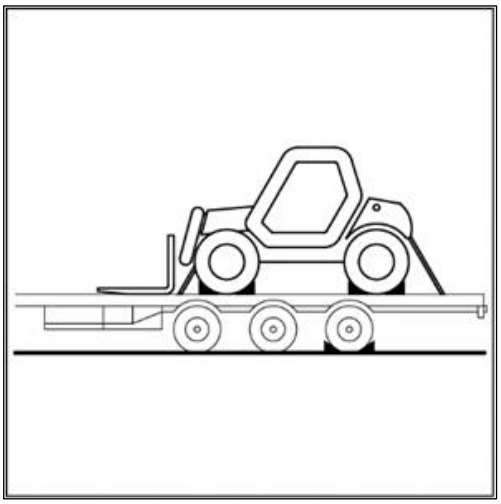
Fixed vehicle



- Secure the wedge to the platform at the front and rear of each tire.



- At the same time, fix the wedge to the platform on the inside of each tire.

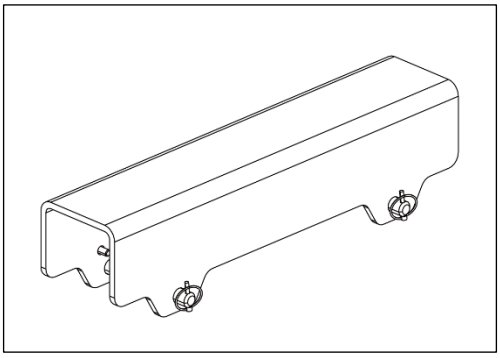


- Fix the telescopic handler on the platform with a strong enough rope. At the front, connect the rope to the telescopic handler fastening point (lifting point) and at the rear to the telescopic handler towing pin.
- Tighten the rope.

4.10 Use of safety support

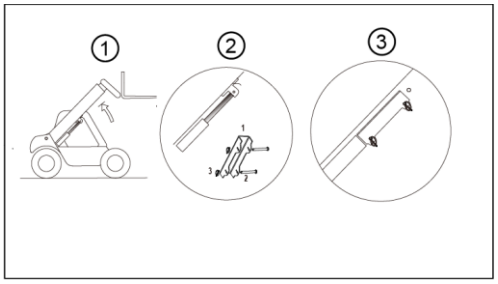
Safety support instructions

Boom safety support



The telescopic handler is equipped with safety support, which must be installed on the lift cylinder connecting rod when working in the area below the boom.

The installation of safety support.



1) Fully raise the boom.
2) Fit the safety support on the lift cylinder connecting rod and secure it with axis pin.
3) Slowly lower the boom and stop before coming into contact with the safety support.

Remove the safety support

1) Fully raise the boom.
2) Remove the axis pin.
3) Put the safety support back in place.

4.11 If the vehicle is not to be used for a long time

Description:

The following operations are to prevent the telescopic handler from being damaged when it is not in use for a long time.

Cleaning of telescopic handler

- Check and repair any parts where there may be leakage of fuel, oil, water or air.
- Clean the dust on the telescopic handler paint finish and make up the paint if necessary.
- Ensure that all cylinders are in the retracted position.
- Release the pressure in the hydraulic circuit.
- Close the telescopic handler.

DEF tank maintenance

- Empty and wash the DEF tank.
- Replace the DEF pump filter.
- Fill the tank to 80% with new DEF.

Engine protection

- Drain and replace the coolant.
- Let the engine run the engine at idle speed for a few minutes and then turn off.
- Replace engine oil and oil filter.
- Add a protection product to the engine oil.

- Run the engine for a short time to circulate the oil and coolant within the engine.
- Once the battery is fully charged, disconnect the battery and store it in a warm room.
- Seal the exhaust outlet with waterproof tape.
- Remove and put the belt in a safe place.

Component protection

- If necessary, place the crane telescopic handler on the axle frame to make the tire not contact the ground, and then release the parking brake.
- Protect the non-retracted and retracted cylinders from corrosion.
- Wrap up the tires.
- Cover the vehicle with a tarpaulin.

When the telescopic handler is put back into use

- Remove the waterproof tape.
- Reinstall and reconnect the battery.
- Remove the protective device from the cylinder.
- Perform routine maintenance.
- Pull the parking brake and remove the axle carrier axle bracket.
- Drain and replace the fuel, then replace the fuel filter.
- Empty the DEF tank and fill it with new DEF.
- Install the belt.
- Use the starter to turn the internal combustion engine to increase the oil pressure.
- Fully lubricate the telescopic handler.
- Before starting the telescopic handler, ensure that the area is well ventilated.
- Run all hydraulic movements, preferably to the limit position.

4.12 Disposal Instructions

Metal products

- Metal products can always be recycled.

Plastic products

- Most plastic parts, made of thermoplastics, can be easily recycled or ground by melting and granulation.

Rubber products

- Tires and rubber seals can be ground for cement manufacturing or to obtain reusable pellets.

Glass products

- Glass products can be removed and collected for a glass plant to dispose.

Worn or damaged parts

- Directly throwing away the worn or

damaged parts is forbidden.

- Dispose of them in an environmentally-friendly manner.

Oil products

- Directly dumping oil products is forbidden.
- Dispose of them in an environmentally-friendly manner.

Batteries

- It is forbidden to directly throw away batteries, because they contain metals that are harmful to the environment.
- Dispose of them in an environmentally-friendly manner.

4.13 Active Regeneration

As part of the DPF maintenance strategy Active Regeneration will be required every 60 hours approximately. This will vary slightly depending on the load factor and ambient weather conditions as these factors affect the efficiency of the Passive Plus Regeneration mentioned above. This regeneration will happen automatically without operator interaction in most cases as the engine can generate enough heat in the DPF whilst the engine is working.

If Active Regeneration is not possible during normal work activities the Elevated Idle Strategy will be used to help regeneration.

If the aftertreatment is not able to perform a regeneration because the Elevated Idle request is never answered, the system will eventually limit the use of the engine, to encourage the user to allow a regeneration to happen.

⚠ Note: Ignoring the need for a regeneration could result in very high soot levels accumulating in the DPF which will eventually damage the DPF. The DPF would then need to be replaced.

4.13.1 Engine conditions required for Active Regeneration to start

- Coolant Temperature above 65degC；
- DOC In temperature above 250degC；
- Engine speed above 1200rpm (unless soot load is high in which case HC dosing will start at lower speeds given above 2 conditions are met).

4.13.2 To help maintain Active Regeneration during normal work cycles

- Engine Mounted Aftertreatment should be used；
- Engine Speed should remain above 1200rpm；
- Ambient Temperature above -5degC.

If engine speed drops below 1200rpm HC dosing will continue until DOC In temperature drops below 250degC or Coolant temp drops

below 65degC.

For installations using Remote aftertreatment or operating in very cold ambient conditions maintaining HC Dosing will be more difficult due to increased temperature loss and so operators should keep engine speed and load even higher than stated above, if possible.

4.13.3 Engine Elevated Idle

Elevated idle must be supported on all machines as the feature is required to support operation of the engine aftertreatment thermal management and Service test procedures using Perkins Electronic Service Tool (Perkins EST.) Support for this feature is required for Service Test Procedures to run and is also used to help Active DPF Regeneration in applications that cannot regenerate during normal work cycles.

Minimum criteria for Service Tests to start (Idle status to be 'idle') are:

- Actual Engine speed = Configured Low Idle Speed (as per Service Tool configuration).
- Safe state message received：
  - Grounding of J2-87 or；
  - Transmission of J1939 PGN 8500 CAB Message 2 SPN 7579=01.

4.13.4 Engine Elevated Idle Operation

DPF products require the customer to provision for an elevated idle operation as part of the machine design. The activation of the elevated idle strategy will be made automatically by the engine if the operator has declared the machine is in a safe state and is used in circumstances where exhaust temperatures are below those needed for Active Regeneration to occur.

First Level

The engine will increase the engine idle speed to 1200rpm (configurable in the Service Tool) and will attempt to perform an Active Regeneration. If Regeneration did not complete the ECM may illuminate the DPF warning lamp and the higher elevated idle speed setting will be requested (see below.)

Second Level

If Active Regeneration fails at 1200rpm because the DOC In temperature was too cold (either due to ambient conditions or because the regen was interrupted by the operator) the engine will illuminate the DPF lamp which indicates that the next time Elevated Idle is allowed it will increase the engine idle speed to 2000rpm (configurable in the Service Tool.)

The engine provides two mechanisms for the machine to provide permission for an engine speed elevation to take place, these are：

- The grounding of J2-87.

- The transmission of J1939 PGN 8500 CAB Message 2 SPN 7579

The engine will only elevate engine speed if machine permission is given via one of the two methods listed above and an elevated idle speed is necessary e.g. regenetration support is required. Once activated the elevated idle request will be cancelled upon any of the conditions listed below being met.

- Regeneration is completed.
- Machine removes permission using J2-87 or J1939 PGN 8500 / SPN 7579.

At any time the machine can be placed back into work regardless of the elevated idle state. The elevated idle request will remain however until a full regeneration has been completed.

Note: It is the customers responsibility to ensure permission for elevated idle is only given when the machine is in a safe condition for idle speed to be increased to both configured speed thresholds (See First Level and Second Level above.)

4.13.5 Engine Elevated Idle Configuration

In software version v1.33 and later, the Elevated Idle Input method must be configured with the Service Tool.

Configuration field names	Configuration Range	Default Configuration
Elevated Engine Speed Allowed Input Configuration	J1939 Hardwired	J1939

Note: The use of both hardwired and J1939 elevated idle permission is not possible.

It is possible to configure the Elevated Idle Speeds that the engine will use, as shown below:

Configuration field names	Configuration Range	Default Configuration
Aftertreatment Regeneration Assist Engine Minimum Speed Configuration	900rpm – 2600rpm*	1200rpm
Highest Level Aftertreatment Regeneration Assist Engine Minimum Speed Configuration	800rpm – 2600rpm	2000rpm

*Aftertreatment Regeneration Assist Engine Minimum Speed Configuration cannot be set low than the Configured Low Idle speed.

Configuration of the Highest Level Aftertreatment Regeneration Assist Engine Minimum Speed Configuration (default setting 2000rpm) can be done by testing the Exhaust Temperature Drop. This test will assess the temperatures in the aftertreatment system in a given ambient temperature at different engine speeds and based upon the minimum ambeint operating temp requirement for the machine, an approriate speed can be chosen that will ensure regen can complete under all conditions.

4.13.6 Engine Elevated Idle Installation – Hardwired Input

Please refer to the separate electrical schematics. Engine Elevated Idle is labelled as ‘Low Idle Shutdown / Machine Safe State / Work Mode’.

The implementation of this input within a machine control system is a mandatory requirement to ensure that the Aftertreatment system can maintain operation under all conditions. The OEM

may connect this input via a relay controlled by the machine MCU for example, to only ground when certain conditions are met such as machine in neutral etc.

Engine Elevated Idle Installation – J1939 Input

The Engine Elevated Idle permission can be provided using the J1939 CAN bus and PGN 8500 / SPN 7579. When SPN 7579 is set to 00 the ECM interprets this as an elevated idle NOT allowed input and when set to 01 elevated idle ALLOWED.

The ECM expects to see the CM2 J1939 message for Ok to Elevate Idle speed at least once per second with either Allowed (01) or Not Allowed (00) state for SPN7579.

J1939 PGN	Parameter Number	SPN reference	State	Minimum Transmission Rate
8500 CAB Message 2 (CM2)	34048	Elevated Engine Speed Allowed Switch SPN 7579	00 Not Allowed 01 Allowed 10 Error 11 Not Available	1 sec

The escalation levels that the control system will go through in the event that the system is not able to regenerate.

The escalation process has been designed so that even in applications where it is impossible to sustain active regeneration during normal work cycles e.g. light load and/or very transient operation, the control system is capable of performing the regen whilst the machine is parked up.

Status Level	Kubota			Perkins					Tips for the Whole Machine	Restriction of the Whole Machine
	Level	Regeneration Requirements	Restriction of the Engine	Level	Description	DPF Lamp Status	Engine Fault Lamp	Restriction of the Engine	Kubota/Perkins	
Status 0	Leve 10	No regeneration required	No restriction	0	Regeneration-not required	Off	Off	No restriction	None	No restriction
Status 1	Leve 11 Auto	Can be regenerated automatically		1	Regeneration - low level				Pop-up: whether to perform parking regeneration. Select yes: enter the regeneration program; Select no: no pop-up window.	
				2	Regeneration - medium level					
				3	Regeneration-high level					
Status 2	Leve 12 Auto or Park	Automatic regeneration Parking regeneration		4					Pop-up: whether to perform parking regeneration. Select yes: enter the regeneration program; Select no: pop-up after 30min.	
				5		Slow flash				
Status 3	Leve 13 Restricted power	Parking regeneration	Restricted power	6		Fast flash		Restricted power	Restricted action The engine must perform parking regeneration.	Table of Restriction
				7			Flash			
Status 4	Leve 14 Restricted power Service tools	Service tool regeneration		8				shutdown Service tools	Restricted action! Regeneration failure.	
Status 5	Leve 15	Replace	Stop	9				shutdown		

		DPF						Replace		

4.13.7 Active Regeneration Operation

When it prompts “Is it allowed to elevate idle speed” on the screen, the aftertreatment system needs an active regeneration. If the active regeneration is not conducted after a long time, the DPF may be damaged.

1) Lower and retract the boom, and drive the machine to a safe place which is ventilated, wide and far away from flammable and explosive materials.
2) Put the machine in neutral and activate the electronic parking brake to let the machine stay in the braking condition.

Note: When the enable button is activated or the electronic parking brake is not activated, the active regeneration cannot start.

3) Press the “OK” button on the screen to enter the active regeneration mode.

4) After the machine enters the active regeneration mode successfully, the indicator lights up.

Note: When the enable button is activated or the electronic parking brake is switched off, the active regeneration is disrupted.

5) The indicator lights out when the DPF active regeneration is completed.

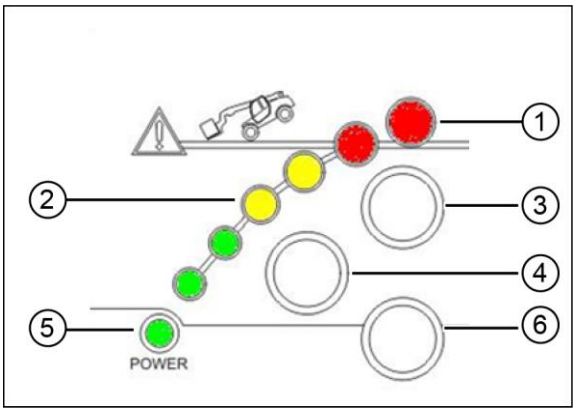
4.14 Calibration of the force limiter (H1840 Euro III)

Good calibration of the force limiter ensures local stability of the telescopic boom; align the rear axle and the front axle and activate the vehicle parking brake before calibration.

Notes:

- **Confirm that the force limit sensor and force limit controller are installed correctly before commissioning;**
- **It is not necessary to turn off the engine or power off during the commissioning process, and it needs to be completed coherently and start from the beginning after the power is cut off;**
- **Commissioning parameters need to be reset before commissioning;**
- **Commissioning should be carried out on the horizontal ground during the whole commissioning process and the ground inclination angle is within the range of ± 1°.**
- **Ensure that the forks are not grounded during commissioning.**

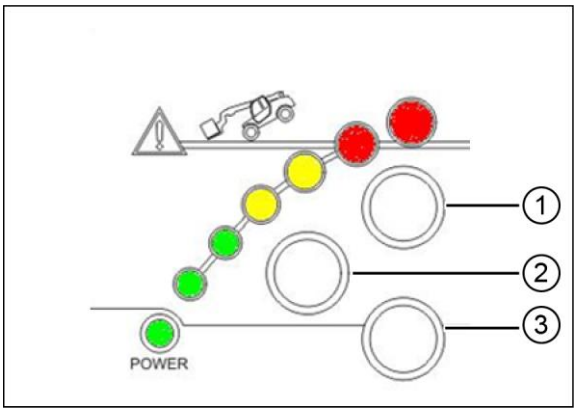
Control panel of the force limiter



1 Overload warning light
2. Early warning light
3. Multiply key / outrigger in place indicator light
4. Backspace key
5. Power indicator light
6. Confirmation key

4.14.1 Data initialization

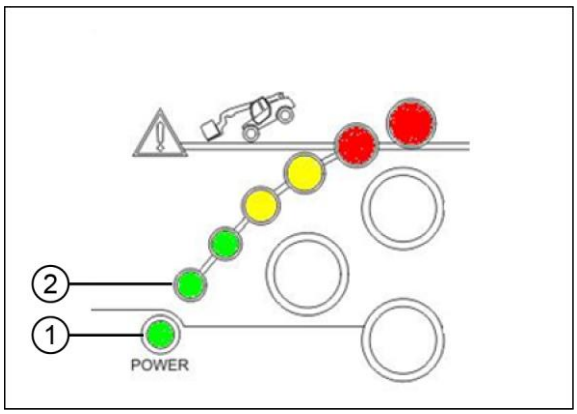
1) Power on: Press and hold the "Confirmation Key" before power on, turn on the key switch, the indicator lights of the force limiter are all lit.



1. Multiply key / outrigger in place indicator light
2. Backspace key
3. Confirmation key

2) Quickly enter the password and confirm.

3) Observe the status of the indicator lights of the force limiter:



a) Except the power light is on, the 2nd light is flashing (can be directly commissioning);

b) Except the power light is on, the 7th light is flashing (data need to be initialized).

4) Press the Multiply key 1 time, the data is initialized, the 7th light flashes and then press the Confirmation Key, then power off and restart to start commissioning.

4.14.2 No-load calibration

1. No-load, the outriggers are not supported the ground, and the boom is fully retracted horizontally

1) Reenter the password 231 after power off and restart, and reenter commissioning.

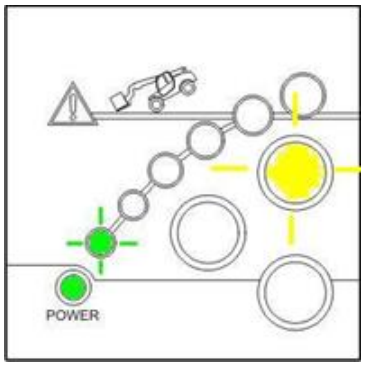
2) Adjust the state of the whole vehicle:

a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";

b) If the boom is fully retracted, the length of boom outstretched on the display is "0m";

c) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

3) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No.1 indicator light is always on, No.2 indicator light is on, outrigger in place indicator light is flashing.

2 The outriggers are supported on the ground, and the boom is fully retracted horizontally

1) Adjust the state of the whole vehicle:

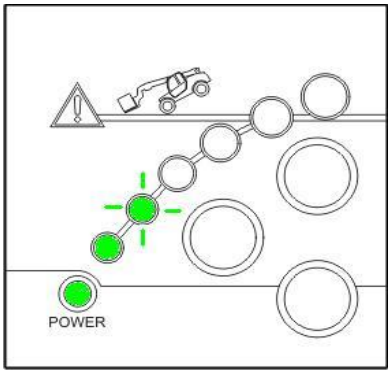
a) If the boom is horizontal, the angle of boom amplitude on the display is

"0°".

b) If the boom is fully retracted, the length of boom outstretched on the display is "0m".

c) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit.

2) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No.1 and No.2 indicator lights are always on, and No.3 indicator light is lit.

3 The outriggers are not supported on the ground, and the boom amplitude is fully retracted at maximum.

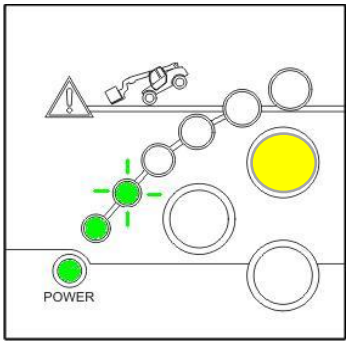
1) The state of the whole vehicle:

a) The boom is amplified to the maximum, the angle of boom amplitude on the display is "60°";

b) If the boom is fully retracted, the length of boom outstretched on the display is "0m";

c) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

2) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No.1 and No.2 indicator lights are always on, No.3 indicator light is on, outrigger in place indicator light is flashing.

4 The outriggers are supported on the ground and the boom amplitude is fully retracted at maximum.

1) The state of the whole vehicle:

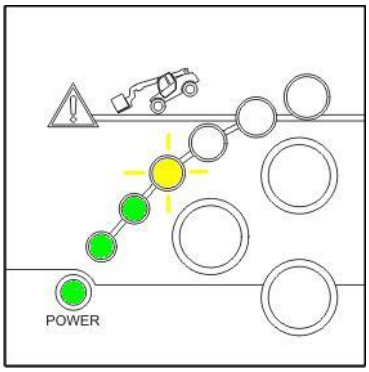
a) The boom amplitude is maximum, the angle of boom amplitude on the

display is about "75.6°";

b) If the boom is fully retracted, the length of boom outstretched on the display is "0m";

c) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit.

2) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No.1, No.2 and No.3 indicator lights are always on, and No.4 indicator light is flashing.

5 The outriggers are not supported on the ground, and the boom amplitude is fully extended at maximum

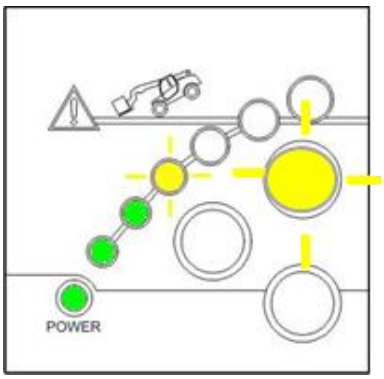
1) The state of the whole vehicle:

a) The boom is amplified to the maximum, the angle of boom amplitude on the display is "60°";

b) If the boom is fully extended, the length of boom outstretched on the display is approximately "17m";

c) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

2) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No.1, No.2 and No.3 indicator lights are always on; No.4 indicator light and outrigger in place indicator light is flashing.

6 The outriggers are supported on the ground, and the boom amplitude is fully extended at maximum

1) The state of the whole vehicle:

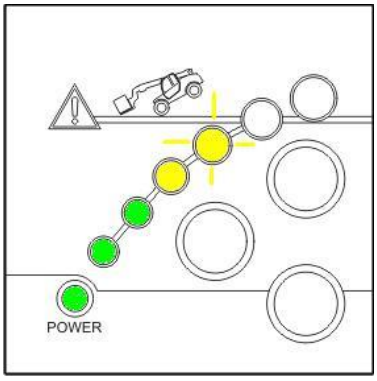
a) The boom amplitude is maximum,

the angle of boom amplitude on the display is about "75.6°";

b) If the boom is fully extended, the length of boom outstretched on the display is approximately "17m";

c) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit.

2) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No. 1, No. 2 and No. 3 indicator light is always on, No. 4 yellow indicator light is always on, No. 5 indicator light is flashing.

7 The outriggers are not supported on the ground and the boom is extended horizontally

Preparation before calibration:

- Adjust the axle load meter data;
- Place the entire rear wheel of the vehicle on the axle load meter.

1) The state of the whole vehicle:

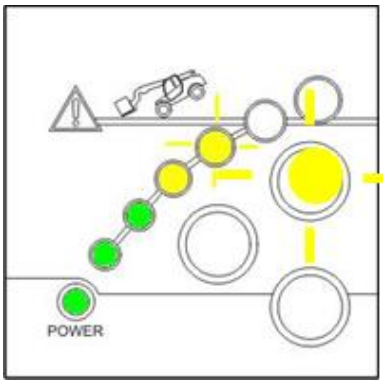
a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";

b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

2) Boom extension status: Manipulate the handle to make the boom extend slowly and observe the axle load meter data:

a) When the axle load meter shows 2,600kg, stop the boom extension.

3) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No. 1, No. 2 and No. 3 indicator light

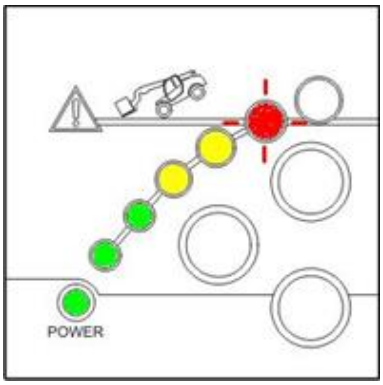
is always on, No. 4 yellow light is always on, No. 5, outrigger in place indicator light is flashing.

8 The outriggers are supported on the ground and the boom extends horizontally

Preparation before calibration:

- Adjust the axle load meter data;
- Place the entire rear wheel of the vehicle on the axle load meter.

1) The state of the whole vehicle:
   a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit.
2) Boom extension status: Manipulate the handle to make the boom extend slowly, observe the boom extension and the axle load meter data:
   a) The boom can be fully extended;
   b) The data of axle load meter is more than 2,600kg.
3) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No. 1, No. 2 and No. 3 indicator light is always on, No. 4 and No. 5 yellow indicator light is always on, No. 6 red indicator light is flashing.

4.14.3 Full load calibration (4T)

1 The outriggers are not supported on the ground and the boom is extended horizontally

Preparation before calibration:

- The forks pick up the 4T counterweight;
- Adjust the axle load meter data;
- Place the entire rear wheel of the vehicle on the axle load meter.

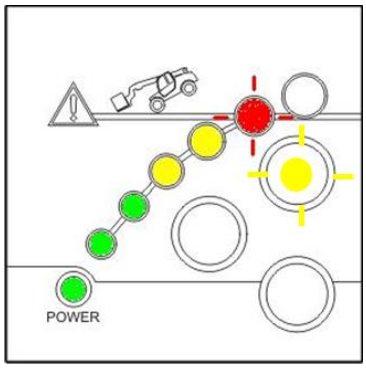
1) The state of the whole vehicle:
   a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";
   b) The outriggers are not supported on the ground and the indicator light of

outrigger reaching the ground on the display is not lit.

2) Boom extension status: Manipulate the handle to make the boom extend slowly and observe the axle load meter data:

a) When the axle load meter shows 2,500kg, stop the boom extension.

3) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No. 1, No. 2 and No. 3 indicator light is always on, No. 4 and No. 5 yellow indicator light is always on, No. 6 red indicator light is flashing, outrigger in place yellow indicator light is flashing.

2 The outriggers are supported on the ground and the boom extends horizontally

Preparation before calibration:

- The forks pick up the 4T counterweight;
- Adjust the axle load meter data;
- Place the entire rear wheel of the vehicle on the axle load meter.

1) The state of the whole vehicle:

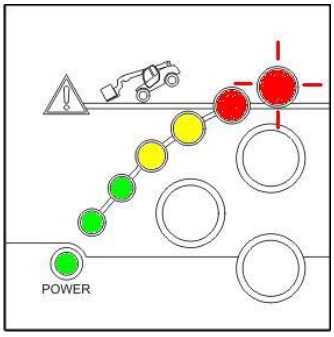
a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";

b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit.

2) Boom extension status: Manipulate the handle to make the boom extend slowly and observe the axle load meter data:

a) When the axle load meter shows 2,500kg, stop the boom extension.

3) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No. 1, No. 2 and No. 3 indicator light

is always on, No. 4 and No. 5 yellow indicator light is always on, No. 6 red indicator light is always on, No. 7 red indicator light is flashing.

4.15 Test of the force limiter (H1840 Euro III)

4.15.1 Unloaded test

1 No-load, the outriggers are not supported on the ground and the boom is extended horizontally

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°).
- Engine is at idle speed.

1) The state of the whole vehicle:
   a) Non-loaded;
   b) The outriggers are not supported on the ground;
   c) Boom extended horizontally, and the indicator light for outriggers reaching the ground on the display is not lit.
2) Force limiter status: Observe the boom extending horizontally to the force limiter alarm and verify the following items:
   a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;
   b) The boom cannot continue to extend;
   c) The length of boom outstretched on the display is less than 14.50m;
   d) The data of axle load meter is 2,600±30kg.

2 No-load, the outriggers are not supported on the ground, and the boom is extended at maximum amplitude

Preparation before testing:

- Horizontal ground test (inclination ±1°).
- Engine is at idle speed.

1) The state of the whole vehicle:
   a) No-load;
   b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.
   c) The boom is extended at maximum amplitude
2) Force limiter status: Observe the final status of the force limiter when the boom is extended after maximum amplitude and verify the following items:
   a) The force limiter does not alarm;
   b) The boom can be fully extended;
   c) The maximum lifting height of the boom on the display is 15.50±0.10m.

3 No-load, the outriggers are supported on the ground and the boom is extended horizontally

Preparation before testing:

- Horizontal ground test (inclination ±1°);
- Engine is at idle speed.

1) The state of the whole vehicle:
   a) No-load;
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;
   c) The boom extends horizontally.
2) Force limiter status: Observe the final status of the force limiter after the boom is extended horizontally and verify the following items:
   a) The force limiter does not alarm;
   b) The boom can be fully extended;
   c) The length of boom outstretched on the display is 17.00±0.05m.

4 No-load, the outriggers are supported on the ground, and the boom is extended at maximum amplitude

Preparation before testing:

- Horizontal ground test (inclination ±1°);
- Engine is at idle speed.

1) The state of the whole vehicle:
   a) No-load;
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;
   c) The boom is extended at maximum amplitude
2) Force limiter status: Observe the final status of the force limiter when the boom is extended after maximum amplitude and verify the following items:
   a) The force limiter does not alarm;
   b) The boom can be fully extended;
   c) The maximum lifting height of the boom on the display is 17.55±0.05m.

4.15.2 Full load test (4T)

1 The outriggers are not supported on the ground and the boom is extended horizontally

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:
   a) 4T load;

b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

c) The boom extends horizontally.

2) Force limiter status: Observe the boom extending horizontally to the force limiter alarm and verify the following items:

a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;

b) The boom does not continue to extend;

c) Boom outstretched length ≤ 6.80m;

d) The data of axle load meter is 2,600±30kg.

2 The outriggers are not supported on the ground, and the boom is extended after amplitude has been increased to 53.1°

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:

a) 4T load;

b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

c) The boom is extended after amplitude has been increased to 53.1°.

2) Force limiter status: Observe the boom amplitude changed to 53.1° first, then extend to the force limiter alarm, and verify the following items:

a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;

b) The boom does not continue to extend;

c) The maximum lifting height of the boom on the display is less than 8.25m.

d) The data of axle load meter is 2,600±30kg.

3 The outriggers are not supported on the ground, and the boom is extended at maximum amplitude

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:

a) 4T load;

b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

c) The boom is extended at maximum amplitude

2) Force limiter status: Observe the boom amplitude changed to the maximum first and then extended to the force limiter final alarm, and verify the following items:

a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound; The boom does not continue to extend;

b) Maximum lifting height of the boom ≤ 9.00m;

c) The data of axle load meter is 2,600±30kg.

4 The outriggers are supported on the ground and the boom extends horizontally

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:

a) 4T load;

b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;

c) The boom extends horizontally.

2) Force limiter status: Observe the boom extending horizontally to the force limiter alarm and verify the following items:

a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;

b) The boom does not continue to extend;

c) Boom outstretched length ≤ 9.60m;

d) The data of axle load meter is 2,500±30kg.

5 The outriggers are supported on the ground, and the boom is extended after amplitude has been increased to 40°

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:

a) 4T load;

b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;

c) The boom is extended after amplitude has been increased to 40°.

2) Force limiter status: Observe the boom amplitude changed to 40° first and then extend to the force limiter alarm, and verify the following items:

a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;

b) The boom does not continue to extend;

c) Maximum lifting height of the boom ≤ 7.80m;

d) The data of axle load meter is 2,500±30kg.

⚠ **Note: The boom needs to be fully retracted before lowering the boom when verification is complete.**

6 The outriggers are supported on the ground, and the boom is extended at maximum amplitude

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°)
- Test with engine at idle.

1) The state of the whole vehicle:

a) 4T load;

b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;

c) The boom is extended 12m at the maximum amplitude.

2) Force limiter status: Observe the final status of the force limiter of the boom amplitude changed first and then extended to 12m, and verify the following items:

a) The force limiter does not alarm;

b) The maximum lifting height of the boom on the display: 12.00±0.10m

⚠ **Note: the state can not extend the whole boom, which avoid the damage of the boom structure, only need to verify the lifting height of 12m.**

4.15.3 Load test (2.5T)

1 The outriggers are not supported on the ground and the boom is extended horizontally

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°)
- Test with engine at idle.

1) The state of the whole vehicle:
   a) 2.5T load;
   b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.
   c) The boom extends horizontally.
2) Force limiter status: Observe the boom extending horizontally to the force limiter alarm and verify the following items:
   a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;
   b) The boom does not continue to extend;
   c) Boom outstretched length ≤ 8.00m;
   d) The data of axle load meter is 2,600±30kg.

2 The outriggers are not supported on the ground, and the boom is extended after amplitude has been increased to 54°

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:
   a) 2.5T load;
   b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.
   c) The boom is extended after amplitude has been increased to 52°.
2) Force limiter status: Observe the final status of the force limiter of the boom amplitude changed to 54° first and then extended, and verify the following items:
   a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;
   b) The boom does not continue to extend;
   c) Maximum lifting height of the boom ≤ 10.10m;
   d) The data of axle load meter is 2,600±30kg.

3 The outriggers are not supported on the ground, and the boom is extended at maximum amplitude

Preparation before testing:

- Place the rear wheels of the vehicle on

the axle load tester;

- Horizontal ground test (inclination ±1°)
- Test with engine at idle.

1) The state of the whole vehicle:
   a) 2.5T load;
   b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.
   c) The boom is extended at maximum amplitude
2) Force limiter status: Observe the final state of the force limiter of the boom amplitude changed to the maximum first and then extended, and verify the following items:
   a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;
   b) The boom does not continue to extend;
   c) Maximum lifting height of the boom ≤ 11.00m;
   d) The data of axle load meter is 2,600±30kg.

4 The outriggers are supported on the ground and the boom extends horizontally

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:
   a) 2.5T load;
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;
   c) The boom extends horizontally.
2) Force limiter status: Observe the boom extending horizontally to the force limiter alarm and verify the following items:
   a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;
   b) The boom does not continue to extend;
   c) Boom outstretched length ≤ 11.50m;
   d) The data of axle load meter is 2,500±30kg.

5 The outriggers are supported on the ground, and the boom is extended after amplitude has been increased to 51.7°

Preparation before testing:

- Place the rear wheels of the vehicle on

the axle load tester;

- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:
   a) 2.5T load;
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;
   c) The boom is extended after amplitude has been increased to 51.7°.
2) Force limiter status: Observe the boom amplitude changed to 51.7° first and then extend to the force limiter alarm, and verify the following items:
   a) No. 1-7 indicator lights are all on and the alarm is making a ticking sound;
   b) The boom does not continue to extend;
   c) Maximum lifting height of the boom ≤ 14.10m;
   d) The data of axle load meter is 2,500±30kg.

6 The outriggers are supported on the ground, and the boom is extended at maximum amplitude

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle.

1) The state of the whole vehicle:
   a) 2.5T load;
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;
   c) The boom is extended at maximum amplitude.
2) Force limiter status: Observe the final status of the force limiter of the boom amplitude changed to the maximum first and then extended, and verify the following items:
   a) The force limiter does not alarm;
   b) The boom can be extended to the maximum;
   c) Maximum lifting height of the boom is 17.55±0.05m;
   d) The data of axle load meter is 2,500±30kg.

4.15.4 Load test (0.85T)

Preparation before testing:

- Place the rear wheels of the vehicle on the axle load tester;
- Horizontal ground test (inclination ±1°);
- Test with engine at idle

1) The state of the whole vehicle:
   a) 0.85T load;
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit;
   c) The boom extends horizontally.
2) Force limiter status: Observe the final status of the force limiter of the boom amplitude changed to the maximum first and then extended, and verify the following items:
   a) The force limiter does not alarm;
   b) The boom can be extended to the maximum, The boom can be extended to the maximum, and can be arbitrarily changed to different angles;
   c) The length of the boom on the display is 17.00±0.05m;
   d) The data of axle load meter is always >2,500kg.

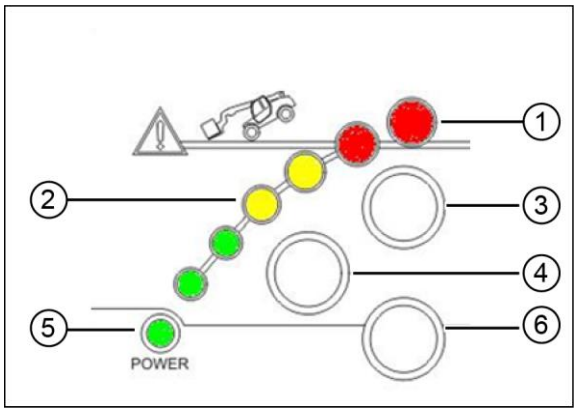
4.16 Calibration of the force limiter (H1840 Euro V)

Good calibration of the force limiter ensures local stability of the telescopic boom.

Notes:

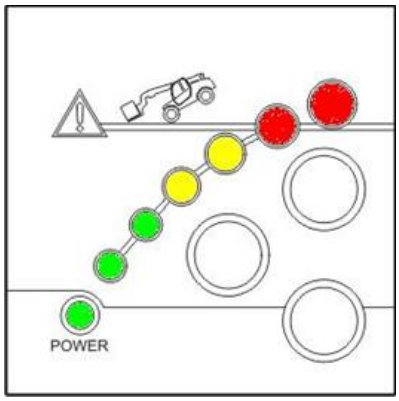
- **Confirm that the force limit sensor and force limit controller are installed correctly before commissioning;**
- **It is not necessary to turn off the engine or power off during the commissioning process, and it needs to be completed coherently and start from the beginning after the power is cut off;**
- **Commissioning parameters need to be reset before commissioning;**
- **Commissioning should be carried out on the horizontal ground during the whole commissioning process and the ground inclination angle is within the range of ± 1°.**

Control panel of the force limiter

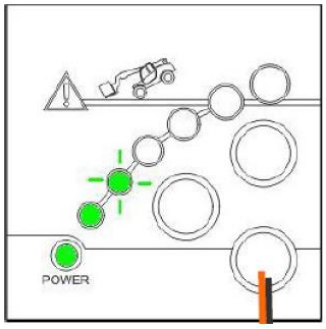


1. Overload warning light
2. Early warning light
3. Multiply key / outrigger in place indicator light
4. Backspace key
5. Power indicator light
6. Confirmation key

4.16.1 Entering commissioning mode



1) Turn on the key switch, and the force limiter indicator lights are all lit.
2) Quickly enter the password and confirm.
3) Observe the status of the indicator lights of the force limiter:



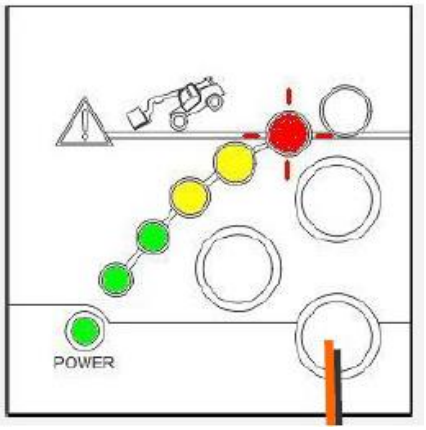
a) The force limiter is in the state shown in the figure, which means that it has entered the commissioning mode.

4.16.2 No-load calibration

1 The outriggers are not supported on the ground, and the boom is fully retracted horizontally.

1) Reenter the password to enter the commissioning mode after power off and restart.
2) Adjust the state of the whole vehicle:
   a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";
   b) If the boom is fully retracted, the length of boom outstretched on the display is "6.10m";
   c) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.
3) Load calibration: Press the Confirmation

Key of the force limiter to observe the status of the indicator lights of force limiter.



a) No. 1-5 indicator lights are always on, No. 6 indicator light is flashing, and outrigger in place indicator light is flashing.

4.16.3 Full load calibration (4T, the outriggers are not supported on the ground)

1 The outriggers are not supported on the ground and the boom is extended horizontally

Preparation before calibration:

- The forks pick up the 4T counterweight;
- Place the entire rear wheel of the vehicle on the axle load meter;
- Adjust the axle load meter data.

1) The state of the whole vehicle:

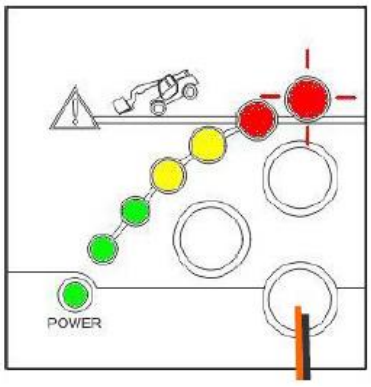
a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";

b) The outriggers are not supported on the ground and the indicator light of outrigger reaching the ground on the display is not lit.

2) Manipulate the handle to make the boom extend slowly and observe the axle load meter data:

a) When the axle load meter shows 2,500kg, stop the boom extension

3) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No.1-6 indicator lights are always on, and No.7 indicator light is flashing.

4.16.4 Entering commissioning mode

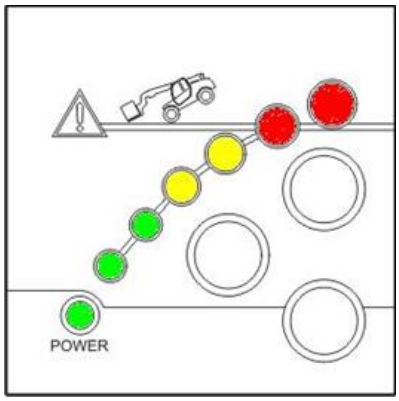
1) Adjust the state of the whole vehicle:

b) The outriggers support on the ground;

c) No-load;

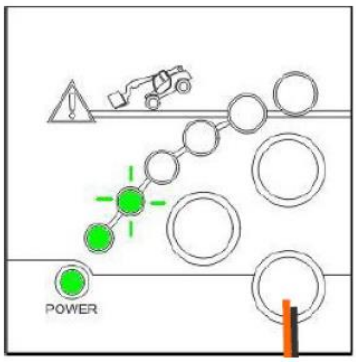
d) Boom is fully retracted horizontally;

e) Turn off the power.



2) Turn on the key switch, power on again, and the force limiter indicator lights are all lit.

3) Quickly enter the password and confirm.



4) Observe the indicator light state of the force limiter, the force limiter is in the state shown in the figure, which means that it has entered the commissioning mode.

4.16.4 No-load calibration

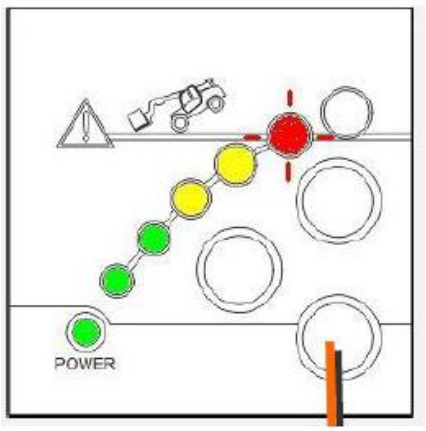
1) Confirm the status of the whole vehicle:

a) If the boom is horizontal, the angle of boom amplitude on the display is "0°";

b) If the boom is fully retracted, the length of boom outstretched on the display is "6.10m";

c) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit.

2) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



a) No. 1-5 indicator lights are always on, No. 6 indicator light is flashing, and outrigger in place indicator light is flashing

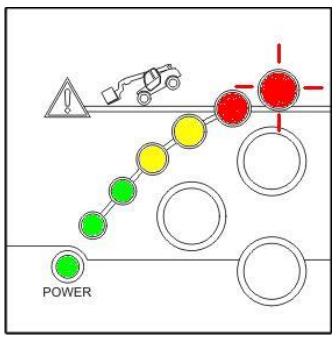
4.16.5 Full load calibration (4T, the outriggers are supported on the ground)

Preparation before calibration:

- The forks pick up the 4T counterweight;

- Place the entire rear wheel of the vehicle on the axle load meter;
- Adjust the axle load meter data.

1) The state of the whole vehicle:
   a) The boom is horizontal. The angle of boom amplitude on the display is "0°".
   b) If the outrigger is supported the ground, the indicator light of outrigger reaching the ground on the display is lit.
2) Manipulate the handle to make the boom extend slowly and observe the axle load meter data:
   a) When the axle load meter shows 2,500kg, stop the boom extension.
3) Load calibration: Press the Confirmation Key of the force limiter to observe the status of the indicator lights of force limiter:



   a) No.1-6 indicator lights are always on, and No.7 indicator light is flashing.
4) According to the above steps, the calibration of the force limiter is completed, after saving the parameters and restarting after power failure, it can enter the working mode.

4.17 Fault code

Warning code

S/N	Name (alarm code is displayed as W+DTC)	Description
1	T_Warning_001_GearNotInNeutral	Do not start the engine in N gear
2	T_Warning_002_ByPassOn	Force switch on
3	T_Warning_003_MbMinAnglLmt	Boom minimum angle limit
4	T_Warning_004_MbMaxAnglLmt	Maximum boom angle limit (outrigger landing)
5	T_Warning_005_MbMinLenLmt	Minimum boom length limit
6	T_Warning_006_MbMaxLenLmt	Maximum boom length limit
7	T_Warning_007_FuelLevelAdcGtMax	Oil level sensor short circuit
8	T_Warning_008_FuelLevelAdcLtMin	Oil level sensor open circuit
9	T_Warning_009_FuelPercLtLow	Low fuel level
10	T_Warning_010_JackStopUpByTeleOut	Do not raise left and right outriggers after the boom is extended
11	T_Warning_011_TransInSleepMode	Transmission enters eye rest mode
12	T_Warning_012_MbMaxAnglLmt_NJackDw	Maximum boom angle limit (outrigger raised)
13	T_Warning_013_TipOverOn	The torque anti-tipping signal input is prohibited to move in the dangerous direction.
14	T_Warning_014_StopTravelByJackDw	It is forbidden to move after the outrigger is on the ground.
15	T_Warning_015_StopJackUpByMbAngleLT60	When the Boom angle is greater than 60 degrees, it is forbidden to retract the outrigger.
16	T_Warning_016_StopForwardBySeatNotPress	Do not engage the D gear when the seat is not pressed down
17	T_Warning_017_StopBackwardBySeatNotPress	Do not engage the R gear when the seat is not pressed down
18	T_Warning_018_StopTruckBodyMoveByMbAnglLt30	Body action is prohibited after the boom angle is greater than 30 degrees
19	T_Warning_019_StopAmpUpChassis_X_TiltOver	The luffing upward action is prohibited when the inclination of the chassis along the X axis exceeds the setting.
20	T_Warning_020_StopAmpUpChassis_Y_TiltOver	The luffing upward action is prohibited when the inclination of the chassis along the Y axis exceeds the setting.
21	T_Warning_021_StopTeleOutChassis_X_TiltOver	Forwarding arm action is prohibited when the Inclination of the chassis along the X axis exceeds the setting

22	T_Warning_022_StopTeleOutChassis_Y_TiltOver	Forwarding arm action is prohibited when the Inclination of the chassis along the Y axis exceeds the setting
23	T_Warning_023_StopForkDwChassis_X_TiltOver	The Fork drop action is prohibited when the Inclination of the chassis along the X axis exceeds the setting.
24	T_Warning_024_StopForkDwChassis_Y_TiltOver	The Fork drop action is prohibited when the Inclination of the chassis along the Y axis exceeds the setting.
25	T_Warning_025_StopStabHInManOutOffSeat	Stop retracting the horizontal outrigger after leaving the seat
26	T_Warning_026_StopStabHInStab_onGround	Stop retracting the horizontal outrigger after the landing of vertical outrigger
27	T_Warning_027_StopStabInBoomTeleOut	Stop retracting the outrigger and after the boom is extended
28	T_Warning_028_StopStabHInBmAngGt55	Stop retracting the outrigger after the boom angle is greater than 55 degrees
29	T_Warning_029_StopStabHInTurNotInCenter	Stop retracting the outrigger when the turret is not directly in front.
30	T_Warning_030_StopBmAmpUpManModeStabNotOnGnd	When the outrigger is not on the ground in the man mode, luffing upward action is prohibited
31	T_Warning_031_StopTeleOutManModeStabNotOnGnd	When the outrigger is not on the ground in the man mode, boom extension action is prohibited
32	T_Warning_032_StopForkUpDwManModeStabNotOnGnd	When the outrigger is not on the ground in the man mode, the fork action is prohibited
33	T_Warning_033_GPSLock	GPS lock
34	T_Warning_034_NOHandBrake	Please apply the hand brake.
35	T_Warning_051_MdpMBAmpUp_Cutoff	Load moment limiter cuts off the upward luffing action
36	T_Warning_052_MdpMBAmpDw_Cutoff	Load moment limiter cuts off downward luffing action
37	T_Warning_053_MdpMBTeleOut_Cutoff	Load moment limiter cuts off the extending action of the boom
38	T_Warning_054_MdpMBTeleIn_Cutoff	Load moment limiter cuts off the retraction action of the boom
39	T_Warning_055_MdpTurretCW_Cutoff	Load moment limiter cuts off the clockwise action of the turret
40	T_Warning_056_MdpTurretCCW_Cutoff	Load moment limiter cut-off turret counterclockwise action
41	T_Warning_057_MdpForkUp_Cutoff	Upper action of limiter cut-off fork
42	T_Warning_058_MdpForkDw_Cutoff	Limiter cut-off fork downward action
43	T_Warning_061_sbStopTurretSlewing	If the turret rotation switch is not turned on, turret rotation is prohibited
44	C_WARNING_100_ECU_TimeOutStopEngineStart	The communication failure of engine CAN prohibits engine start
45	C_WARNING_101_ECU_NotNeutralGearStopEngineStart	It is prohibited to start the engine when the gear is not on the N gear.
46	C_WARNING_102_ECU_AntiRecrankingStopEng	Engine start is prohibited during the second start

	ineStart	time.
47	C_WARNING_103_ECU_EmergencyPumpOnStopEngineStart	No engine start after emergency pump is started

Alarm code

S/N	Name (DTC displayed as "A+DTC")	Description
1	T_ALARM_001_SysBrakePressureLow	Low system pressure
2	T_ALARM_002_JoyStickTimeOut	Handle or joystick CAN bus communication timeout
3	T_ALARM_003_TransmissionTimeOut	Transmission CAN bus communication timeout
4	T_ALARM_004_EngineTimeOut	Engine CAN bus communication timeout
5	T_ALARM_005_MBLengthRdn	Boom length redundancy fault
6	T_ALARM_006_BoomLengthCh1OpenCircuit	Boom length sensor channel 1 Open circuit
7	T_ALARM_007_BoomLengthCh1ShortCircuit	Boom length sensor channel 1 Short circuit
8	T_ALARM_008_BoomLengthCh2OpenCircuit	Boom length sensor channel 2 Open circuit
9	T_ALARM_009_BoomLengthCh2ShortCircuit	Boom length sensor channel 2 short circuit
10	T_ALARM_010_BoomLengthCh1ActMax	The actual length of boom length sensor channel 1 is greater than the maximum set value
11	T_ALARM_011_BoomLengthCh1ActMin	The actual length of boom length sensor channel 1 is less than its minimum set value
12	T_ALARM_012_BoomLengthCh2ActMax	The actual length of boom length sensor channel 2 is greater than its maximum set value
13	T_ALARM_013_BoomLengthCh2ActMin	The actual length of boom length sensor channel 2 is less than its minimum set value
14	T_ALARM_014_BoomAngleCh1ShortCircuit	Boom angle sensor channel 1 short circuit fault
15	T_ALARM_015_BoomAngleCh1OpenCircuit	Boom angle sensor channel 1 open circuit fault
16	T_ALARM_016_BoomAngleCh1ActMax	The actual angle of boom angle sensor channel 1 is greater than the maximum set value
17	T_ALARM_017_BoomAngleCh1ActMin	The actual angle of boom angle sensor channel 1 is less than the minimum set value
18	T_ALARM_018_ChassisTilt_X_AdcShortCircuit	Chassis inclination sensor X channel 1 short circuit
19	T_ALARM_019_ChassisTilt_X_AdcOpenCircuit	Chassis inclination sensor X channel 1 open circuit
20	T_ALARM_020_ChassisTilt_X_ActMax	The actual angle of chassis inclination sensor X channel 1 is greater than maximum set value
21	T_ALARM_021_ChassisTilt_X_ActMin	The actual angle of chassis inclination sensor X channel 1 is less than the minimum set value
22	T_ALARM_022_TipOverOn	Load moment limiter cuts off the signal
23	T_ALARM_023_ChassisTilt_Y_AdcShortCircuit	Channel 1 of chassis inclination sensor Y is short circuited
24	T_ALARM_024_ChassisTilt_Y_AdcOpenCircuit	Channel 1 of chassis inclination sensor Y is open circuited

25	T_ALARM_025_ChassisTilt_Y_ActMax	The actual angle of channel 1 of chassis inclination sensor Y is greater than the maximum set value
26	T_ALARM_026_ChassisTilt_Y_ActMin	The actual angle of chassis inclination sensor Y channel 1 is less than minimum set value
27	T_ALARM_027_TruckEStop1_On	Chassis emergency stop press
28	T_ALARM_028_MBLengthRdnErr	Boom length redundancy fault
29	T_ALARM_029_LFJackPressRndErr	Front left outrigger pressure redundancy fault
30	T_ALARM_030_RFJackPressRndErr	Front right outrigger pressure redundancy fault
31	T_ALARM_031_LoadCellRndErr	Load cell redundancy fault
32	T_ALARM_032_LRJackPressRndErr	Rear left Outrigger pressure Redundancy fault
33	T_ALARM_033_RRJackPressRndErr	Right rear Outrigger pressure Redundancy fault
34	T_ALARM_034_BmAmpJoyFullUpLimit	Boom luffing up Handle more than the Set value
35	T_ALARM_035_BmAmpJoyFullDwLimit	Boom luffing down Handle more than Set value
36	T_ALARM_036_BmTeleJoyFullUpLimit	Boom telescopic extension Handle exceeds Set value
37	T_ALARM_037_BmTeleJoyFullDwLimit	Boom retraction handle or joystick exceeds set value
38	T_ALARM_038_ForkUpDwJoyFullUpLimit	Fork lifting and lowering: Up joystick exceeds Set value
39	T_ALARM_039_ForkUpDwJoyFullDwLimit	Fork lifting and lowering: Down joystick exceeds Set value
40	T_ALARM_040_TurretRotJoyFullUpLimit	Turret rotation clockwise handle or joystick exceeds set value
41	T_ALARM_041_TurretRotJoyFullDwLimit	The anticlockwise joystick of the turret rotation exceeds the set value
42	T_ALARM_042_CageRotJoyFullUpLimit	The clockwise joystick of the platform rotation exceeds the set value
43	T_ALARM_043_CageRotJoyFullDwLimit	The anticlockwise joystick of the platform rotation exceeds the set value
44	T_ALARM_044_BrakeSysPresAdcOpenCircuit	Open circuit of system pressure sensor channel 1
45	T_ALARM_045_BrakeSysPresAdcShortCircuit	System pressure sensor channel 1 short circuit
46	T_ALARM_046_BoomAngleCh2OpenCircuit	Boom angle sensor channel 1 open circuit fault
47	T_ALARM_047_BoomAngleCh2ShortCircuit	Boom angle sensor channel 2 short circuit
48	T_ALARM_048_BrakeSysPresAdcOpenCircuit	System pressure sensor channel 2 open circuit
49	T_ALARM_049_BrakeSysPresAdcShortCircuit	System pressure sensor channel 2 short circuit
	ALC50_AirFilterBlock	Air-inlet filter blockage
50	T_ALARM_052_TurretMc2mVPWRA_LowVoltage	The supply voltage of turret controller output power supply A is low
51	T_ALARM_053_TurretMc2mVPWRB_LowVoltage	The supply voltage of turret controller output power supply B is low
52	T_ALARM_054_TurretMc2mVPWRC_LowVoltage	The supply voltage of turret controller output

		power supply C is low
53	T_ALARM_055_TurretMc2mVPWRD_LowVoltage	The supply voltage of turret controller output power supply D is low
54	T_ALARM_056_TurretMc2mVPWRE_LowVoltage	Supply voltage of the turret controller output power supply E is low
55	T_ALARM_057_TurretMc2mVOut5_LowVoltage	Supply voltage of 5V output power of the turret controller is low
56	T_ALARM_058_TurretMc2mVOut15_LowVoltage	Supply voltage of 15V output power of the turret controller is low
57	T_ALARM_059_BmAmpJoyFullUpLimit_RC	Boom amplitude with remote controller: joystick up exceeds set value
58	T_ALARM_060_BmAmpJoyFullDwLimit_RC	Boom amplitude with remote controller: the downward joystick exceeds the set value
59	T_ALARM_061_BmTeleJoyFullUpLimit_RC	Boom extension and retraction with remote controller: the up joystick exceeds the set value
60	T_ALARM_062_BmTeleJoyFullDwLimit_RC	Boom extension and retraction with remote controller: the down joystick exceeds the set value
61	T_ALARM_063_ForkUpDwJoyFullUpLimit_RC	Fork lifting and lowering with remote controller: the up joystick exceeds the set value
62	T_ALARM_064_ForkUpDwJoyFullDwLimit_RC	Remote controller fork lifting and lowering: down joystick exceeds set value
63	T_ALARM_065_TurretRotJoyFullUpLimit_RC	Turret rotation with remote controller: clockwise rotation joystick exceeds set value
64	T_ALARM_066_TurretRotJoyFullDwLimit_RC	Turret rotation with remote controller: counterclockwise rotation joystick exceeds set value
65	T_ALARM_067_CageRotJoyFullUpLimit_RC	Remote controller platform rotation: clockwise rotation joystick exceeds set value
66	T_ALARM_068_CageRotJoyFullDwLimit_RC	Remote controller platform rotation: counterclockwise rotation joystick exceeds set value
67	T_ALARM_069_MbAngleRdnErr	Angle sensor redundancy fault
68	T_ALARM_070_LoadCellCh1OpenCircuit	Load cell channel 1 open circuit
69	T_ALARM_071_LoadCellCh1ShortCircuit	Load cell channel 1 short circuit
70	T_ALARM_072_LoadCellCh2OpenCircuit	Load cell channel 2 open circuit
71	T_ALARM_073_LoadCellCh2ShortCircuit	Load cell channel 2 short circuit
72	T_ALARM_074_LmiOM_CoffirmOffTimeOut	Load moment limiter cancel timeout under the working condition
73	T_ALARM_075_LmiOM_CoffirmOnTimeOut	Load moment limiter determine timeout under the working condition
74	C_ALARM_100_ECU_TIMEOUT	Engine EUC communication timeout alarm
75	C_ALARM_101_ENCODER_TIMEOUT	Turret rotation encoder communication timeout alarm
76	C_ALARM_102_TILT_SENSOR_TIMEOUT	Chassis level sensor communication timeout alarm
77	C_ALARM_103_DANFOSS_PUMP_TIMEOUT	DANFOSS travel pump controller TCU communication timeout alarm
78	C_ALARM_104_ACQ_TIMEOUT	ACQ length angle sensor communication timeout alarm
79	C_ALARM_105_JOYSTICK_LEFT_TIMEOUT	Left action handle communication timeout alarm

80	C_ALARM_106_JOYSTICK_RIGHT_TIMEOUT	Right action handle communication timeout alarm
81	C_ALARM_107_MDP_LMI_TIMEOUT	MIDAC PLUS LMI force limit controller communication timeout alarm
82	C_ALARM_108_AUTEC_REMOTE_TIMEOUT	AUTEC remote control communication timeout alarm
83	C_ALARM_109_NOT_USED	NOT USED
84	C_ALARM_110_STAB_V_SENSOR_FAULT_FL	FL left front longitudinal ground outrigger sensor check fault
85	C_ALARM_111_STAB_V_SENSOR_FAULT_FR	FR right front longitudinal ground outrigger sensor check fault
86	C_ALARM_112_STAB_V_SENSOR_FAULT_RL	RL left rear longitudinal ground outrigger sensor check fault
87	C_ALARM_113_STAB_V_SENSOR_FAULT_RR	RR right rear longitudinal ground outrigger sensor check fault
88	C_ALARM_114_STAB_H_SENSOR_FAULT_FL	FL left front lateral outrigger sensor check fault
89	C_ALARM_115_STAB_H_SENSOR_FAULT_FR	FR right front lateral outrigger sensor check fault
90	C_ALARM_116_STAB_H_SENSOR_FAULT_RL	RL left rear lateral outrigger sensor check fault
91	C_ALARM_117_STAB_H_SENSOR_FAULT_RR	RR right rear lateral outrigger sensor check fault
92	C_ALARM_118_EMERGENCY_BUTTON_PWROFF	Emergency stop switch without power supply
93	C_ALARM_119_NOT_USED	NOT USED
94	C_ALARM_120_TCU_GEAR_SELEC_FAULT	Travel gear selector switch fault
95	C_ALARM_121_GEAR_M1_FB_FAULT	Transfer box 1st gear Check fault
96	C_ALARM_122_GEAR_M2_FB_FAULT	Transfer box 2nd gear Check fault
97	C_ALARM_123_TCU_Err_13_WatchDog	Travel pump watchdog fault_13
98	C_ALARM_124_TCU_Err_11_DSP_Volt	Travel pump DSP reference voltage fault_11
99	C_ALARM_125_TCU_Err_12_AnalogInjCh	Travel pump analog input fault_12
100	C_ALARM_126_TCU_Err_14_15_BatteryVolt	Travel pump battery voltage fault 14-15
101	C_ALARM_127_TCU_Err_16_SensorVolt	Travel pump sensor voltage fault_16
102	C_ALARM_128_TCU_Err_35_FNRswitch	Travel pump FNR switch fault_35
103	C_ALARM_129_TCU_Err_39_InchingSensor	Travel pump inching sensor fault_39
104	C_ALARM_130_TCU_Err_43_DrivingSensor	Travel pump drive sensor fault_43
105	C_ALARM_131_TCU_Err_31_SpeedRPM_Err	Travel pump speed sensor fault_31
106	C_ALARM_132_TCU_Err_47_ModeSwitchB	Travel pump mode switch B fault_47
107	C_ALARM_133_TCU_Err_58_MotorRPMsensor	Travel pump motor speed sensor fault_58

108	C_ALARM_134_TCU_Err_22_PumpValveFWD	Travel pump valve forward drive fault_22
109	C_ALARM_135_TCU_Err_23_PumpValveREV	Travel pump valve backward drive fault_23
110	C_ALARM_136_TCU_Err_28_HydMotorCtrlValve	Travel pump hydraulic motor control valve fault_28
111	C_ALARM_137_TCU_Err_25_DOutputsA1A2	Travel pump output A1A2 fault_25
112	C_ALARM_138_TCU_Err_26_DOutputsB1B2	Travel pump output B1B2 fault_26
113	C_ALARM_139_TCU_Err_75_EngineRPMpoti	Travel pump engine speed POTI_75
114	C_ALARM_140_TCU_Err_72_CANmsgTimeout	Travel pump CAN bus communication timeout_72
115	C_ALARM_141_TCU_Err_77_TemperatureSensor	Travel pump temperature sensor fault_77
116	C_ALARM_151	Open circuit of the pump forward solenoid valve
117	C_ALARM_152	Short circuit of the pump forward solenoid valve
118	C_ALARM_153	Open circuit of the pump backward solenoid valve
119	C_ALARM_154	Short circuit of the pump backward solenoid valve
120	C_ALARM_155	Open circuit of the motor solenoid valve
121	C_ALARM_156	Short circuit of the motor solenoid valve
122	C_ALARM_157	Communication fault between the engine and controller MC024
123	C_ALARM_158	Communication fault between the main controller and controller MC024
124	ALC159_LimpHome2	Limping level 2
125	ALC160_LimpHome3	Limping level 3
126	ALC161_LimpHome2FWD	Limping forward level 2
127	ALC162_NeutralBKP	Transmission fault (neutral gear)
128	ALC163_TempVariation	Abnormal transmission temperature changes
129	ALC164_Err_TempHigh	Excessively-high transmission temperature
130	ALC165_Err_TempLow	Excessively-low transmission temperature
131	ALC166_Err_OpenMaster	Main clutch separation
132	ALC167_Err_FreezeGear	Gear lock
133	ALC168_Err_Force2Garage	Gear forced combination
134	ALC169_Err_FNRleverFail	FNR gear signal exception
135	ALC170_Err_NoPressure	Transmission main proportional valve with no pressure

136	ALC171_Err_KPressSensorFail	Transmission main proportional valve with no pressure
137	ALC172_Err_CarouseFail	Abnormal vehicle speed
138	ALC173_Err_TempLowOhm	Transmission temperature sensor resistance being lower than the normal value
139	ALC174_Err_TempHighOhm	Transmission temperature sensor resistance being higher than the normal value
140	ALC175_Err_FreqTxOutFail	Transmission speed sensor exception
141	ALC176_Err_NoPressure4Cold	Low ambient temperature, main proportional valve with no pressure
142	ALC177_Err_WrongRatio	Transmission drive system speed-ratio error
143	ALC178_Err_EngSpdFail	Engine speed exception detected from the transmission check
144	ALC179_Err_SpdTxInFail	Transmission input speed exception
145	ALC180_Err_SpdTxOutFail	Transmission output speed exception
146	ALC181_Err_DeratingFail	Engine speed reduction exception
147	ALC182_Err_FwdH_ctrlErr	Control current exception of the transmission forward high solenoid valve
148	ALC183_Err_FwdH_hwErr	Current overload of the transmission forward high solenoid valve
149	ALC184_Err_FwdL_ctrlErr	Control current exception of the transmission forward low solenoid valve
150	ALC185_Err_FwdL_hwErr	Current overload of the transmission forward low solenoid valve
151	ALC186_Err_Rev_ctrlErr	Control current exception of the transmission backward solenoid valve
152	ALC187_Err_Rev_hwErr	Current overload of the transmission backward low solenoid valve
153	ALC188_Err_Kprop_ctrl	Control current exception of the transmission K valve
154	ALC189_Err_KpropStuckOpen	Normally-open fault of the transmission K valve
155	ALC190_Err_Kprop_hw	Control current overload of the transmission K valve
156	ALC191_Err_NeutralFail	Transmission neutral-gear fault
157	ALC192_Err_EEC1tmout	Transmission EEC1 timeout
158	ALC193_Err_BJM1tmout	Transmission BJM1 timeout
159	ALC194_Err_TCUHW	Transmission TCU hardware fault
160	ALC195_Err_IDigK1	Transmission K1 switching valve fault
161	ALC196_Err_IDigK2	Transmission K2 switching valve fault
162	M_ALARM_201_E2promAlarm	Mdp Load moment limiter E2PROM error
163	M_ALARM_202_Can1_InitErr	Mdp Load moment limiter CAN1 Initialization error

164	M_ALARM_203_Can0_InitErr	Mdp Load moment limiter Initialization error
165	M_ALARM_204_Mds_InitErr	Mdp Load moment limiter Initialization error
166	M_ALARM_205_E2P_InitErr	Mdp load moment limiter E2PROM initialization error
167	M_ALARM_206_DataExc_InitErr	Mdp load moment limiter data exchange initialization error
168	M_ALARM_207_Task1_InitErr	Mdp load moment limiter Task 1 initialization error
169	M_ALARM_208_Task2_InitErr	Mdp load moment limiter Task 2 initialization error
170	M_ALARM_209_Task3_InitErr	Mdp load moment limiter Task 3 initialization error
171	M_ALARM_210_Task4_InitErr	Mdp Load moment limiter Task 4 Initialization error
172	M_ALARM_211_FlashInt_InitError	Mdp force limiter flash initialization error
173	M_ALARM_212_AL_ERam_Nerror	Mdp Load moment limiter ERAM error
174	M_ALARM_213_DExc_Error	Mdp Load moment limiter DExc error
175	M_ALARM_214_CFlash_Nerror	Mdp Load moment limiter CFLASH error
176	M_ALARM_215_TWdo_VIn_A	Mdp Load moment limiter TWdo_VIn_A error
177	M_ALARM_216_TIn_Error	Mdp Load moment limiter TIn_Error error
178	M_ALARM_217_Outputs_Error	Mdp Load moment limiter output error
179	M_ALARM_218_TWdo_Reset	Mdp Load moment limiter TWdo_Reset error
180	M_ALARM_240_C1_InitRamAlarm	Mdp Load moment limiter CPU1 initialization RAM error
181	M_ALARM_241_C1_IntFlashCRCError	Mdp Load moment limiter CPU1 internal FLASH CRC error
182	M_ALARM_242_C1_IOSysTaskStatus	Mdp Load moment limiter CPU1 IO task error
183	M_ALARM_243_C1_E2promAlarm	Mdp Load moment limiter CPU1 E2PROM error
184	M_ALARM_244_C1_CAN_Init_ErrorCode	Mdp Load moment limiter CPU1 CAN Initialization error
185	M_ALARM_245_C1_DataExc_InitError	Mdp Load moment limiter CPU1 Data exchange initialization error
186	M_ALARM_246_C1_DExc_FrmError	Mdp load moment limiter CPU1 DExc error
187	M_ALARM_247_C1_DExc_NCrcError	Mdp load moment limiter CPU1 DExc_NCRC error
188	M_ALARM_248_C1_DaM_Idle_RunError	Mdp load moment limiter CPU1 DaM_Idle running error
189	M_ALARM_249_C1_DaM_Task3_RunError	Mdp load moment limiter CPU1 DaM_Task3 running error
190	M_ALARM_250_C1_SqM_Error	Mdp load moment limiter CPU1 SqM error
191	M_ALARM_251_BypassActive	Mdp load moment limiter bypass open

192	M_ALARM_301_PL_A_Fault_Tmin	Open circuit in channel A of pressure sensor in rodless chamber of load moment limiter derricking cylinder
193	M_ALARM_302_PL_A_Fault_Tmax	Load moment limiter derricking cylinder with rodless cavity pressure sensor channel A is short circuited
194	M_ALARM_303_PH_A_Fault_Tmin	Load moment limiter derricking cylinder with rod cavity pressure sensor channel A is open circuited
195	M_ALARM_304_PH_A_Fault_Tmax	Load moment limiter derricking cylinder with rod cavity pressure sensor channel A is short circuited
196	M_ALARM_305_PL_B_Fault_Tmin	Open circuit in channel B of pressure sensor in rodless cavity of load moment limiter derricking cylinder
197	M_ALARM_306_PL_B_Fault_Tmax	Short circuit in channel B of pressure sensor in rodless cavity of load moment limiter derricking cylinder
198	M_ALARM_307_PH_B_Fault_Tmin	Open circuit in channel B of pressure sensor in rod cavity of load moment limiter derricking cylinder
199	M_ALARM_308_PH_B_Fault_Tmax	Load moment limiter derricking cylinder rod cavity pressure sensor channel B short circuit
200	M_ALARM_309_CCYl_PL_A_Fault_Tmin	Load moment limiter fork cylinder rodless cavity pressure sensor channel A open circuit
201	M_ALARM_310_CCYl_PL_A_Fault_Tmax	Load moment limiter fork cylinder rodless cavity pressure sensor channel A short circuit
202	M_ALARM_311_CCYl_PH_A_Fault_Tmin	Load moment limiter fork cylinder rod cavity pressure sensor channel A open circuit
203	M_ALARM_312_CCYl_PH_A_Fault_Tmax	Load moment limiter fork cylinder rod cavity pressure sensor channel A Short circuit
204	M_ALARM_313_CCYl_PL_B_Fault_Tmin	Load moment limiter fork cylinder rodless cavity pressure sensor channel B open circuit
205	M_ALARM_314_CCYl_PL_B_Fault_Tmax	Load moment limiter fork cylinder rodless cavity pressure sensor channel B short circuit
206	M_ALARM_315_CCYl_PH_B_Fault_Tmin	Open circuit of Load moment limiter fork cylinder rod cavity pressure sensor channel B
207	M_ALARM_316_CCYl_PH_B_Fault_Tmax	Load moment limiter fork cylinder rod cavity pressure sensor channel B short circuit
208	M_ALARM_317_PL_D_Fault_MaxDiff	Redundancy fault of load moment limiter derricking cylinder rodless cavity pressure sensor
209	M_ALARM_318_PH_D_Fault_MaxDiff	Redundancy fault of load moment limiter derricking cylinder rod cavity pressure sensor
210	M_ALARM_319_PL_D_Fault_MaxDiff	Redundancy fault of load moment limiter fork cylinder rodless cavity pressure sensor
211	M_ALARM_320_PH_D_Fault_MaxDiff	There is redundancy fault of rod cavity pressure for load moment limiter fork cylinder.
212	M_ALARM_321_A1A_Fault_Rmin	The actual angle of load moment limiter angle sensor channel A is less than the set value
213	M_ALARM_322_A1A_Fault_Rmax	The actual angle of load moment limiter angle sensor channel A is greater than the set value
214	M_ALARM_323_A1B_Fault_Rmin	The actual angle of load moment limiter angle sensor channel B is less than set value
215	M_ALARM_324_A1B_Fault_Rmax	The actual angle of load moment limiter angle sensor channel B is greater than set value
216	M_ALARM_325_A1D_Fault_MaxDiff	Load moment limiter angle sensor redundancy error
217	M_ALARM_326_S1A_Fault_Tmin	Analog value of load moment length sensor channel A is smaller than set value

218	M_ALARM_327_S1A_Fault_Tmax	Analog value of load moment length sensor channel A is bigger than set value
219	M_ALARM_328_S1A_Fault_Rmin	The actual length of load moment limiter length sensor channel A is shorter than set value.
220	M_ALARM_329_S1A_Fault_Rmax	The actual length of load moment limiter length sensor channel A is greater than set value
221	M_ALARM_330_S1B_Fault_Tmin	Analog value of load moment limiter length sensor channel B is less than set value
222	M_ALARM_331_S1B_Fault_Tmax	Analog value of load moment limiter length sensor channel B is greater than set value
223	M_ALARM_332_S1B_Fault_Rmin	The actual length of load moment limiter length sensor channel B is less than the set value
224	M_ALARM_333_S1B_Fault_Rmax	The actual length of load moment limiter length sensor channel B is greater than the set value.
225	M_ALARM_334_S1D_Fault_MaxDiff	Load moment limiter length sensor redundancy error
226	M_ALARM_335_TOut_U2AMU_C1_A	Load moment limiter level sensor channel A is communication timeout
227	M_ALARM_336_TOut_U2AMU_C1_B	Load moment limiter level sensor channel B is communication timeout
228	M_ALARM_337_C1_A_Fault	Load moment limiter angle sensor channel A is faulty
229	M_ALARM_338_C1_B_Fault	Load moment limiter angle sensor channel B is faulty
230	M_ALARM_339_ACXD_Fault_MaxDiff	Load moment limiter level sensor X-axis redundancy fault
231	M_ALARM_340_ACYD_Fault_MaxDiff	Load moment limiter level sensor Y-axis redundancy fault
232	M_ALARM_345_TOut_EncSlew_A	Load moment limiter turret encoder communication timeout
233	M_ALARM_346_Rdn_CongruenzaSlew	Load moment limiter turret encoder redundancy fault
234	M_ALARM_352_Fault_ByPass	Load moment limiter bypass switch on

4.18 Instructions for Use of Hook and Bucket

4.18.1 Description

1) The forklift truck will be automatically classified as a crane when the installed auxiliary devices (such as hook, etc.) are used to lift suspended loads.
2) Only auxiliary devices approved by the manufacturers and conforming to the "CE" certification can be used for forklift trucks. The manufacturers are not responsible for unauthorized auxiliary devices.
3) For the truck provided with auxiliary devices, before starting, authorized and qualified technicians should check whether the auxiliary devices are suitable for the truck, and check whether the technical documents required for using the auxiliary devices are correct.
4) The truck must comply with all applicable laws and regulations, even after it is provided with applicable auxiliary devices.

4.18.2 Before any operation, please ensure:

1) Dealers, users, operators, lessors, lessees and brokers must comply with the appropriate parts of the applicable **EN280** standard.
2) You have understood and practiced the safety rules for machine operation in this operation manual.
3) Always perform pre-operation checks.
4) Check the workplace.
5) Use the machine only for its intended purpose.
6) Read, understand and comply with all applicable laws and regulations.
7) Read, understand and comply with the manufacturer's instructions and safety rules - safety operation manual and machine labels.
8) Read, understand and comply with the user safety rules and workplace regulations.
9) You have been trained to operate the machine safely.

4.18.3 Safety precautions

- **This machine is not insulated, and does not provide protection against electric shock when it is in contact with or near wires. Please follow the applicable laws and regulations and the instructions in the table below to maintain a sufficient safety distance from power cable and electrical equipment.**

Voltage	Clearance required
0~50 kV	3m
50 kV～200 kV	5m
200 kV～350 kV	6m
350 kV～500 kV	8m
500 kV～750 kV	11m
750 kV～1000 kV	14m

- **It is necessary to consider the effects of strong or gusty winds on boom movement, wire swing and slackness.**
- **If the machine comes into contact with a live wire, stay away from the machine immediately. Before the power is cut off, any person is forbidden to touch or operate the machine.**
- **Do not operate the machine during lightning or storms.**
- **Do not use the machine as a ground wire during welding.**
- **Lift the load in strict accordance with the instructions in the load curve, and do not attempt to lift the load more than the value allowed in the load curve.**
- **Make sure the road surface can support the weight of the machine, including its rated load.**
- **Avoid sudden start/stop, turning, and driving.**
- **Do not operate the machine at a wind speed above level 6.**
- **Do not operate the machine when the machine load exceeds its rated load.**
- **Do not drive the machine at high speed with the boom lifted.**
- **Do not raise the boom when the chassis is not level.**
- **When lifting and lowering the boom or before driving, check the working area for obstacles, and check whether there are any obstacles beside and under the boom.**
- **Do not move the machine when there are people and obstacles within the moving range of the machine.**
- **No person is allowed to work, stand or walk under the raised boom.**
- **Keep the load lowered and the telescopic boom retracted as far as possible during transport.**
- **Limit traveling speed based on ground conditions, congestion level, slope, location of personnel and any other factors that may cause a collision.**
- **Do not attempt to operate the machine beyond the capabilities of the machine.**
- **Under no circumstances should the**

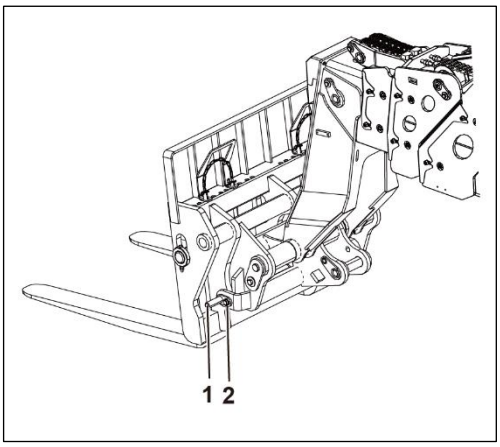
machine be parked in a place where the load is lifted.

- Movement can only be carried out with load balanced.
- Moving the load with a hook must be slow.
- Before operating the machine, it is essential to check that the ground conditions are good enough to support the tires or outriggers, as detailed in the “Workplace checks”.
- Before formal lifting, a trial lifting (lifting the heavy object 10cm above the ground) should be carried out, and the machine devices and the force on the ground should be checked during the trial lifting.
- Inclined hanging, pulling and rapid lifting and lowering are strictly prohibited.
- Avoid vibration and inclined lifting during vertical of lifting loads.
- Do not untie the lifting rigging until the lifted load is in place.
- Check the auxiliary devices used to lift the load every day, as detailed in "Pre-operation checks".
- Do not use the hook or bucket to transport personnel.
- During traveling, place the bucket at a height of about 50cm above the ground and turn up the bucket.
- It should be inserted at a low speed in case of sand accumulation, and the engine speed should be gradually increased to drive the machine forward.
- When the propulsion resistance of the bucket increases, the tire may slip or the engine speed may decrease, etc. In this case, shoveling should be stopped and cannot be forced.
- Before installing new auxiliary devices, please check whether the safety system needs to be recalibrated. Uncalibrated or substandard calibration may cause serious personal injury or death.
- If the machine is tilted downward, the size of the auxiliary device and the retracted or lowered boom may interfere with and damage the front tires. To eliminate this risk, the boom should be extended long enough to accommodate the auxiliary device.
- When the machine is provided with the

bucket and hook, the machine mode needs to be adjusted to the fork mode.

- **For information on the parameters of the auxiliary device, please refer to the nameplate located on the auxiliary device.**

4.18.4 Removing the fork

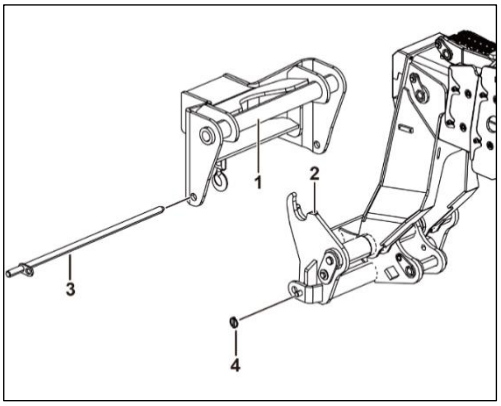


1. Auxiliary device stop pin
2. Pin

1) Park the forklift truck on a solid level ground, set the selector lever to N position, and pull up the parking brake lever.
2) Extend the boom about 50cm.
3) Adjust the fork to a horizontal position, and then lower the fork until it just touches the ground.
4) Remove the pin (2).
5) Move the fork slightly so that the pin (1) can be removed freely.
6) After removing the pin (1), tilt the auxiliary device holder forward, and then lower the boom until the side plate of the auxiliary device holder is completely separated from the steel pipe beam of the auxiliary device.
7) Retract the boom.

⚠ Note: The hook and bucket should be removed in the same way as fork.

4.18.5 Installing the hook



1. Steel pipe beam
2. Side plate of auxiliary device holder
3. Auxiliary device stop pin
4. Pin

1) Park the forklift truck directly behind the hook, set the selector lever to N position, and pull up the parking brake lever.
2) Tilt the auxiliary device holder forward, and then extend the boom so that the steel pipe beam (1) is directly above the side plate (2) of the auxiliary device holder.
3) Slightly raise the boom so that the steel

pipe beam (1) is in full contact with the side plate (2) of the auxiliary device holder.

4) Raise the boom so that the hook is about 10cm from the ground.

5) Tilt the auxiliary device holder backward so that its mounting holes are aligned with the mounting holes of the auxiliary device.

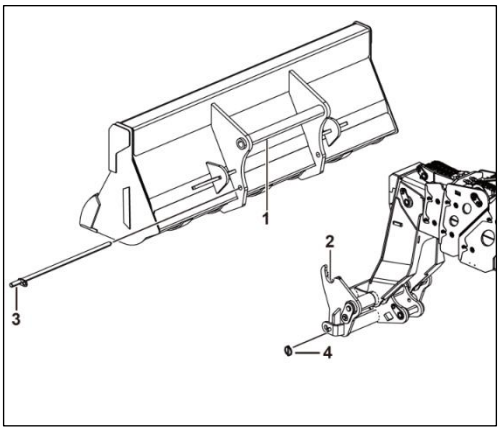
6) Insert the auxiliary device stop pin (3) into the mounting hole.

7) Install the pin (4), and fix the stop pin of the auxiliary device.

ATTENTION

For your safety, please check that the pins are fully secured before working.

4.18.6 Installing the bucket



1. Steel pipe beam
2. Side plate of auxiliary device holder
3. Auxiliary device stop pin
4. Pin

1) Park the forklift truck directly behind the hook, set the selector lever to N position, and pull up the parking brake lever.

2) Tilt the auxiliary device holder forward, and then extend the boom so that the steel pipe beam (1) is directly above the side plate (2) of the auxiliary device holder.

3) Slightly raise the boom so that the steel pipe beam (1) is in full contact with the side plate (2) of the auxiliary device holder.

4) Raise the boom so that the bucket is about 10cm from the ground.

5) Tilt the auxiliary device holder backward so that its mounting holes are aligned with the mounting holes of the auxiliary device.

6) Insert the auxiliary device stop pin (3) into the mounting hole.

7) Install the pin (4), and fix the stop pin of the auxiliary device.

Note: The fork should be installed in the same way as the bucket.

ATTENTION

For your safety, please check that the pins are fully secured before working.