

Dongfeng DFH4180 Series Vehicles

SEMI-TRAILER TRACTOR

User's Manual

Dongfeng Commercial Vehicle Co., Ltd.

July 2019



Foreword

Thanks for purchasing and using Dongfeng motor vehicles. We sincerely hope that they will bring you infinite wealth.

It is our common objective to optimize your vehicle, which, however, to a certain extent, depends on your familiarity with the vehicle and careful and comprehensive maintenance. You are appreciated to go through this manual and thus to get familiar with operation procedures therein before you operate the vehicle.

As an integral part of the vehicle, this manual should be kept and used with the vehicle. It shall be noted that, to meet users' demands, Dongfeng Commercial Vehicle Co., Ltd. will constantly improve and perfect the vehicle products. The company reserves the right to modify the product design and technical features at any time. Therefore, the figures and description in this manual are correct upon publication, and no further notice will be made upon the subsequent modification. The parameters concerning the bulletin shall refer to the national bulletin. Thanks for your understanding.

This manual is applicable for DFH4180 series truck. When reading this manual, please refer to the specific configuration of your vehicle. These series have all reached China six emission standard.

For issues related to quality warranty and spare part purchase of our products, please contact the Technical Service Centre (Station) or Customer Service Centre of Dongfeng Commercial Vehicle Co., Ltd.. Sunshine Service Hotline: 0719-8885555 or Free Call: 400-900-5555.

Dongfeng Commercial Vehicle Co., Ltd.

July 2019

Use of Manual

This manual describes the structure & operation, starting & driving, maintenance & adjustment, as well as technical parameters and service & adjustment data for Dongfeng vehicle products. The user should perform the inspection and maintenance work in strict accordance with the maintenance interval mileage specified in the regular maintenance schedule.

Symbols in the manual are specified as follows:



WARNING:

Failure to observe the requirement with a warning mark will result in serious personal injury or property loss.



CAUTION:

Failure to observe the requirement with a caution mark will result in personal injury or damage to component and assembly or complete vehicle.

Declaration

Dongfeng Commercial Vehicle Co., Ltd. shall be relieved of the responsibility for products' reliability, safety or compatibility in case of one of the followings:

1. The nameplate and the certificate of the complete vehicle or chassis issued by our company do not match the material object, or are altered.
 2. Failure to observe the requirements in this manual to properly use and operate the vehicle.
 3. No regular maintenance (including running-in maintenance and mileage maintenance) is executed at service station in accordance with this manual.
 4. Failure to use the oil products, coolant, air filter elements, fuel filter elements and oil filter elements designated in this manual.
 5. The customer repairs the vehicle when it is faulty within the quality guarantee period instead of getting it repaired in the Technical Service Station authorized by Dongfeng Commercial Vehicle Co., Ltd..
 6. Malfunction caused by altering the original structure of the vehicle without authorization of our company, such as retrofitting, addition or parts modification, namely, room extending, frame strengthening, leaf spring thickening, or tyres layering or widening.
 7. Malfunction caused by the failure to use the genuine parts recognized by our company when repairing the vehicle.
 8. Deteriorated successive fault and related components damage caused by continuously driving the vehicle with fault or potential fault which is not eliminated in time.
 9. The customer handles the traffic accident privately without the duty confirmation executed by involved parties such as public security traffic administrative authority and insurance company.
 10. The vehicle is operated beyond the load limit or other limits.
 11. Impact, burning damage, scratch or chipping caused by external factor rather than the internal fault of the products.
-

12. Vehicle damage caused by force majeure, such as flood, lightning, storm and hailstone.
13. Normal deterioration of the vehicle like noise, vibration, wear and aging.
14. Delay loss caused by stopping or refusing the service station to perform regular inspection, analysis and evaluation to the vehicle.
15. Vehicles that are no longer in warranty period.
16. Other repairs not associated with material, design or manufacturing, or unauthorized modification or conversion of vehicle design.

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Vehicle Identification

Location of Vehicle Nameplate

The vehicle nameplate is placed inside the passenger side door in the cab.

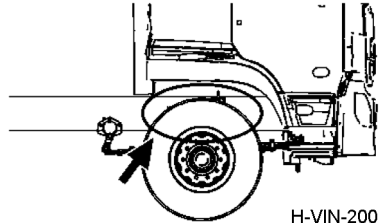
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H-D760-021

1. Vehicle nameplate

Location of VIN

VIN code is the vehicle identification code. It can be engraved on the outside of the front longitudinal center line of the right front wheel. It can also be engraved on the outside of the longitudinal center line of the right front wheel ($\pm 500\text{mm}$).



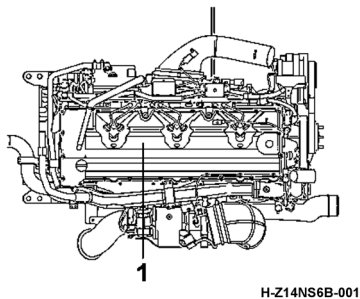
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Read VIN

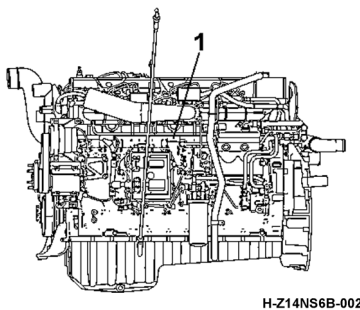
The vehicle VIN code is stored in the electronic control unit (ECU), and the communication baud rate is 500Kbps. The vehicle VIN code can be read through the communication protocol ISO27145. Detection Tool ScanTool (Silver ScanTool software, J2534 interface hardware such as ValueCan) can read the VIN code of dongfeng commercial vehicle. The Tool can be purchased through Beijing yi 'an hengrui technology co., LTD or social channels. When reading, the Tool is connected with the vehicle OBD port to run relevant programs.

Location of Engine Nameplate and Ex-factory Code

Cummins engine



1. Engine nameplate



1. Location of engine ex-factory code

Precautions

China six engine exhaust parts warranty period provisions

system	serial number	Part name	Road vehicle/engineering vehicle
Air intake system	1	supercharger	5 years / 160,000 km (60 months / 160,000 km) (whichever comes first)
fuel system	2	fuel pump	
	3	injectors	
	4	High pressure common rail	
	5	pressure regulator	
	6	mixing plant	
	7	injector	
ignition system	8	spark plug	
	9	Ignition coil assembly	
Exhaust gas recirculation	10	EGR valve	
	11	EGR cooler	
Post-processing plant	12	SCR	
	13	DOC	
	14	DPF	
	15	urea nozzle	
	16	Urea metering pump	
	17	urea quality sensor	
	18	hydrocarbon nozzle	
	19	hydrocarbon metering pump	
Crankcase	20	crankcase vent valve	
sensor	21	NOx sensor	
	22	temperature sensor	
	23	air flowmeter	
	24	differential pressure sensor	
	25	oxygen sensor	
Electronic control unit	26	ECU	
	27	DCU	

Environment-friendly Operation and Adjustment of Engine

1. Dongfeng Commercial Vehicle Co., Ltd shall regard any private or unauthorized removal of lead seals of the engine as automatic abandonment of the warranty.
2. The engine has been strictly adjusted before delivery and met the requirement of the national environmental laws. The user is not allowed to execute unauthorized alternation or adjustment. The engine can only be adjusted in the service station designated by Dongfeng Commercial Vehicle Co., Ltd. Dongfeng Commercial Vehicle Co., Ltd will regard any private altering or adjustment in any unauthorized service station as automatic abandonment of the warranty.
3. Use the oil filter element and fuel filter element designated by the engine manufacturer.
4. Strictly observe the following during the operation and maintenance:
 - a). Perform regular maintenance and replacement of the oil filter, the fuel filter and the air filter.
 - b). Make sure to apply the designated or recommended model and specification of oil, and change the oil regularly.
 - c). You must use a qualified conforms to the standard stipulated by the urea solution, not added.
 - d). Add high quality diesel of different grades under different climate conditions; do not use poor-quality diesel.
 - e). Always check the level of coolant and lubricating oil regularly, and add if necessary.
 - f). Check that the connecting pipes for supercharger, intercooler and intake & exhaust pipes are airtight.
 - g). Before driving, let the engine run idly for 3~5 min to lubricate sufficiently all its parts, especially the supercharger in order to ensure the normal operation of the supercharged engine. After starting the engine, never warm up it by means of acceleration. Before shutdown, let the engine run idly for 3~5 min, to cool down normally all its parts, especially the turbine casing of the supercharger, in order to prevent the gumming or carbon deposition of the lubricating oil on the hot component, which will lead to malfunctions like blockage.
5. During the warranty period, we should keep the material proof of using qualified oil products and urea (such as the certificate of filling station within one year and the certificate of urea sales at the normal point of sale).
6. According to the maintenance provisions of this manual, vehicle maintenance shall be conducted at the service station authorized by dongfeng commercial vehicle co., ltd. with maintenance records.
7. All materials for maintenance, if no longer in use, shall be disposed of in accordance with national or local environmental laws.

**CAUTION:**

It may be illegal for a vehicle not to use the prescribed fuel and urea.

Daily Inspection

Please check carefully the vehicle before driving.

1. Check the coolant level.
2. Check the engine lubricating oil level.
3. Check for oil leakage, water leakage and air leakage.
4. Check and clean the glass and rearview mirror.
5. Check the wheel nut for looseness, and check the tire pressure and tread .
6. Check steering wheel, transmission control handle and brake status.
7. Check the brake pedal for free travel .
8. Check the horn .
9. Check the lights.
10. Check fuel tank capacity .
11. Check urea (DEF) level .

**CAUTION:**

1.Drain the fuel filter and fuel primary filter.

a.Drain them every week or drain the water and deposits when the water-in-fuel indicator lamp is on (applicable for the truck with water-in-fuel indication function);

b.For the refueling, it is recommended to drain the water and deposits in the water separator of fuel primary filter after the shutdown each day.

2.Drive in winter and cold areas, or drive continuously from normal temperature areas to high altitude areas, low temperature and cold areas in north China. Before shut-down every day, please push the air storage cylinder pressure to the rated pressure.

3.In winter and cold areas, check the water in the air storage tank every day after receiving the truck. Otherwise, check it once a week. When the ambient temperature is less than 5 °C, please switch on the air dryer heating switch on the instrument panel.

4.When the friction plate wear indicator lever indicates that the friction plate has moved to the wear limit or is prompted by the instrument, the friction block assembly must be replaced immediately.

5.Normally, the maintenance-free hub oil should be dark. If the oil is white or milk-like, it indicates that the oil has been contaminated.

6.Check that the pipeline connection between the tractor and the trailer is intact and there is no leakage.

Running-in of New Vehicle

The running-in mileage is 1,500-2,500 km, during which attention should be paid to the following items:

1. In the first 250 km of running-in, loading is strictly prohibited, and the engine speed can never exceed 2,000 r/min.
2. The load shall not exceed 50% of the rated load capacity within the running-in period of 800km and 75% after 800 km.
3. Drive the truck on a level and hard road with minor slope throughout the running-in period.
4. Run the engine under a proper light load or idly for a while to warm it up after starting it.
5. It is strictly prohibited for the engine to idle for a long time, and the idle speed should not exceed 5 minutes before the operation with load, otherwise the engine will be damaged (except when the full-power PTO is selected to operate with load).
6. Never drive the truck at a constant speed for a long time.
7. Properly use the transmission gears to avoid overloading the engine.
8. Often note the indication of the engine oil pressure (check low oil pressure alarm lamp) and the coolant temperature.
9. Check the engine lubricating oil level and coolant level regularly.
10. For the truck employing flexible cowl in cooling system, check the clamp of flexible cowl for looseness and re-tighten it if necessary.
11. Drive the truck properly, avoid abrupt braking, and properly use engine exhaust braking.
12. Never shut down the engine abruptly after it has been running at high speed or under heavy load for a long time. Keep the engine running idly after driving, and shut it down after it is cooled.
13. Check whether the wheel nuts are loose within running-in, and if so, tighten the nut to the torque of 550-650 N·m.
14. In running-in period 200-300km, re-tighten wheel bolt.



CAUTION:

1. **Re-fasten the wheel nuts after running 200~300km.**
2. **After running-in of the new truck, please perform running-in maintenance in the nearest technical service center (station) authorized by Dongfeng Commercial Vehicle Co., Ltd in accordance with the provisions in Dongfeng Commercial Vehicle Quality Assurance Manual.**

Standard Operation

In order to prolong the service life, gain higher economic benefit, and guarantee the travel safety, the following should be noticed during the vehicle operation:

1. When operating the truck, turn on the master power switch, and then make sure that the gear lever is at neutral position in the low range.
2. See Parts for engine start.
3. Do not increase the engine speed too fast if the engine temperature is low; otherwise the wear of engine moving parts will be aggravated.
4. Never move the truck before the brake system pressure reaches and exceeds the stipulated pressure (the air pressure gauge pointer not in the red zone) when the parking brake indicator lamp is off.
5. The truck under heavy load must be started at first gear.
6. It is strictly prohibited to coast the truck at neutral gear with engine stalled.
7. Avoid full throttle start and emergency braking. Full throttle start will result in clutch damage or uneven tire wear, while emergency braking will accelerate the wear of tires and brake linings.
8. Avoid sharp turn at high speed.
9. Never overload the truck since it may shorten its service life.



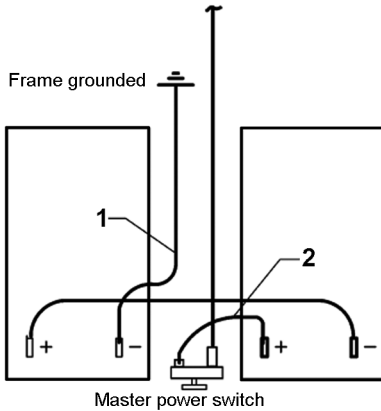
WARNING:

The user should operate the truck in strict accordance with the User's Manual, and the nominal load capacity and gross mass specified in the manual shall never be exceeded. Overload may result in vehicle malfunction and damage and even personal injury.

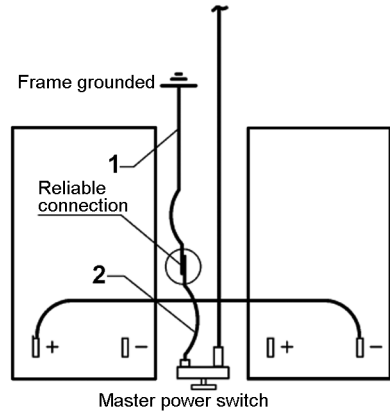
10. When cleaning the truck, avoid the entry of water into the fuel tank.
11. Never turn off the master power switch when the engine is running; make sure to turn off the switch after the truck enters into the yard and stops.
12. Before tilting the cab, make sure to check for any object that is easy to get upside down inside the cab. And remove such objects if any.
13. When maintaining or adjusting the electrical system, make sure to switch off the main power before replacing any electric elements. Never perform any operation with power on.
14. Never replace the fuse or fusible link with copper wire; do use stipulated fuse.
15. Never check the electrical system by testing the live wire through short circuit.
16. Any removed or replaced assembly must be refitted.
17. Protect the electronic control unit of the truck as follows before performing welding on the truck:

Precautions

For the truck equipped with mechanical master power switch:



a) Normal installed status



b) Status prior to welding H-T03-070

1. Negative power cable of battery

2. Positive power cable of battery

Specific operation steps:

- Shut down the engine and disconnect the master power switch.
- Disconnect the positive and negative power cables of the battery, and connect them reliably as shown in Fig. b.
- Turn on the master power switch.
- Perform welding.
- After the welding work is completed, restore the connection of power cables of battery as shown in Fig. a.



WARNING:

- Prevent power short circuit while disconnecting and connecting the power cables.
- Restore all wirings after the welding.
- Failure to perform welding in this way may result in irremediable defect of vehicle electronic devices.

Safety Precautions

**WARNING:**

Failure to observe the requirement with a warning mark will result in serious personal injury or property loss.

1. According to article 48 of the road traffic safety law of the People's Republic of China: "the load of a motor vehicle shall conform to the approved load quality, and overload is strictly prohibited". The user should operate the truck in strict accordance with the User's Manual, and the nominal load capacity and gross mass specified in the manual shall never be exceeded. Overload may result in vehicle malfunction and damage and even personal injury.
2. Make sure to observe the operation specifications to protect truck electronic equipment during welding; otherwise it will result in damages of the truck electronic devices.
3. The seat belt can be used by one person only. Adult and kid are prohibited to share one belt. The whole seat belt should be replaced if any component comes into failure or damage. Make sure that the belt is not intertwined, clear of hard edges and free from chemical pollution. And always adjust the belt length according to the body; otherwise hazard will be caused.
4. When parking the truck, be sure to move the manual valve control lever to locking position; otherwise, the truck may move, which will lead to damage or even personal injury. The spring brake can only be released in emergency. After that, the fault must be eliminated and the parking brake shall be restored. The truck without parking brake is dangerous, and it may result in an accident.
5. Adjusting the position of the steering wheel is strictly prohibited during driving.
6. Always park the truck on a level ground before tilting the cab. Check for sufficient space when tilting the cab inside. Check that the manual valve control lever is at braking position, and gear lever is at neutral position, and chock the tires. Put away the scattered objects inside the cab and those which are easy to fall during cab tilting. The cab must be tilted to proper position, with the center of gravity tilting over the support point to avoid the cab to slide accidentally. Do not turn the reversing handle after cab tilting. It must be in proper position when the cab lowers to the original place.
7. Do not touch the gear lever while the engine is running after cab tilting, and do not lower the cab while the engine is running.
8. Never connect the cigar lighter for a long period. It must be drawn out manually if it fails to pop out automatically.
9. The filler cap of auxiliary water tank can be removed only after the coolant temperature is below 50°C, otherwise, the spraying of high temperature coolant or steam may cause personal injury. Before removing the coolant filter, please remove the filler cap of auxiliary water tank and close the shutoff valve; otherwise, hot coolant may be sprinkled to cause personal injury.
10. Never replace the fusible link (fuse) with ordinary conducting wire or fusible link of other specifications.

Precautions

11. Make sure to use only the oils and greases stipulated in this manual; otherwise it may cause the truck malfunction, damage and even personal injury.
12. If the alarm lamp stays on or flashes when the engine is running, then it indicates that some part is in trouble. In this case, please contact the Technical Service Center (Station) authorized by Dongfeng Commercial Vehicle Co., Ltd as soon as possible.
13. Friction pad and brake disc should use original parts, otherwise it will bring serious consequences;
14. Never extend the head and hands outside the window when the power window is rising. In this course, if the body or other objects are nipped between the window and door frame, always move the glass downward immediately. When operating the power glass regulator switch on the passenger's side, the driver shall ensure that there is no obstacle affecting the correct closing of the window.
15. Do not place corrosive articles or hard pointed objects into the storage box. And no heavy load is allowed on the storage box cover.



CAUTION:

Failure to observe the requirement with a caution mark will result in personal injury or damage to component assembly or complete vehicle.

1. Observe the truck operation specifications strictly.
2. Check that all doors are closed properly before starting the truck. Always lock the door only with a key when you are outside the vehicle; never lock the door by moving the lock knob forwards while pressing the outer unlocking button to close the door.
3. The master power switch shall never be turned off when the engine is running. Never turn the key to START position when the engine is running to avoid damaging the starter.
4. Never use the washer without washer fluid.
5. When the A/C compressor needs to be restarted after being shut off, please wait for 3-5 min; otherwise, the service life of the compressor will be affected.
6. For the sake of safety, do close the ash tray before leaving the truck.
7. When getting power via the working lamp socket, the electrical load is strictly prohibited to exceed the nominal capacity of the socket.
8. Trailer connection should be done in flat place, make the parking brake working and fix the wheels by triangular stopper. When connecting the connector with tractor, make sure the right pipes are connected.
9. Before adding coolant, check the engine and the radiator for leakage, and repair it if any. It is recommended to use long-life antirust and anti-freeze coolant. Never use the running water or hard water from well or river.
10. Normally do not screw off the pressure valve cap of the auxiliary water tank; if it is necessary to do so, be careful to avoid scalding.
11. Check the engine oil level only when the truck stops. Make sure to drain the lubricating oil off after the engine completely stops. Note the hot oil to avoid scald during the oil draining.

12. When mounting the air filter, make sure to mount the filter element and end cover properly; otherwise dirt may be absorbed, sharply shortening the engine service life. Never clean the filter element with gasoline or water. Check the sealing rings during installation. Tighten the filter element and end cap nut, and install the sealing ring of the end cap properly. Do not remove the air filter when the vehicle is running.
13. Do not tighten the fuel primary filter or the fuel filter with fuel primary filter by a filter spanner during installation. Otherwise the threads may deform and the filter may be damaged. When mounting a new filter, note whether its model conforms to that required by this engine. Before the oil filter is installed, it should be filled with oil.
14. Bleeding is prohibited when the engine temperature is high. The starting time of the engine must not exceed 30 s, and the interval between starting operations shall be 2 min at least.
15. For the manual adjuster, check the brake clearance regularly and adjust it in time if the braking is weak. During the adjustment of brake clearance, never change the push rod travel by screwing the connecting yoke of the brake air chamber push rod. To adjust the rear brake, always park the truck on flat place and ensure the air reservoir pressure is above 700 kPa. Then chock the wheels at the front and back, and after releasing the parking brake, adjust the rear brake clearance.
16. For the automatic regulating arm, manual adjustment of brake clearance is prohibited except for special circumstances; Check the wear situation of friction disc regularly to prevent braking failure caused by excessive wear of friction disc. When adjusting the brake clearance manually, it is strictly forbidden to change the stroke of the push rod by turning the brake air chamber push rod to connect the fork. When manually adjusting the rear brake, make sure the vehicle is parked on a flat place and ensure the air pressure of the storage cylinder is above 700kPa. The front and back of the wheel are choked with a triangular pad, and the brake clearance can be adjusted after the parking brake is lifted. In case of abnormal braking conditions, stop immediately to check the working conditions of the automatic regulating arm and other parts of the braking system, and take appropriate measures to eliminate the fault.
17. Disc brake can automatically adjust the brake clearance, except for special circumstances, manual adjustment of the brake clearance is prohibited. If the brake clearance is found to be abnormal, check the clearance adjustment mechanism function.
18. Auxiliary braking (exhaust braking, engine braking, retarder) is strictly prohibited on wet slippery road surface.
19. For vehicles with ESC (electronic stability control system of vehicle body), ESC self-learning calibration must be carried out at the service station when the steering wheel, steering tie rod, front axle and steering wheel string are replaced. During vehicle restructuring, the position of ESC module shall not be moved or the installation direction of ESC module shall not be changed.

Precautions

20. Never adjust the pressure of brake air line privately to avoid damaging the parts.
21. Never add power steering fluid with engine running.
22. Normally, the battery should be removed for charging when it is discharged. Starting by auxiliary power can be allowed only in emergency, and should be carried out in strict accordance with the operation specifications.
23. Never let the steering wheel stay at the extreme position for more than 15 s. In such a case, it is required to slightly rotate the steering wheel backwards so as to avoid any damage to the power steering pump.
24. When performing the specified maintenance to the truck, the user should shorten the maintenance interval mileage according to the actual operation condition, to ensure more reasonable maintenance and higher reliability of the truck. However, the user should never prolong the maintenance interval mileage.

Safety Precautions for Brake Pipeline Quick Joint



WARNING:

It is strictly prohibited to remove the brake pipeline without authorization; otherwise, air leakage may be caused. If necessary, always remove hoses with special tools at the service station specified by Dongfeng Commercial Vehicle Co., Ltd, and no sharp tools such as the slotted screwdriver can be used for removal.



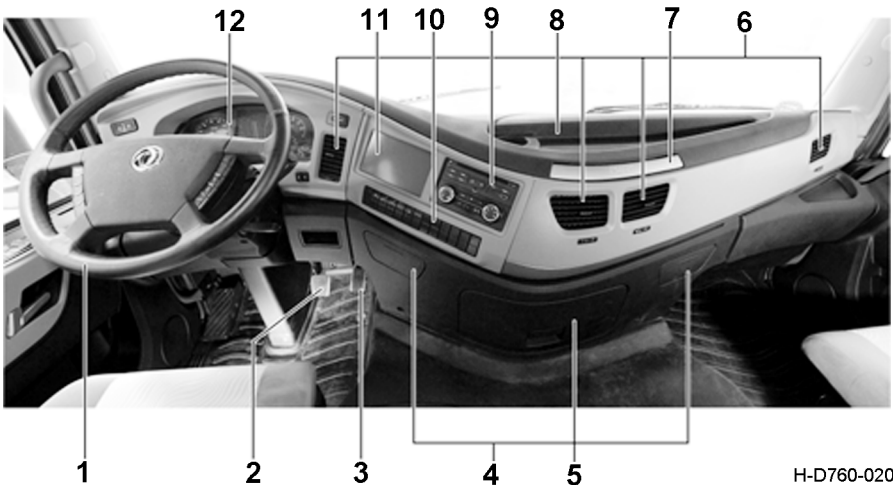
CAUTION:

Quick connector and hose should be repeatedly removed at most 5 times, or they must be replaced.

All the quick connectors and hoses shall be the ones designated by Dongfeng Commercial Vehicle Co., Ltd, whose surfaces should be smooth without any burr, bump, scratch or other defects and should be kept clean.

Structure and Operation

Arrangement of Instrument and Control Mechanism



H-D760-020

- | | |
|----------------------------------|---|
| 1. Steering wheel | 8. Storage platform |
| 2. Brake pedal | 9. Thermostatic air conditioning controller |
| 3. Accelerator pedal | 10. Rocker switch set |
| 4. Cigarette lighter and ashtray | 11. Display panel assembly of on-board information terminal |
| 5. Middle storage box | 12. Instrument panel |
| 6. Air conditioning outlet | |
| 7. Tray Table | |

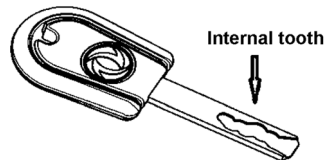
Keys

Please record to the detailed specification of the vehicle purchased.

Normal Keys

Keys are used to control the starter switch of the vehicle, and to lock and unlock the door.

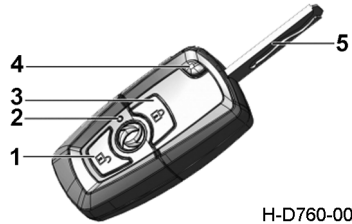
Remote Keys



H-D560-011

Structure and Operation

Keys are used to control the starter switch of the vehicle, and to lock the door, fuel tank cap or urea tank cap.



1. Remote unlocking.
2. indicator lamp
3. Remote locking
4. Mechanical key release button
5. Mechanical key

Doors

From the outside

Open and close doors by normal key

Insert the key into the lockhole and turn the key towards the position of 1 (the head of the truck) to unlock the door; contrarily, the door will be locked; after the door is unlocked, press down the door outside release button to open the door.



Open and close doors by remote key

The key with remote system can lock and unlock the vehicle in 5 m.

When press unlock button, doors from both sides will be unlocked at the same time and cornering lamp will flicker twice. Pull door handle to open the door.

To lock the door, press lock button, doors from both sides will be locked at the same time and cornering lamp will flicker twice.

1. Unlocking position
2. Key inserting position
3. locking position
4. Door handle



CAUTION:

1. Lock the door with mechanical key or remote control function, and check whether the door is completely closed.
2. When the engine is running, using the remote control key outside the car cannot lock the door.

From the inside

When the door is closed, pull the lock knob forward to locking position to lock the door; contrarily, the door will be unlocked; pull the door inside handle to open the door.

**CAUTION:**

1. It is very dangerous to drive the truck with the door ajar. Please check if the door ajar alarm lamp is on.

2. The door can never be opened when the truck runs.

**1**

H-D760-037

1. Door handle

Central locking

Please refer to the specific configuration of your vehicle.

From the inside

When both the driver and the passenger are in the vehicle, the passenger's door will be locked also after the door lock knob on driver's side is turned to locking position. If the door lock knob on passenger's side is turned to locking position, then only the passenger's door instead of the driver's door can be locked.

From the outside

When unlocking the driver's door with a key, the passenger's door will be also unlocked; pressing the door outside unlocking button can open the driver's door and passenger's door separately. If only the passenger's door is unlocked with a key, pressing the outside unlocking button can open the passenger's door instead of the driver's door.

If the driver's door is locked by key, the passenger's door will also be locked. If only the passenger's door is locked with a key, then only the passenger's door instead of the driver's door can be locked.

Seats

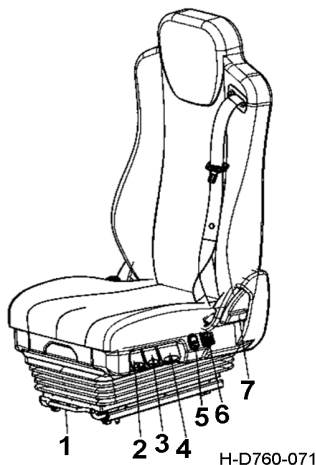
Please refer to the specific configuration of the model purchased.

Driver's seat

Airbag shockabsorbing seat (for deluxe models)

The airbag shockabsorbing type seat is designed for the high-end commercial vehicle, of which the sponge in the seatback and cushion conforms to the ergonomics to bring you more comfort. The seat is equipped with airbag shockabsorbing suspension which can reduce or offset the harmful vibration, reducing the fatigue during driving, and improving the driving comfort.

1. Lift the front and rear sliding handle of the seat, adjust the seat back and forth to the comfortable driving position, release the front and rear sliding handle of the seat and lock the seat;
2. According to different driving conditions, the adjustable damping handle can be adjusted. When the road condition is good, the damping adjustment handle can be raised to a comfortable position; when the road condition is bad, the damping adjustment handle can be lowered to a comfortable position to meet the driving comfort under different road conditions;
3. Pull the seat cushion tilt adjustment handle to adjust the seat cushion tilt angle. When the seat cushion is adjusted to a comfortable position, release the adjustment handle and keep it lock;
4. After sit, the user can adjust suspension height adjustment handle up and down according to his/her driving posture to inflate the seat to the comfortable height of the driver;
5. When using airbag shockabsorbing seat, first confirm whether the seat is in the inflatable state with rapid air charging and releasing. If the button with rapid air charging and releasing is in the deflating state, press the button to inflate the seat, and the airbag suspension is working to reduce the vibration;



1. Seat forward and backward sliding handle
2. Seat damping adjustment handle
3. Seat cushion tilt angle adjustment handle
4. Seat suspension height lifting handle
5. Seat fast inflation and deflation handle
6. Seat back air bag waist adjustment handle
7. Seat back forward and backward flip handle

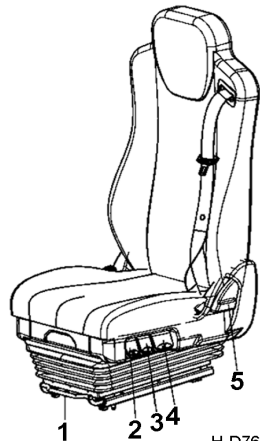
6. Press the button for adjusting the backrest waist support to adjust the front and rear height of the backrest waist to the comfortable position of the waist.
7. Pull the backrest angle adjustment handle to adjust the backrest angle to the appropriate position. Release the handle and lock the backrest angle.
8. Adjust the front knob of the handrail to adjust the angle of the handrail freely.

**CAUTION:**

1. Please adjust the seat in case of driving safety.
2. For front and rear adjustment and angle adjustment, the handle should be pulled in place to ensure complete separation of the mechanism before adjustment.
3. After the completion of the whole process, all handles should be in place to ensure the locking of all parts is reliable.
4. When encountering a particularly bumpy road surface, please turn the seat damping adjustment wrench to the lowest end to keep the seat balanced.

Airbag shockabsorbing seat (for standard models)

1. Lift the front and rear sliding handle of the seat, adjust the seat back and forth to the comfortable driving position, release the front and rear sliding handle of the seat and lock the seat;
2. According to different driving conditions, the adjustable damping handle can be adjusted. When the road condition is good, the damping adjustment handle can be raised to a comfortable position; when the road condition is bad, the damping adjustment handle can be lowered to a comfortable position to meet the driving comfort under different road conditions;
3. Pull the seat cushion tilt adjustment handle to adjust the seat cushion tilt angle. When the seat cushion is adjusted to a comfortable position, release the adjustment handle and keep it lock;
4. After sit, the user can adjust the height of the suspension handle up and down according to his/her driving posture to inflate the seat to the comfortable height of the driver;



H-D760-072

1. Seat forward and backward sliding handle
2. Seat damping adjustment handle
3. Seat cushion tilt angle adjustment handle
4. Seat suspension height lifting handle

5. Pull the backrest angle adjustment handle to adjust the backrest angle to the appropriate position. Release the handle and lock the backrest angle.

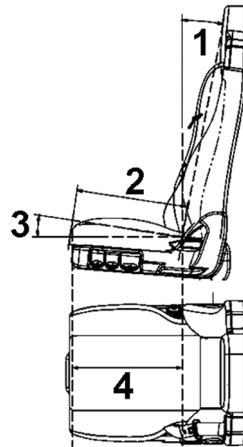


CAUTION:

1. Please adjust the seat in case of driving safety.
2. For front and rear adjustment and angle adjustment, the handle should be pulled in place to ensure complete separation of the mechanism before adjustment.
3. After the completion of the whole process, all handles should be in place to ensure the locking of all parts is reliable.
4. When encountering a particularly bumpy road surface, please turn the seat damping adjustment wrench to the lowest end to keep the seat balanced.

Driver seat cushion depth

1. The seat slide rail is in the last position;
2. On the basis of graphic method, adjust backrest angle to 11 °, this is normal driving position.
3. On the basis of 1 and 2, the seat cushion depth shall be measured according to the requirements of the drawing.



H-SJZY(D760)-001

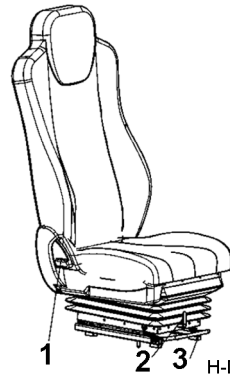
1. Normal use and back angle of seat depth measurement
2. Seat cushion depth
3. Seat cushion tilt angle
4. Measure along the center line of the seat

Passenger seat

Please refer to the specific configuration of the purchased model.

Air bag seat (for deluxe models)

1. Pull the seat back adjustment handle to adjust the front and rear angle of the seat back. Adjust the angle of the seat back to the appropriate position according to the passenger's sitting posture to make the seat comfortable.
2. When using the seat with airbag vibration reduction, make sure that the locking handle of the seat suspension is in a horizontal position, and the airbag vibration suspension is used for vibration reduction;
3. Lift the front and rear sliding handle of the seat, adjust the seat back and forth to the comfortable driving position, release the front and rear sliding handle of the seat and lock the seat.



H-D760-073

1. Seat back forward and backward flip handle
2. Seat suspension locking handle
3. Seat forward and backward sliding handle

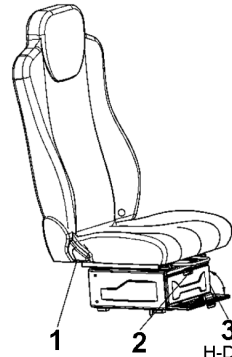
**CAUTION:**

1. Adjust the seat to ensure driving safety.
2. Adjust the front and rear angles by pulling the handle in place to ensure complete separation of the mechanism before adjustment;
3. After adjustment, handle return shall be in place to ensure reliable locking of all parts;
4. When encountering a particularly bumpy road surface or the air source fails to support the weight of the driver, please adjust the seat suspension lock handle from the horizontal position to the vertical position and lock the seat suspension.

Structure and Operation

Fixed seat (normal)

1. Pull the seat back adjustment handle to adjust the front and rear angle of the seat back. Adjust the angle of the seat back to the appropriate position according to the passenger's sitting posture to make the seat comfortable.
2. When using the airbag shockabsorbing seat, make sure that the locking handle of the seat suspension is in a horizontal position, and the airbag suspension is used for vibration reduction;
3. The passenger seat is equipped with a storage box. Press the lock button on the lock latch of the box cover, and the lock latch can be detached from the lock button to open the seat storage box.



1. Seat back forward and backward flip handle
2. Seat suspension locking handle
3. Seat forward and backward sliding handle



CAUTION:

1. **Adjust the seat to ensure driving safety;**
2. **Adjust the front and rear angles by pulling the handle in place to ensure complete separation of the mechanism before adjustment;**
3. **After adjustment, handle return should be in place to ensure reliable locking of all parts.**

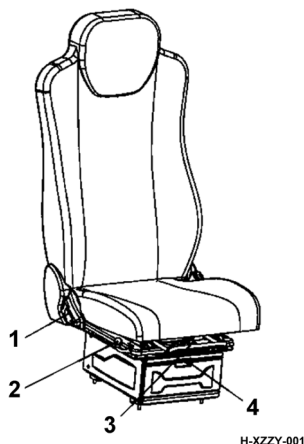
Swivel seat (optional)

Please check the specific configuration of the purchased product.

1. Pull the adjusting handle of the seat back to adjust the Angle of the back. Adjust the Angle of the back to the appropriate position according to the passenger's sitting posture to make the seat comfortable.
2. The seat can be rotated 90° counterclockwise by flipping the rotation adjustment handle to improve the rest comfort.
3. Pull the seat forward and backward by sliding the handle, adjust the seat forward and backward to the comfortable driving position, and release the seat forward and backward by sliding the handle to lock the seat.
4. Pull the adjusting handle of the storage box, open the storage box under the seat, and store shoes, tools and other items with the car.

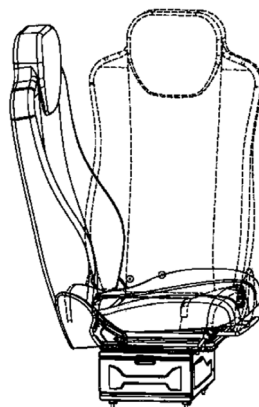
**CAUTION:**

1. **Adjust the seat while driving safely.**
2. **Before using the rotation function, please slide the seat forward for more than 100mm to ensure that the seat can rotate normally.**
3. **For front and rear Angle adjustment, the handle should be pulled into place to ensure complete separation of the mechanism before adjustment.**
4. **After the adjustment, the return position of the handle should be in place to ensure reliable locking of all parts.**
5. **The storage box under the seat shall not store more than 3kg of heavy items to avoid damage to the cover of the storage box during the cab roll-over**



H-XZZY-001

1. Turn the adjusting handle of the backrest
2. Seat rotation adjustment handle
3. Seat front and rear adjusting handle
4. Adjusting handle of seat storage box

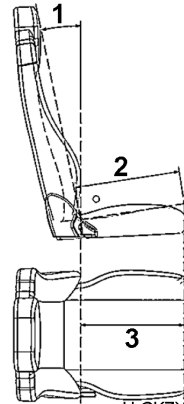


H-XZZY-002

Seat rotates 90 degrees

Driver seat cushion depth

1. The seat slide rail is in the last position;
2. On the basis of graphic method, adjust backrest angle to 12° , this is normal driving position.
3. On the basis of 1 and 2, the seat cushion depth shall be measured according to the requirements of the drawing.



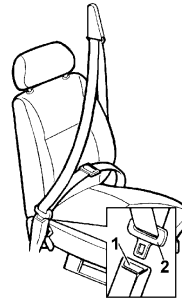
H-CKZY(D760)-001

1. Normal use and back angle 12° of seat depth measurement
2. Seat cushion depth
3. Measure along the center line of

Seat Belts

Driver's and passenger's seat belts

1. To use the seat belt: pull the belt out slowly, put it between the shoulder and the base of neck and make it pass through the proper position of the chest. Then insert the latch plate into the buckle until a click is heard, and adjust the belt to your comfort.
2. To unfasten the safety belt: press the button on the buckle to release the latch plate and put the belt back slowly.



H-D310-008

1. Buckle
2. Latch plate



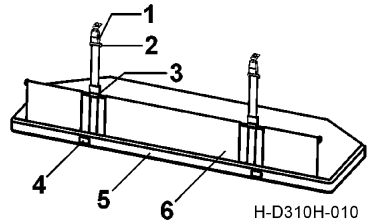
WARNING:

1. Make sure that the belt is untwisted, clear of hard edges and free from chemical pollution.
2. The seat belt can be used by one person only. Adult and kid are prohibited to share one belt.
3. The whole seat belt should be replaced if any component comes into failure or damage.
4. The seat belt should be replaced if the retractor is blocked.
5. Always adjust the belt length according to the body; otherwise hazard will be caused.

Berth

Operation instruction of upper berth

1. To use the upper berth for a rest, firstly insert the safety belt latch plate into the buckle until a click is heard.
2. After entering the upper berth, deploy the guard curtain, and press the safety belt clip at the needed height to lock the guard curtain.
3. To adjust the berth from horizontal position to non-horizontal position, firstly insert the safety belt latch plate into the buckle, then press the knob by two hands, lift up the aluminum alloy rail to tilt it up, and release the button at any angle to lock the berth.
4. To tilt the non-horizontal berth, press the two knobs on the aluminum alloy rail to the required position, and release the knob to lock the berth.



1. Seat belt buckle
2. Seat belt latch plate
3. Seat belt snap
4. Knob
5. Aluminum alloy beam
6. Protective curtain



CAUTION:

After tilting the berth, the berth shall be supported by two straps with button together; otherwise the abnormal noise may be caused due to vibration. Adjusting method: press the rail at the tensioned strap, lift up the rail where the strap is slack by the other hand till a click is heard. At this moment, the straps are locked.



WARNING:

After entering the upper berth, make sure to deploy the guard curtain and lock the belt buckle to hazards.

Lower berth

Lower berth with guardrail, pull up the guardrail after enter the lower berth. Press the unlock button on the guardrail and push the guardrail horizontally to put it away.



1. Guardrail

H-D760-007

Instrument Panel

Please refer to detailed specification of the vehicle purchased.

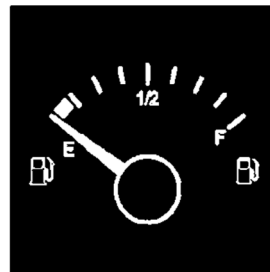


H-H03V(YBP)-001

- | | |
|---------------------------------------|-------------------------------------|
| 1. Fuel gauge, urea gauge | 6. Multi-information display screen |
| 2. Front axle barometer | 7. Engine tachometer |
| 3. Speedometer | 8. Rear axle barometer |
| 4. Turn signal indicator lamp | 9. Water thermometer |
| 5. Trailer turn signal indicator lamp | 10. Indicator lamp and warning lamp |

Fuel gauge

A fuel gauge is used to indicate how much fuel is stored in the fuel tank. The watch is active when the key switch is in the ON position. When the pointer is located at 0, the yellow alarm light near E in the dial is on, it should be filled with clean qualified fuel as soon as possible.



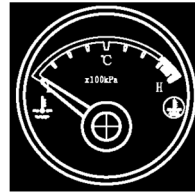
H-D760-049C

F: Full
E: Emp
2:1/2 of

Water thermometer

This meter indicates the temperature of the engine coolant. This meter works when the key switch is in the ON position.

When the engine cooling water temperature is equal to or higher than 107°C, the dial in H near the red alarm lamp light, buzzer alarm, at the same time in the LCD screen prompts "engine water temperature high".



H-D760-050

H: 107°C

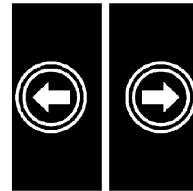


CAUTION:

When the coolant temperature is too high, the indicator light will be lit; when the temperature is too high, and the buzzer on the meter will sound an alarm. If the vehicle continues to drive when coolant temperature is too high, engine overheating damage will be caused.

Turn signal indicator lamp

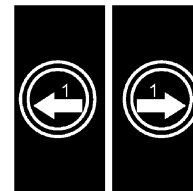
This indicator is used to indicate the working condition of the turn signal lamp of the tractor. Its normal flashing means all the turn signal lamps work normally; fast flashing means that at least one turn signal lamp at the same side is in trouble.



H-D310-135

Trailer turn signal indicator lamp

This indicator lamp is used to indicate the working conditions of the trailer turn signal lamps. Its normal flashing means all the turn signal lamps work normally; fast flashing means that at least one turn signal lamp at the same side is faulty; and staying off means no connection to the trailer.



H-D310-134

Speedometer

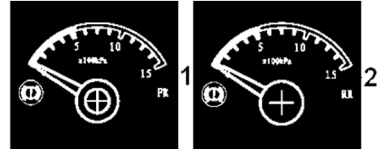
The speedometer indicates the running speed of the truck in km/h.



H-D760-083

Air pressure gauge

The air pressure gauge indicates the air pressure in the air reservoir. Front axle air pressure gauge (with the sign FR) detects the pressure of the front axle air reservoir, and (middle)rear axle air pressure gauge (with the sign RR) detects the pressure of the (middle) rear axle air reservoir.



H-D760-052

1. Front axle air pressure gauge
2. (middle)rear axle air pressure gauge



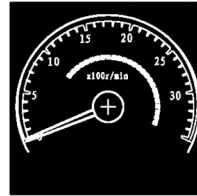
WARNING:

Never start the vehicle when the pointer is in the red zone.

Engine tachometer

The tachometer pointer indicates the revolutions per minute of the engine. The green area of the tachometer is the economic speed area, and the red area is the alarm area for over-speed.

Cummins Z14EVID520 engine economic speed is 1000~1600r/min, alarm speed is above 2300r/min.



H-D760-082

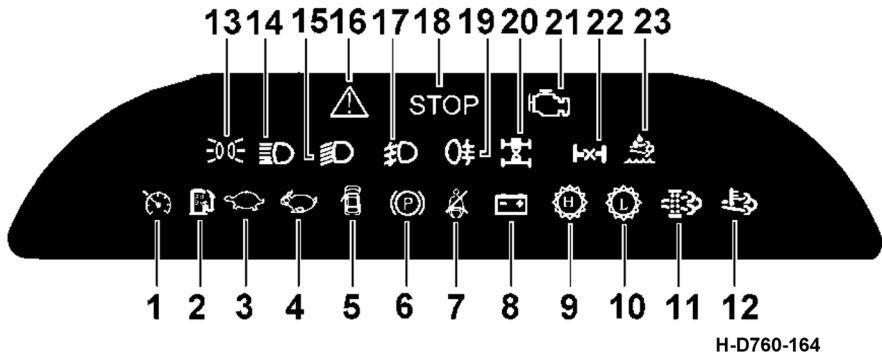


CAUTION:

Cummins ISZ series engine has the function of rapid warm-up. When the coolant temperature is low, the engine will start successfully and the engine will run at a higher speed (higher than the standard idle speed), which will rapidly increase the coolant temperature.

Indicator and alarm light

Please refer to the specific configuration of the products purchased.



H-D760-164

- | | |
|--|---|
| 1. Cruise light | 14. High beam indication |
| 2. Low indicator light for urea level | 15. Low light indicator |
| 3. Low transmission indicator | 16. Repair alarm lamp |
| 4. High grade indicator for transmission | 17. Front fog lamp indication |
| 5. Door opening alarm light | 18. Stop alarm lamp |
| 6. Parking brake indicator | 19. Rear fog lamp indication |
| 7. The safety belt is not connected with the alarm indicator | 20. Shaft differential lock indicator light |
| 8. No charge indicator | 21. MIL indicator light |
| 9. Transmission high-half indicator light | 22. Inter-wheel differential lock indicator light |
| 10. Low half transmission indicator | 23. Driver's warning light |
| 11. DPF indicator light | |
| 12. Exhaust system high temperature indicator | |
| 13. Position light indication | |



CAUTION:

The work indicator and alarm lights will be different depending on the vehicle type.

Bogie differential lock indicator lamp

When the bogie differential lock switch is connected, the buzzer will sound. The bogie differential will work, and then this indicator lamp will be on.



CAUTION:

The differential lock indicator lamp should not be on when the truck runs normally. Never use the differential lock for long time; otherwise, the differential may be damaged, resulting in excessive wear of tire.



H-D760-129

Inter-wheel differential lock indicator light

It is only suitable for vehicles equipped with inter-wheel differential lock.

When the inter-wheel differential lock switch is switched on, the buzzer sounds and the inter-wheel differential lock is activated, the indicator light is on.



CAUTION:

When the vehicle is running normally, the differential lock indicator light should not be on. Do not use differential lock for a long time, otherwise it will damage the differential and cause excessive tire wear.



H-D760-130

Air dryer heater indicator

This indicator lamp will come on when the air dryer heater switch is connected.



H-D310-110

Auxiliary brake indication

The auxiliary brake indicator light is normally on by default. n represents the auxiliary braking gear in use. If the auxiliary braking is not used, there is no digital display. Auxiliary brake operation.



H-D760-078

Transmission half gear higher indicator light

Please refer to the specific configuration of the purchased model.

The indicator light is on when the transmission is in the higher half-gear zone.



H-D310-118A

Low gear indicator light of transmission

Please refer to the specific configuration of the purchased model.

The indicator lights up when the transmission is in the lower half - gear zone.



H-D310-120A

Engine over-speed alarm light

Please refer to the specific configuration of the purchased model.

At the time of 2300r/min, the indicator light is on to remind the driver to reduce the speed

(only applicable to models and products equipped with sound-light alarm device).

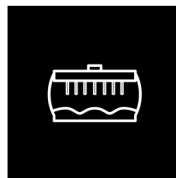


H-D310-143

Structure and Operation

Low water indicator

When the coolant level in the engine auxiliary water tank is below the specified limit height, the indicator light is on. At the same time, the buzzer on the meter sounded.



H-D310-125



CAUTION:

If the coolant is insufficient and the engine continues to run, it will cause overheating and damage to the engine.

Air filter clog warning lamp

When this lamp is on, it means large intake resistance of engine air filter, clogged intake air flow, worse dynamic property and economic efficiency of the engine, causing the vehicle unable to continue running. In this case, the vehicle should be stopped for cleaning or replacement of the air filter until the lamp goes out.



H-D310-122



CAUTION:

Make sure to clean and replace the air filter element according to the maintenance cycle if this lamp is not on. Where this lamp is on, do not perform maintenance according to the maintenance cycle, but clean and replace the element immediately.

Filament detection warning lamp

Except for the trailer, this indicator lamp will be on when any filament of rear fog lamp, rear position lamp and brake lamp is faulty. This function gives the driver a hint of the working condition of the tail lamp.



H-D310-104

Door ajar warning lamp

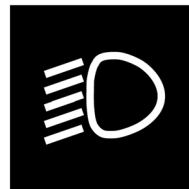
This lamp will be on when any door is open.



H-D310-114

Low beam indicator lamp

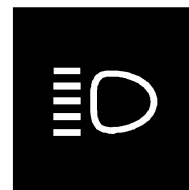
This indicator lamp will come on when the combination switch right handle is at low beam position.



H-D310-101

High beam indicator lamp

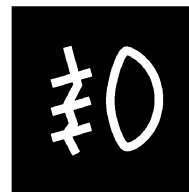
When the lamplight combination switch is turned to high beam position, this indicator lamp will be on; it is also on during the dimming operation.



H-D310-107

Front fog lamp indicator lamp

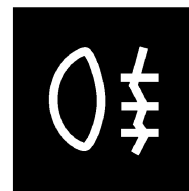
After the clearance lamp is turned on, this indicator lamp will be on when the front fog lamp is switched on. The installation of this indicator lamp depends on the configurations of specific vehicle.



H-D310-115

Rear fog lamp indicator lamp

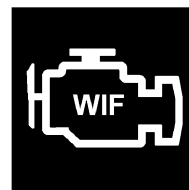
After either the front fog lamp or high beam or low beam is turned on, this indicator lamp will be on when the rear fog lamp is switched on.



H-D310-109

Water oil mixing indicator lamp

The light indicates that the oil-water separator contains too much water and needs to discharge the oil-water separator of the fuel prefilter.



H-D310-141

Structure and Operation

Fuel preheating indicator lamp

This indicator lamp will be on when the glow plug is electrified.

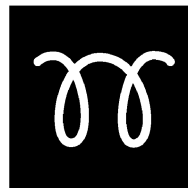
The installation of this indicator lamp depends on the configurations of specific vehicle.



H-D310-111

Preheating indicator lamp

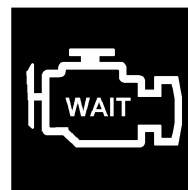
This indicator lamp is provided for facilitating the start of the engine in cold weather. When the preheating device is electrified, this indicator lamp will be on. The installation of this indicator lamp depends on the configurations of specific vehicle.



H-D310-112

Wait for start light

If the vehicle is started by the cooler condition under low ambient temperature, the indicator light will be ON when the key switch is in the ON position. The light indicates that the engine is preheating. The lower the ambient temperature, the longer the light will remain on (up to 30 seconds). When the light is off, the key switch will be placed in the START position to START the engine.



H-D310-142

Parking brake indicator lamp

When the driver pulls the manual valve control lever backwards to the brake locking position, this lamp will be on to remind the driver that the truck is in braking mode. After this control lever is pulled upwards to the release position, if the brake air pressure is lower than (540 ± 30) kPa, this indicator lamp will be on; otherwise it will go out. When starting the vehicle, it is necessary to check if the indicator lamp goes out and the spring parking brake is released.



H-D310-103

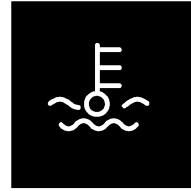
Water temperature too high indicator light

When the key switch switches from OFF to ON, the light goes out after 3 seconds. When the cooling liquid temperature is too high, the indicator light is on, and the buzzer on the instrument alarm.



CAUTION:

If the water temperature is too high and you continue driving, you can cause the engine to overheat and damage.



H-D310-131

Low fuel alarm

The indicator lights up when the fuel tank is about to run out of fuel.



H-D760-079

Urea level alarm indicator light

The urea level is used to indicate the amount of urea in the urea tank. This meter works when the key switch is in the ON position.

When the level of urea is low (less than 12%), the blue indicator lights up.



H-NSYW-001

Low tire pressure alarm light

The indicator lights up when the tire pressure is too low.

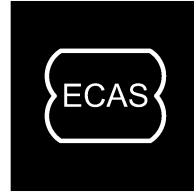


H-D760-139

ECAS warning light (yellow)

ECAS alarm indicator light is on: it means the air suspension air bag pressure is less than 6.5bar, and the indicator light flashes alarm.

If the indicator light is always on, it means that the air suspension air bag is not at the normal height; if the indicator light flashes, it means that the air suspension air source is under pressure.



H-D310-117

ECAS failure light (red)

When red indicator light is always on, indicating that the fault is not serious; When the red indicator light flashes, indicating that the fault is serious. Please contact the manufacturer for troubleshooting.



H-D310-117

ESC fault indicator light

When the indicator light is always on, indicating that the ESC system fails. When the ESC function is activated, the indicator light flashes.



H-D760-112

Brake air pressure too low alarm lamp

After starting the engine of the vehicle, if the air pressure in the air storage reservoir is lower than the alarm pressure, the alarm light will be on. If the air pressure is too low, and the buzzer will sound an alarm. The vehicle can only be started after the indicator light. If the indicator light is on during driving, stop immediately for troubleshooting.



H-D310-140

Brake shoe wear indicator light

Indicates that the brake shoe or friction disc has been overused, and the thickness of the shoe or friction disc has been lower than the specified requirements. At this time, the brake effect is poor, affecting the safety of driving, and the indicator is on.



H-D760-076

Cab lock not in place indication

When the cab lock is not in place, the indicator light is on.

**CAUTION:**

Do not continue driving when the light is on.



H-D760-138

Safety belt indicator light

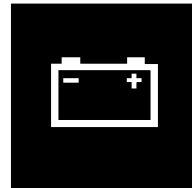
When the driver does not fasten the safety belt, the indicator light is on to remind the driver to fasten the safety belt.



H-D310-113

Charging indicator lamp

This indicator lamp will be on when the key switch is turned to ON position. And it will go out when the engine is started and the alternator works normally. When the alternator does not work due to a fault during driving, this lamp will be on.



H-D310-105

**CAUTION:**

Never drive the vehicle for a long time with this indicator lamp on.

Low oil pressure warning lamp

This indicator lamp will be on when the key switch is turned to ON position, and will go out when the engine is started. And when the oil pressure reduces abnormally in the course of engine running, this lamp will be on to send an alarm.



H-D310-106



CAUTION:

Never keep driving when the low oil pressure alarm lamp is on.

light

This indicator lights up when the ASR system fails or the ASR system functions. Please contact the technical service center (station) authorized by Dongfeng Commercial Vehicle Co., Ltd. on time to check and repair the vehicle.



H-D310-121

Tractor ABS malfunction indicator lamp

It is for the truck with ABS.

When the tractor ignition switch is at ON position, the ABS will make self-inspection (the ABS solenoid valves make pull-in sound successively), and then this indicator lamp will be on for about 3 s and then go out. If this indicator lamp stays on, it indicates that the ABS is faulty. In that case, press and hold the ABS flashing code diagnostic switch for 1~3 s, and the ABS fault flashing code indicator lamp will flash the fault code. Please contact the Technical Service Center (Station) authorized by Dongfeng Commercial Vehicle Co., Ltd. for the truck inspection and maintenance in time.



H-D310-123

Trouble indicator light of trailer ABS system

If this indicator light is normally on, it indicates that the trailer ABS system has a fault. Whether this indicator light is used depends on the trailer configuration. Please refer to the trailer manual.



H-D310-124A

Transmission high gear indicator light

Please refer to the specific configuration of the purchased product.

When the transmission is in the high half block or high block area, the indicator light is on.



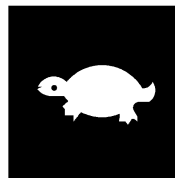
H-D310-118

Transmission low gear indicator light

Please refer to the specific configuration of the products purchased.

When the transmission is in low gear, the light is on.

Whether the lamp is installed depends on the product configuration of the specific model.



H-D310-120

Cruise lamp

When the cruise function is activated, the indicator light is on

Suitable only for vehicles equipped with cruise system.



H-D310-127

Transmission fault indication

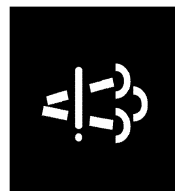
The indicator lights up when the transmission fails.



H-D760-077

MIL indicator lamp

When the key switch turns to 'ON' position, the MIL light turns on. After the engine starts, if there is no OBD failure, the MIL lamp will be off within 10 seconds. If there is an OBD fault, MIL will continue to light or blinking, if found MIL light, instrument of the LCD panel will display the corresponding fault information (such as lack of reactant, NOx sensor failure, see the fault list), please immediately to solve the fault, otherwise the engine will enter the falling torque mode, vehicle can't use normally.



H-D310(K40H)-001

EBS system failure indicator

If this indicator is on, the EBS system is down. Please contact the authorized technical service center (station) of dongfeng commercial vehicle co., LTD to inspect and repair the vehicle.



H-D760-193

AEBS system failure indicator

If the indicator light is on, the ABES system is out of order. Please contact the authorized technical service center (station) of dongfeng commercial vehicle co., LTD to inspect and repair the vehicle.



H-D760-194

ACC system failure indicator

If the indicator light is on, the ACC system is out of order. Please contact the authorized technical service center (station) of dongfeng commercial vehicle co., LTD to inspect and repair the vehicle.



H-D760-195

LDWS system failure indicator

If this indicator light is on, it indicates that the LDWS system is out of order. Please contact the authorized technical service center (station) of dongfeng commercial vehicle co., LTD to inspect and repair the vehicle.



H-D760-196

Exhaust system high temperature (HEST)

indicator light

When the lamp appears, the exhaust temperature will be higher. At this point, regeneration may be under way.

**CAUTION:**

When this indicator light is on, make sure the outlet of the exhaust pipe does not point directly to anything that can melt or burn. An explosive object or person.



H-HEST-001

driver warning lights

When the light appears, the driver's warning system starts, and the vehicle will limit the torque or speed after a certain time.

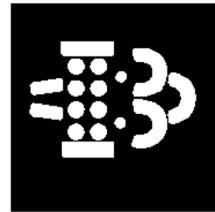


H-JSYJGD-001

DPF regeneration indicator light

When the lamp appeared, the DPF carbon load level had reached a certain level and needed to be regenerated.

At this point, the driver is required to provide conditions conducive to active/passive regeneration, such as a sustained speed greater than 70km/h for 30-45min. You can also choose to carry out parking regeneration or go to the service station authorized by dongfeng commercial vehicle co., LTD for processing.

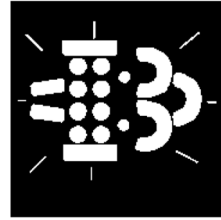


H-DPFZSZSD-002

Structure and Operation

When the lamp appeared, the DPF carbon load level had reached a certain level and needed to be regenerated.

At this point, the driver is required to reactivate or go to the service station authorized by dongfeng commercial vehicle co., LTD.



H-DPFZSZSD-003

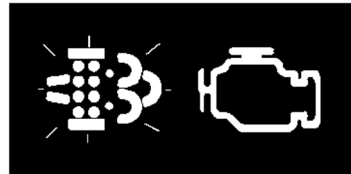
When the lamp appeared, DPF carbon load levels had reached a high level and needed to be regenerated.

At this point, the driver needs to go to the service station authorized by dongfeng commercial vehicle co., LTD.



H-DPFZSZSD-004

When the lamp appeared, the DPF carbon load level had reached a certain level and needed to be regenerated.



H-DPFZSZSD-005

At this point, the driver dongfeng commercial vehicle co., LTD. Authorized service station for processing.



CAUTION:

1. During regeneration, the turbocharger will make a slight "tut" sound, which is a normal phenomenon.
2. During regeneration, the temperature is relatively high. Please avoid gas stations, gas stations and other places with flammable materials, schools and other places with dense personnel.
3. The use of inferior fuel will significantly shorten the regeneration cycle and cleaning mileage, which will lead to the increase of fuel consumption and maintenance costs.

Instrument buzzer alarm

The safety belt is not connected with the alarm, the water temperature is too high, the water level is too low and the air pressure is too low. While the buzzer is alarming, there are corresponding alarm lights on the instrument.

Engine stop and maintenance alarm lamp

When the key switch is switched from OFF to ON, the engine is shut down and the engine maintenance alarm lamp is switched ON for 3 seconds.

Engine stop alarm indicator: the indicator continues to light, indicating a major fault in the engine electronic control system.

If the light is on during driving, you should immediately find a safe place to stop and contact dongfeng commercial vehicle technical service center to check and repair the engine.

Engine maintenance alarm indicator light: this indicator light keeps on, indicating that there is no major fault in the electric control system of the engine. At this time, the engine can still work, but the electric control system will adjust the power, speed and other operating parameters of the engine according to the influence of the fault. If this indicator light continues to light up during the use of the vehicle, please contact the technical service center (station) authorized by Dongfeng Commercial Vehicle Co., Ltd. to check and maintain the engine.

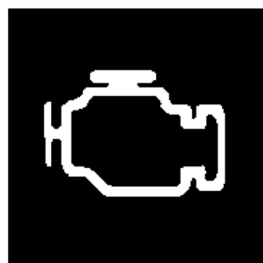


H-D760-053

1. Engine stop alarm indicator light
2. Engine maintenance alarm indicator lamp
3. MIL indicator light

MIL indicator light

When the key switch is switched to "ON", the MIL light is lit. After the engine starts, if there is no OBD fault, the MIL lamp will be off within 10s; If there is a OBD fault, MIL will continue to light or blinking, if found MIL light, instrument of the LCD panel will display the corresponding fault information (such as lack of reactant, NOx sensor fault, etc.), please the driver immediately to solve the fault, otherwise the engine will enter the fall when a serious fault torsional mode, vehicle can't normal use.



H-D760-164A

Multi-information display and adjustment

1, startup interface

Startup interface: the ignition lock is placed in ON gear, the instrument is self-checked, and the LCD displays the interface of dongfeng logo 3s.

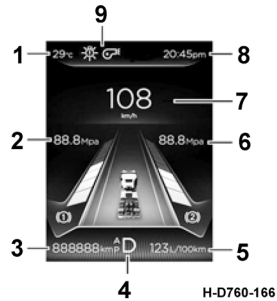


H-D760-165

2, Running interface

After the self-inspection, enter the driving interface

1. Ambient temperature display: display the current outdoor temperature, display "--" in case of overrange or failure.
2. The air pressure of the front circuit, ranging from 0 to 1.30mpa, is 10 grids, with 0.13mpa for each grid, and the display accuracy is 0.01mpa.
3. Total mileage: display range 0-999999km
4. Automatic transmission gear, A/M, E/P mode.
5. Instantaneous fuel consumption: display range: 0-60.0l /100Km, over-range display --.
6. Air pressure in the back loop, ranging from 0 to 1.30mpa, with a total of 10 light columns, each 0.13mpa, with a display accuracy of 0.01mpa.
7. Speed display: when the real-time speed of the vehicle has a fault, this position will display the fault.
8. Time display: display the current time, menu can choose 12h system, or 24h system
9. Alarm icon, one group can display 4



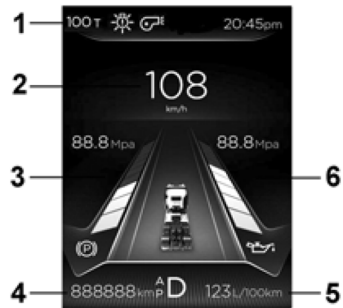
H-D760-166

The default driving interface displays the total mileage + average fuel consumption. When stopping, press "return" button for less than 1 second to switch to the display of subtotal mileage + fuel consumption.

Interface switching 1

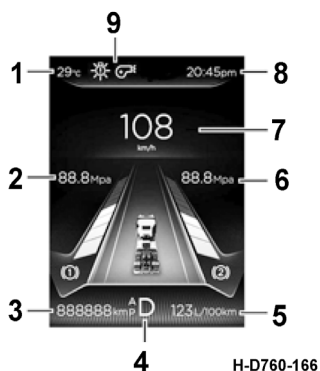
Axial load and ambient temperature: if there is an axial load display function, the axial load (driving shaft) will be displayed for 10 seconds after power on, and then the ambient temperature will be displayed.

- 1.
2. Speed, fault code, reminder, etc. : text and icon display, used for fault alarm and prompt display, multiple simultaneous triggers, according to the priority display.
3. Air pressure in the front circuit, air pressure in the parking circuit and oil pressure: long press the return button for 1~3 seconds. When releasing, the picture column will be switched.
4. Total mileage and subtotal mileage: short press return button <1s, switch when releasing, display range of subtotal mileage is 0~9999.9km.
5. Instantaneous fuel consumption and subtotal fuel consumption:
 - A. The total mileage + urea level is displayed on power, and the return button can be cut to the total mileage + instantaneous fuel consumption, subtotal mileage + subtotal fuel consumption;
 - B. Automatically switch to total mileage + instantaneous fuel consumption after engine start, only cut once; You can still loop through using the return button.
6. Air pressure and battery voltage in the back circuit: long press the return key 1~3s, switch the diagram column when releasing, and the display range of urea level is 0~100% with an accuracy of 1%; Battery voltage display range 12~32v, accuracy 0.1v.



H-D760-167

Interface switching 2



H-D760-169



H-D760-170



H-D760-171

3, alarm interface popover



H-D760-172



H-D760-173

1. Alarm ICONS are divided into two categories: alarm and indication:
 - a). nalarm: large icon + small icon display. After 1.5s, the large icon disappears while the small icon remains
 - b). Indicator class: small icon display.
2. Alarm icon description:
 - a). the alarm icon is divided into small icon and large icon, and the color is divided into red, yellow, blue, green and white (arranged in order of priority from high to low);
 - b). Display priority ordering, the former icon is displayed, and the latter icon appears;
 - c). Four small ICONS can be displayed at the same time. When there are more than one small icon, it will be displayed in a 10s cycle;
 - d). When the large icon appears, the corresponding small icon appears simultaneously. After 1.5s, the large icon disappears and only the small icon is displayed.

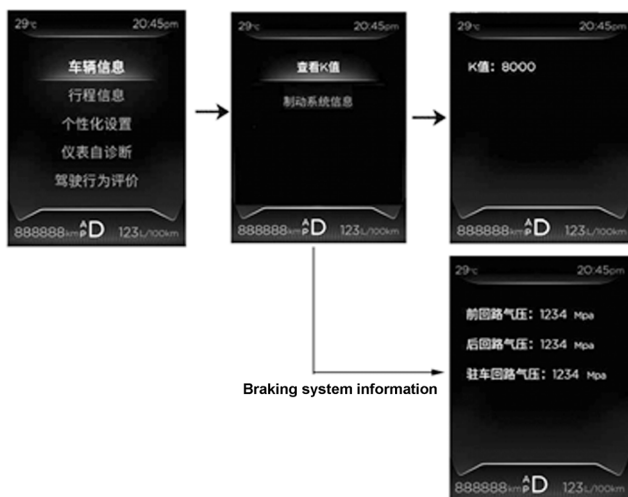
4, menu interface

When stopping, press "confirm" less than 1s to enter the menu interface, and select the content through "up" and "down" keys.

Menu interface 2

1. Vehicle information

Under "vehicle information", "K value", "braking system information" and "tire pressure monitoring system" can be inquired.



H-D760-174

2. Itinerary information

Under "trip information", you can find "mileage", "fuel consumption", "working hours", "average speed" and "date and time".

2.1 "total mileage" and "subtotal mileage" can be inquired under "mileage";

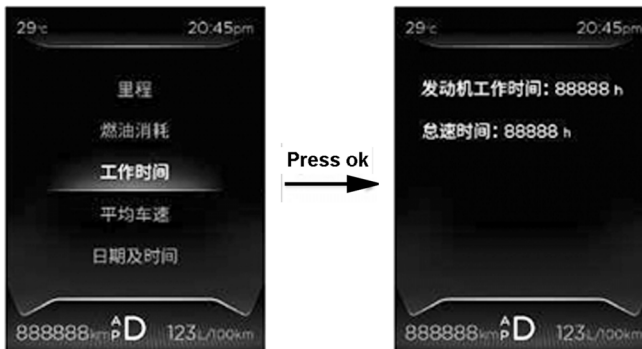


H-D760-175

2.2 "average fuel consumption", "subtotal fuel consumption" and "total fuel consumption" can be inquired under "fuel consumption";



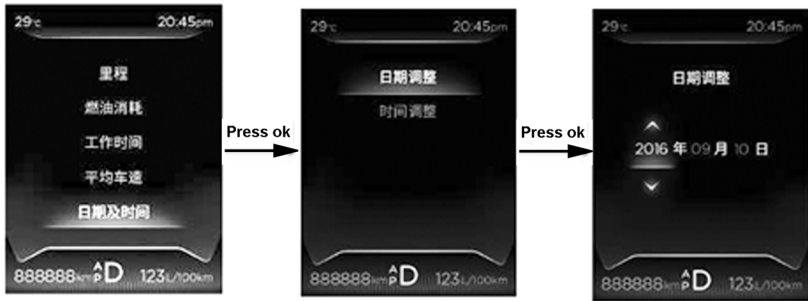
2.3 working hours: search "engine working hours" and "idle time";



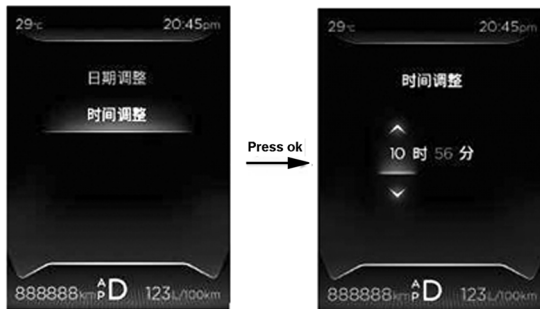
H-D760-177

2.4 average vehicle speed: check the "cumulative average vehicle speed" and "short-range average vehicle speed";

2.5 date and time: the date and time can be checked and adjusted. It is not available with the driving recorder.



H-D760-178



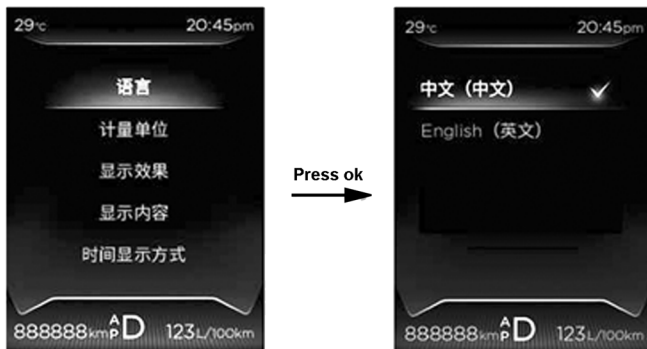
H-D760-186

Structure and Operation

3. Personalization

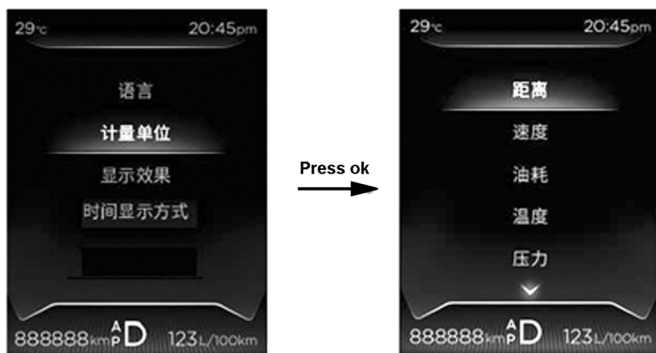
Under "personalization", you can query "language", "unit of measurement", "display effect" and "time display mode".

3.1 language: switch between Chinese and English (not yet implemented);



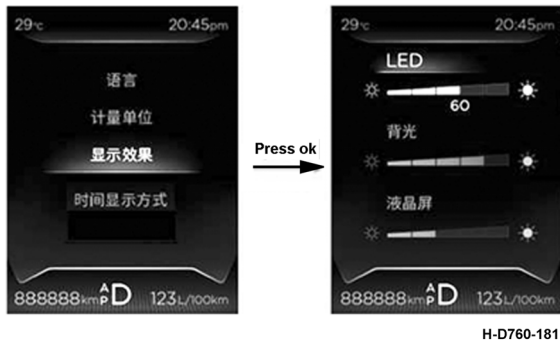
H-D760-179

3.2 units of measurement: switch between "distance", "speed", "fuel consumption", "temperature" and "pressure";

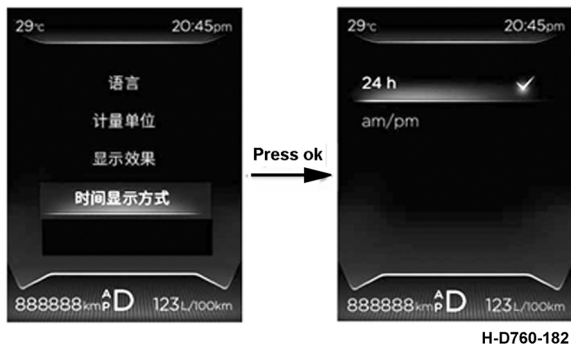


H-D760-180

3.3 Display effect: LED, backlight, LCD brightness adjustment;



3.4 time display: 24 hours and 12 hours are optional.

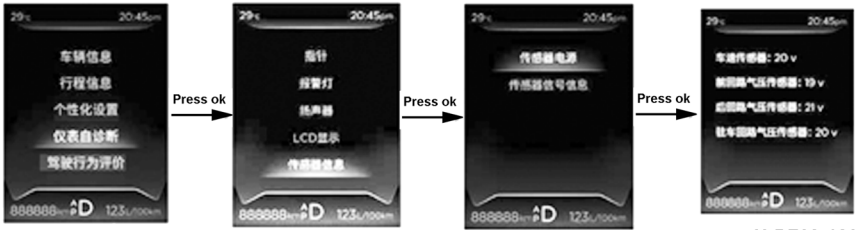


4. Instrument self-diagnosis

Under "instrument self-diagnosis", you can choose to diagnose information including pointer, alarm lamp, buzzer, LCD display and sensor.

- 4.1 pointer: pointer self-test can be carried out, zero - full - zero;
- 4.2 alarm light: LED self-check, all LED are bright;
- 4.3 loudspeaker: self-check three times;
- 4.4 LCD: LCD self-test;

4.5. sensor information: sensor power supply and signal information query.



H-D760-183



H-D760-184

5. Under "driving assistance", you can query or set "mode record query", "subtotal mode", "mileage mode", "time mode" and "automatic record".



H-D760-185

Master power switch

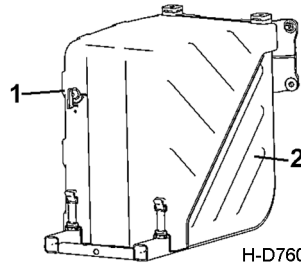
Please refer to the specific configuration of your vehicle.

Mechanical

Turning this switch can connect or disconnect the main power of the complete vehicle. Power should be cut off during the servicing and maintenance of electrical system of the vehicle to protect electrical equipment.

Find the master power switch handle in the vehicle tool and plug it into the battery switch, as shown in figure 1.

Turn the handle to horizontal position: close; Turn the handle to vertical position: open.



1. Master power switch
2. Battery bracket



CAUTION:

1. It is strictly prohibited to disconnect the master power switch when the engine is running.
2. After switching the power supply, please pay attention to pulling out the switch handle and receiving it.

Rocker Switch

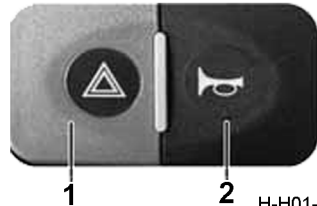
Please refer to the specific configuration of your vehicle.

Danger alarm light switch

Press the danger alarm switch: all the turn signals are flashing at the same time to remind other vehicles to pay attention. At the same time, the danger alarm switch also has a flashing light indication

Air horn selection switch

The default is the electric horn, press the air horn selection switch to select the air horn.

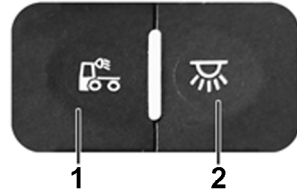


1. Danger alarm light switch
2. Air horn selection switch

Structure and Operation

Ceiling lamp switch

Press the ceiling lamp switch to turn on the light. Press the switch again to turn off the light.



H-D760-108

1. Rear light switch
2. Ceiling lamp switch

Electric sunroof switch

This switch is used to open and close of the cab electric sunroof.

Automatically open/close the sunroof

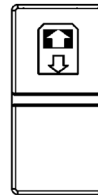
Press the open switch to automatically open the sunroof; Press the close switch to automatically close the sunroof.

Manually open/close the sunroof

Long press on/off switch: the sunroof glass or sunshade starts to move, and the action time depends on the operation time of the switch. The sunroof stops when the switch is released.

Automatic window closing function

After the power of the whole vehicle is turned off, the sunroof will automatically close after a delay of 5 seconds.



H-D760-131

Air dryer heating switch

This switch controls the heater of the dryer, the freezing of dryer exhaust outlet will damage air compressor and other parts. When the switch is in the on position, the dryer heating indicator lights up at the same time. When the ambient temperature is lower than 5 degrees, please turn on the switch. When the ambient temperature is higher than 10 degrees, turn off the switch. Dryer heater is with temperature control switch, if the ambient temperature is higher than the disconnect temperature, the heater will automatically disconnect.



H-D760-132

Fuel preheater switch

Turning on this switch at low temperature can preheat fuel at a cold start.

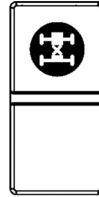
The installation of this switch depends on the configurations of specific vehicle.



H-D760-133

Bogie differential lock switch

This switch is a differential lock control switch for middle and rear drive axle bogie differentials. When this switch is turned on and the bogie differential lock starts to work, the bogie differential lock indicator lamp will be on, and meanwhile the buzzer will sound.



H-D760-136

**CAUTION:**

1. Never press the differential lock switch when the truck is running normally.
2. Never use the differential lock for long time; otherwise, the differential may be damaged, resulting in excessive wear of tire.

Inter-wheel differential lock switch

This switch is a differential lock operating switch for middle/rear drive axle inter-wheel differential. Press the switch to connect the differential lock. When the inter-wheel differential lock works, the inter-wheel differential lock indicator lamp will be on, and meanwhile the buzzer will sound.



H-D760-069

**CAUTION:**

1. Never press the differential lock switch when the truck is running normally.
2. Never use the differential lock for long time; otherwise, the differential may be damaged, resulting in excessive wear of tire.

Structure and Operation

E, P mode switch

The switch is used to switch the dynamic mode and economic mode of the vehicle.

E: economic model

P: dynamic mode



H-D760-018

ASR function cancel switch

It is suitable for vehicle models equipped with ASR function release switch.

On vehicles equipped with ASR function, the ASR function can be turned off by the ASR function switch. The specific operation is as follows:



H-D760-148

Press the ASR function off switch >0.3 seconds, then disconnect, the ASR function is off, the instrument ASR light is on. Press the ASR function > 0.3 seconds again to close the switch, then disconnect, and the ASR function will be restored. The ASR function will be automatically activated when the power supply is re-energized after shut down. This switch is recommended for use on dry and flat surfaces or differential locks.

Retarder disengage switch

After using this switch, the retarder function is turned off.



H-D760-149

Auxiliary brake linkage closing switch

After using this switch, the auxiliary brake linkage is closed, and only the main brake comes into effect after stepping on the brake pedal. It is recommended to use this switch when driving on rain-snow slippery road or when driving on separate tractor.



H-D760-149

LDWS, FCWS transfer switch

Open or close the function of LDWS and FCWS by pressing the key.



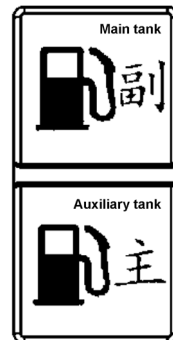
H-D760-188

Main and auxiliary tank change-over switch

The switch allows you to choose whether to use the main tank or the auxiliary tank. The amount of oil in the main and auxiliary fuel tanks is indicated by the fuel gauge. By means of the switch, the fuel gauge can display the amount of oil in the main and auxiliary fuel tanks respectively.

**CAUTION:**

After switching from the main tank to the auxiliary tank, switch from the auxiliary tank to the main tank at an interval of more than 3 seconds.



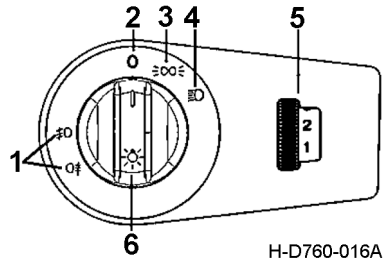
H-D760-187

Structure and Operation

Light knob switch

Knob switch

The knob is shown in figure 6 of H-D760-016. You can rotate and push buttons. When rotating, the position light and headlight gear can be selected, and the fog light can be switched on and off by pressing down and pulling up.



Light knob - position light

When the knob is rotated to this position, all position lights (front lamps) will be lit, including the following lamps:

Front position light, front end-outline light, rear position light, rear end-outline light, side marker light, license plate light.

When the knob is turned to this position, the default is to turn on the low beam light. To switch to the high beam light, you need to lift the combination switch.

1. Front and rear fog lamp and backlight
2. Light knob OFF gear
3. Light knob position light gear
4. Light knob headlamp gear
5. Front headlight electric adjusting switch
6. Knob

Fog lamp operation

The light knob switch must be in position light or headlight gear.

Press the button to turn on the front fog light and press it again to turn on the rear fog light; The button is pulled up to turn off the rear fog light and pulled up again to turn off the front fog light.

Electric adjustment of front headlights

When the vehicle is empty, adjust the light to the specified position, and the switch gear is at 0. After loading the vehicle, the light inclination angle will rise, adjust the switch 1, 2 and 3 gears downward, and then the inclination angle will drop to meet the regulations.

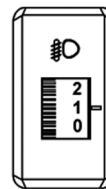
Switching visibility

The light knob switch has backlight

The headlight switch has backlight

Electric adjustable headlight switch

When the vehicle is under no-load operation, adjust the light to the standard position. At this time, the switch position should be set at 0. After the vehicle is loaded, the lighting angle will rise, adjust the switch to 1, 2, and the tilt angle will drop to comply with the regulations.



H-DTKG-001

Combination switch, steering wheel switch



H-D760-022

1. Wiper, horn, low and high beam switch
2. Cruise switch, bluetooth phone (optional)
3. Audio and volume switch
4. Auxiliary brake, AMT shift switch

Steering wheel switch

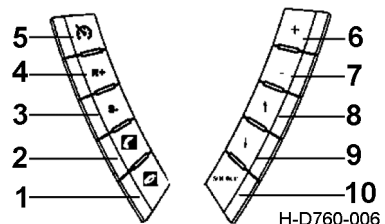
Cruise operation:

It is applied for the vehicle with cruise system.

The cruise function is off by default

The cruise system allows you to keep the vehicle above 30km/h without stepping on the throttle pedal. When the speed is higher than 30km/h, press the cruise ON/OFF switch to turn ON the cruise function. At this time, the cruise indicator light flashes and press the s-switch to enter the cruise. At this time, the cruise indicator light is always on.

After entering the cruise, every time clicking "R+", the speed will increase by 1km/h; Long press "R+", the speed will continue to increase. Click "S-" every time, the speed decreases by 1km/h; Long press "S-", the speed will continue to decrease. If the vehicle has entered cruise during operation, if it exits, press "R+" to resume the last cruise.



H-D760-006

1. Bluetooth phone hang up switch (optional)
2. Bluetooth phone pickup switch (optional)
3. Cruise S-switch
4. Cruise R+ switch
5. Cruise ON/OFF switch
6. Volume + switch
7. Volume - switch
8. Track + switch
9. Track - switch
10. Mode selection switch

Structure and Operation

Exit in one of the following ways Cruise:

1. Step on the brake pedal;
2. Use engine brake;
3. Press the cruise ON/OFF switch again;
4. The speed is lower than 20km/h;
5. Step on the throttle to exit cruise temporarily, release the throttle to cruise again;
6. If you press the clutch pedal, the cruise function will exit. If you release the pedal, the cruise function will resume (only applicable to models with manual transmission).



CAUTION:

1. "S-" means setting speed/reducing speed; "R+" means to restore speed/increase speed.
2. If the cruise system fails, the cruise system function will be automatically cancelled and the cruise indicator light on the instrument will be off.



Warning:

Do not use the cruise control system when the vehicle is driving in the following situations, or it may cause the vehicle to lose control and cause an accident.

1. When it is impossible to keep the vehicle running at a constant speed.
2. When the vehicle is driving in a bad traffic environment.
3. When the vehicle is driving under the condition that it needs to change its speed frequently.
4. When the vehicle is driving in a windy environment.
5. When driving on curved roads or mountains.
6. When the vehicle is on a smooth road surface (rain, snow, ice, etc.).

Low idle speed adjustment

Only applicable to vehicles equipped with cruise system devices.

Operate the cruise switch for 3 cycles within 2 seconds (i.e., OFF-ON-OFF-ON-OFF-ON) to adjust the idle speed, press "R+", and the engine speed will continue to rise; Press "S-" and the engine speed continues to drop.

The Cummins ISZ engine of this series is equipped with a low idle speed of 700r/min. Low idle speed adjustment range is 600~ 800r/min.

Audio switch operation:

Operation volume + switch: volume increases

Operate volume - switch: reduce volume

Operation track + switch: track up turn

Operation track - switch: track down turn

Operation mode selection switch: the default mode for switching in FM1/FM2/AM is FM1 mode, and the cycle is in order of FM1, FM2 and AM

Horn switch

By default, press the horn switch and the electric horn will ring. To switch the air horn, press the air horn selection switch.



H-D760-023

Turn signal lamp

When the left handle of the combination switch is pushed forward, the right front turn signal light, the right rear turn signal light and the right turn signal light will be lit; When the left handle of the combination switch is turned back, the left front turn signal light, the left rear turn signal light and the left turn signal light are lit.



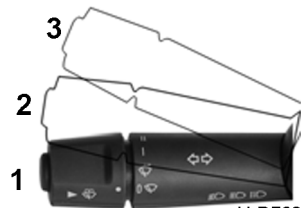
H-D760-024

Switching between low and high beam light

When the light knob is in front of the light, the near light is turned on.

When the combination switch is operated to the "middle" position, the high beam light will be lit; Switch back to the original light state.

When the combination switch is operated to the "up" position, the high beam light will be lit; After the switch is back in position, the light completes a switch.



H-D760-025

1. Original position
2. Middle position
3. Up position

Idle stop

Cummins series engine has idling stop characteristics.

By idling the engine for a period of time (without driving operation), idling stop can reduce fuel consumption and extend engine life. Before stopping, the engine maintenance alarm light flashes for about 30 seconds, warning the driver of impending shutdown. The driver can cancel the stop and simply step on the brake, clutch or accelerator pedal during the warning period.



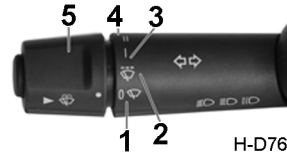
H-D760-054

1. Engine stop warning indicator
2. Engine maintenance warning indicator

Windshield wiper and washer switch

Structure and Operation

1. The wiper knob switch to intermittent gear: the wiper works intermittently;
2. Turn the wiper knob switch to low speed gear: the wiper works at low speed;
3. Turn the wiper knob switch to high speed gear: wiper works at high speed.
4. Press the washer switch: start spraying water, and the wiper works at a low speed;
5. Release the washing switch: then stop spraying water, and the wiper will continue to work for 2 cycles before stopping.



H-D760-026

1. Wiper OFF gear
2. Intermittent wiper
3. Low speed gear of wiper
4. High speed gear wipers
5. Washer switch



CAUTION:

1. Please use the wiper together with the washer so as to prevent windshield scratch.
2. Never use the washer without washer fluid.

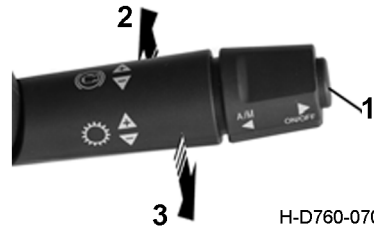
Use of auxiliary brake

Please refer to the specific configuration of purchased products.

In any case, the combination switch is pushed forward to enter the auxiliary brake. The combination switch is pushed forward as "add gear", when the gear is the highest gear, then add gear operation is no response. The combination switch is pushed backward to "reduce gear". When the gear position is the lowest, the auxiliary brake will be closed if the gear reduction operation is carried out.

The instrument shows the working position of the auxiliary brake.

When adding or reducing gear, only one gear can be used step by step, but the auxiliary brake can be directly turned off by the switch button.



H-D760-070

1. Auxiliary brake switch button
2. "Add gear" operation
3. "Reduce gear" operation

Auxiliary brake classification:

Please refer to the specific configuration of purchased products.

Match engine brake + exhaust brake + retarder

Gear number: 4.

Position description:

1 gear: constant speed gear;

2~4 gears: auxiliary brake gear (braking capacity increases step by step)

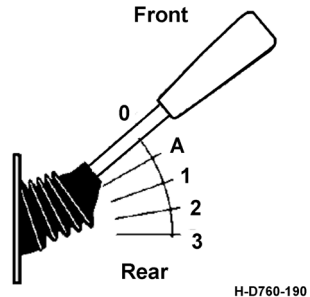
Match engine brake + exhaust brake or separate engine brake

Gear number: 2.

Position description:

Gear 1: braking force output;

Gear 2: full braking power output



H-D760-190



CAUTION:

1. Use on wet and slippery roads carefully, and no auxiliary braking is allowed on low adhesion roads such as snow and ice.

2. When the auxiliary brake works, if the accelerator pedal is pressed or the ABS is activated, the auxiliary brake will be closed. When the above conditions disappear, the auxiliary brake will return to the original working state.

Key switch

1. lock (locking position): the key can only be inserted and taken off at lock position.
2. ACC (accessory position): when the key is turned clockwise to ACC position, the related accessories will be electrified.
3. ON (ignition position): when the key is turned clockwise to ON position, the ignition status is activated and the instruments will start working.
4. START (start position): when the key is turned clockwise to START position, the engine will be started. When released, the key will return to ON position automatically.



H-D760-027



CAUTION:

- 1.It is forbidden to turn the key to START position when the engine is running to avoid engine damage.**
- 2.Do not start for a long time or frequently; otherwise battery electricity loss or starter damage will be caused.**
- 3.The time for starting the engine each time should not exceed 30 seconds. The interval of two starts should be no less than 2 minutes.**
- 4.For the sake of safety, always depress the clutch pedal when starting the engine.**
- 5.The main power must be shut off after 20s of engine stopped.**

Instructions for ACC switch

1. ACC mode needs to be entered from cruise mode.
2. After pressing the cruise (CC) button, press either R+ or S- to enter the cruise mode. At this point, the default speed is the actual speed when entering cruise.
3. Under the premise of entering cruise mode, press the ACC button to enter adaptive cruise mode. Under adaptive cruise mode, press the ACC button again to exit adaptive cruise and return to cruise mode.

Integrated door switch

The driver's side

Window regulating

Manual: long press the up/down button of the switch, and the glass will rise/fall accordingly; Release the up/down button and the glass will stop.

Automatic: short press the down button of the switch to automatically lower the glass; During the descent, press the up/down button again, and the glass stops until the switch is operated again.

Door unlock and lock

Press the unlock button, the two doors are locked, and the cab door handle is automatically changed to the locking position. Press the lock button to unlock both doors, and the cab door handle is automatically changed to unlock position.

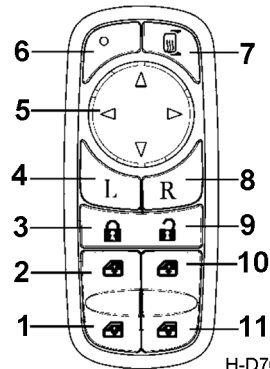
Rearview mirror adjustment

First you need to select the rearview mirror. Press "L" to select the left mirror; Press "R" to select right

Mirror. Press each direction key of the rearview mirror direction adjustment button to adjust the direction of the rearview mirror. Release the switch to stop adjustment.

Rearview mirror heated

Click the switch to heat the rearview mirror, and the rearview mirror will automatically heat for 20 minutes before stopping. When in the heating state, press the switch again and the heating stops.



H-D760-003

1. Driver's side glass "lift" switch
2. Driver's side glass "drop" switch
3. Door lock switch
4. Left rearview mirror selection switch
5. Rearview mirror direction adjustment button
6. Rearview mirror heating indicator light
7. Rearview mirror heating switch
8. Right rearview mirror selection switch
9. Door unlock switch
10. Passenger side glass "lift" switch
11. Passenger side glass "drop" switch



CAUTION:

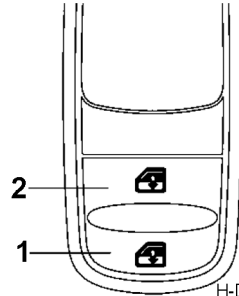
Continuous or frequent operation of window regulator to a certain number of times, may appear glass lifting function temporarily malfunction. This is more likely to happen in warmer environments. This is not a fault, but the window regulator motor overheating into the protective state. Just wait patiently for a few minutes, when the motor temperature drops naturally, the glass lifting function will automatically return to normal.

Passenger side

There is only window regulator switch on the passenger side:

Manual: long press the up/down button of the switch, and the glass will rise/fall accordingly; Release the up/down button and the glass will stop.

Automatic: short press the down button of the switch to automatically lower the glass; During the descent, press the up/down button again, and the glass stops until the switch is operated again.



H-D760-004

1. Passenger side glass "lift" switch
2. Passenger side glass "drop" switch

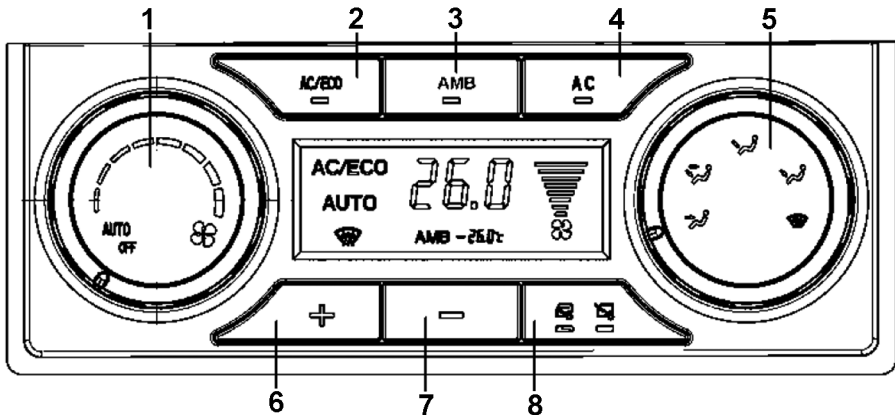


Warning:

- 1. During the operation of the window, if contact occurs, the window must be moved in the opposite direction.**
- 2. When the driver operates the electric window regulator switch on the passenger side, he must ensure that there is no obstacle preventing the windows from closing properly.**
- 3. The driver must ensure that passengers use the electric window regulator switch correctly.**
- 4. Don't put your head and hands out of the window when the electric window is going up.**

Climate Control System

Thermostatic air conditioning controller



1. Wind speed control knob

2. AC/ECO button

3. AMB button

4. Air conditioning button

5. Mode control knob

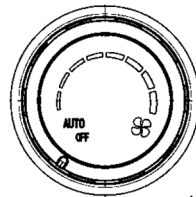
6. Temperature setting + button

7. Temperature setting - button

8. Internal and external circulation button

Wind speed control knob

Rotate the wind speed control knob, when the knob is in the OFF position, the fan stops the air output; When the knob is in the AUTO position, the air conditioning system is in the automatic operation state. According to the temperature set by the user and the ambient temperature, the air conditioning automatically adjusts the wind speed and determines the refrigeration and heating state. When the knob is rotated away from the AUTO position, the wind speed is in the manual state, and the wind speed is adjustable from 1 to 8 gears.



H-D760-031

AC/ECO button

1. On the premise that the air conditioning blower is turned on;
2. Press the button, and the air conditioning system (compressor) starts to operate. The system operates in economic refrigeration mode. Button work indicator light is on, AC/ECO is displayed on the screen; And A/C work indicator light is off, screen A/C display is off.
3. Press the button again, the air conditioning system (compressor) stops running, the button indicator light goes out, and the screen shows AC/ECO goes out.
4. If the blower is not running, it is invalid to press the button.

Structure and Operation

5. Press the button under AUTO state to exit AUTO adjustment of temperature and enter AC/ECO state. If the wind speed knob is still in AUTO state, the LCD displays AUTO and AC/ECO. Press the button again to enter the previous state.

Outdoor temperature button

When the air conditioner is turned on, press the AMB button to display the outdoor temperature; After 15 seconds, it will be returned to no display. If the AMB key is pressed again within 15 seconds, the outdoor temperature will no longer be displayed.

When the air conditioner is switched OFF (OFF), press the AMB button, the indicator light is on, and the outdoor temperature is often displayed. Press the AMB again, the indicator light is OFF, and the outdoor temperature is not displayed.

Air conditioning button

On state (light on) : refrigeration (compressor working)

Off state (light off) : no refrigeration

Mode control knob

1. Face blowing gear: blow face
2. Face and feet blowing gear: blow face and feet at the same time
3. Feet blowing gear: blow feet
4. Feet blowing, defrosting and defogging gear: blow feet meanwhile defrost and defog the glass
5. Defrost and defog gear: defrost and defog the glass



H-D760-032

Set the temperature and press the button

1. Operate the button function only when it is turned on.
2. Press the button once, set temperature increased by 0.5°C.
3. Press the button for 2 seconds and the setting temperature will continue to increase until the button is released and the setting temperature will stop to increase.
4. When the set temperature is greater than 32°C, screen display of Hi, press the button again, the control panel will be no response.
5. When the temperature is adjusted to Hi, the mixing damper is fully opened for the hottest working mode.

Set the temperature minus button

1. Operate the button function only when it is turned on.
2. Press the button once, set temperature decreased by 0.5°C.
3. Press the button and do not move for 2 seconds. The setting temperature will continue to decrease until the button is released.
4. When the set temperature is less than 18°C, screen display Lo, press the button again, the control panel will be no response.

5. When the temperature is adjusted to Lo, the mixing damper is completely closed for the coldest working mode.

Inner and outer loop button

The operation is effective at startup; When the ignition key is in ON gear under shutdown state, the button operation is effective; when ignition key out of ON gear, the operation will be invalid.

In the AUTO state, the system automatically adjusts the intake mode, and the internal and external circulation indicator light is not on. Under AUTO state, other functions of the system are still in the automatic running state when the air inlet mode is forced to change manually. Press this button, first internal circulation starts, the internal circulation light is on; The second time, execute the external circulation, the external circulation light is on; The third time, circulation mode enters AUTO state again. Under the manual state, press one internal and external circulation to change the state of internal and external circulation, and the corresponding indicator light is on.

Heating method

When using the heating function, perform the following operations:

6. Press the set temperature button to increase the setting temperature.
7. Set the fan control button to gear other than AUTO.

If you want to increase the heating rate, you can take the following measures:

1. Set the temperature to the maximum heating position.
2. Set the wind speed control button to higher wind speed.
3. Press the internal and external circulation button (make the indicator light on).

Cooling method

When using the refrigeration function, perform the following operations:

1. Press the button of set the temperature to lower the setting temperature.
2. Adjust the fan control button to other gear except AUTO.
3. Press the air conditioning button (make the indicator light on).

To increase the cooling rate, the following measures can be taken:

1. Set the temperature to the maximum refrigeration position.
2. Set the fan control button to higher wind speed.
3. Press the internal and external circulation button (make the indicator light on).

Natural ventilation

1. Set the temperature to Lo.
2. Set the fan control knob to other gear other than AUTO.
3. AC and AC/ECO are not on.

The windshield defrosted and defogged

Adjust the mode knob to defrost, the wind can blow to the glass for defrosting and defogging. The system has the maximum default air volume, which can be adjusted according to the actual demand.

Notes for use of air conditioning system

1. The heating device uses the coolant temperature of the engine to warm the air, so the coolant temperature is not high, and the temperature of the warm air will not rise.
2. Do not use the warm air device for too long when the engine stops or idles. Otherwise, it will cause the too large battery consumption, affect the normal running.
3. Adjust the temperature control knob to the refrigeration area to reduce the blowing air volume. In this case, press the internal and external circulation button or increase the air volume.
4. When heating indoors, the air conditioning switch must be disconnected to improve the heating efficiency and reduce the energy consumption of the engine; Press the air conditioning switch to switch on, and then press to switch off again.

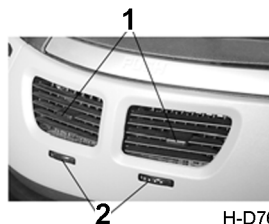
CAUTION:



1. When using the refrigeration function, please start the fan first and then press the air conditioning switch, otherwise the refrigeration function cannot be started (the indicator light on the air conditioning switch is not on).
2. When turning off the air conditioner, please press the air conditioner switch first (make the indicator light on the air conditioner switch in the off state) and wait for 2-3 minutes before turning off the fan. If the fan is turned off first, the air conditioning switch will be disconnected at the same time.
3. When the air conditioning compressor needs to be reopened after being turned off, please wait for 3-5 minutes, otherwise the service life of the compressor will be affected.

Air outlet adjustment

By rotating the lever, the wind can be adjusted in the direction of up and down, left and right; The air volume can be adjusted by rotating the thumbwheel of air outlet.



H-D760-013

1. Shifter lever

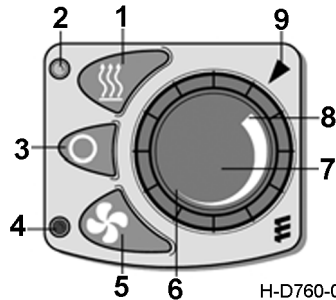
2. Thumbwheel

Parking warm air system (optional)

Please refer to the specific configuration of the purchased model.

Turn on heater

1. Heating mode: use the heating button 1, start the heater in the heating operation mode (continuous operation), and the indicator light of heater operation (red) lights up. At the same time, the required temperature can be adjusted by using the pre-selected temperature knob 7;



H-D760-075

2. Ventilation mode: use the ventilation button 5, start the heater in the ventilation operation mode (continuous operation), and the ventilation operation indicator light (blue) lights up. At this time, knob 7 has no adjustment function in the ventilation operation.

1. Heating button
2. Heating operation display light (red)
3. Close button
4. Ventilation operation display light (blue)
5. Ventilation button
6. Lowest temperature
7. Preselected temperature knob
8. Highest temperature
9. Temperature indicating arrow

Turn off the heater

Use the close button 3, the heating or ventilation operation ends, the corresponding indicator light goes out, the heater runs 240s, the system stops working.

Precautions of using parking warm air

1. The heater must be turned off when refueling.
2. Do not use heater in closed rooms such as garages or parking buildings; The use of heater in the formation of flammable vapors or dust is not permitted, such as fuel warehouse, carbon warehouse, wood warehouse, granaries and similar sites.
3. The heater shall not operate in the area where the exhaust emission device is located during the operation of the heater. If it is necessary to operate in the exhaust emission device, the heater shall be turned off first until all parts are completely cooled and protective gloves are put on when necessary. Inlet and outlet pipe shall not be blocked by dirt and snow.
4. The fuel usage shall conform to the provisions on diesel fuel in GB 252.
5. Operating altitude requirements of heater:

When the heater operates at a height below 1500m, it can operate without limit.

Alpine pump kits must be added when the heater is operating at an altitude above 1500m.

6. Control and safety devices

If the heater does not ignite within 90 seconds of starting fuel delivery, the starting process will be repeated. If the heater does not ignite again within 90 seconds after starting to deliver fuel, the fault will be shut down, that is, stop delivering fuel, fan will be cooled for about 4 minutes. After more than the permitted number of startup attempts and repeated failures, the controller will be locked. If the flame is automati-

cally extinguished during operation, it will be restarted first. If the heater does not ignite within 90 seconds after the restart of fuel delivery, or even if it is started, but it is extinguished within 15 minutes, it will fail to shut down, that is, stop the fuel delivery, and the fan will cool down for about 4 minutes. Failure shutdown problem can be eliminated by restarting after a brief shutdown. There should be no more than two attempts to restart after a brief shutdown. When overheating occurs, the combined sensor (flame sensor/overheat sensor) reacts, fuel supply is interrupted, and a fault shutdown occurs. After eliminating the cause of overheating, you can restart the heater by shutting it down and restarting it. After more than the permitted number of startup attempts (about 10) and repeated failed attempts, the controller will be locked.

7. In case of failure, shutdown should be checked as follows:

When the heater does not start up after operated, shut down and then restart; The heater is still not started, so you should check whether there is fuel in the tank; Whether the fuse is normal; Whether the circuit, connection and joint are in good condition; Whether the combustion air duct or exhaust pipe is safe, if all above are normal, and the heater is still out of order, or other functional failure, please contact the maintenance station designated by Dongfeng Commercial Vehicles Co., Ltd.

Maintenance instructions

The heater should be put into trial operation before the warm season. Close the heater and remove the fuse if smoke is present for a long period of time, abnormal combustion sounds or obvious smell of fuel or overheating of electrical/electronic components. In this case, professional maintenance personnel should be the first to check. After long-term idling, check the openings of combustion air duct, combustion air supply pipe and exhaust pipe, and clean them when necessary.

Gear lever and shift knob

Please refer to the specific configuration of the purchased model.

ZF 12-speed automatic transmission

The ZF 12-speed automatic transmission has no gear lever, and the shift knob is matched, as shown in figure H-ZF12AMT-001. The functions of each shift are as follows:

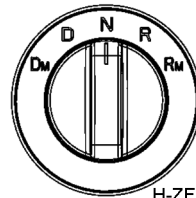
N gear: the vehicle is in neutral;

D gear: forward gear, use the gear when the vehicle is moving normally;

DM block: forward slow-speed gear; Use when the vehicle is moving at a short distance and slow speed;

R gear: reverse gear, use the gear when the vehicle is normally reversing;

RM block: reverse slow-speed gear; Use for short distance and slow speed reversing.



H-ZF12AMT-001

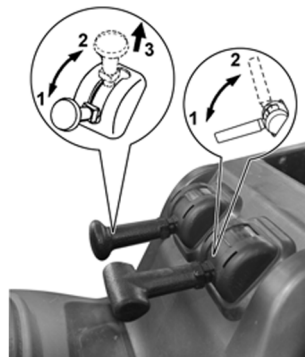
Manual Valve Control Lever

The manual valve controlled spring air chamber acts on rear axle brakes as parking brake or emergency brake.

When the manual valve control lever is at Position 1, the parking brake will be in release status; during transfer from Position 1 to Position 2, the parking braking force of the tractor and the service braking force of the trailer will increase gradually; when the lever is at Position 2, the parking brake of the tractor and the service brake of the trailer will be in working status; during transfer from Position 2 to Position 3, the parking brake of the tractor will be working continuously, and the service brake of the trailer will be released;

Manual

Trailer



H-D760-056

1. Service position
2. Parking position
3. Inspection position
4. Emergency braking position between 1 and 2



Warning:

When parking the vehicle, be sure to move the manual valve control lever to locking position; otherwise, the vehicle may move, which will lead to damage or even personal injury.

Trailer brake manual valve

The trailer brake manual valve is located beside the parking brake manual valve. Pulling backwards (tail of vehicle) this lever can apply the trailer brake and pushing it forwards can release the brake.

When driving the vehicle down a hill with small gradient, the tractor can be braked through the engine brake while the trailer can be braked by pulling the trailer brake lever intermittently.



Warning:

To park it on a slope, it is required to start the parking brake of the trailer and wedge the wheels with triangular blocks.

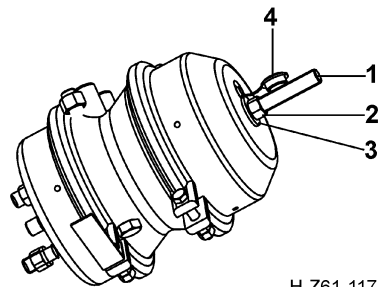
Method for Releasing Spring Brake

Please refer to the specific configurations of your vehicle.

Where the vehicle cannot be released from parking brake and cannot start, it may be caused by the pressure drop of spring brake air chamber, which makes the spring brake operate automatically. In such case, check the pipeline system or valves for air leakage first; and timely eliminate the leakage, if any. If the elimination is not possible, please contact a Technical Service Center (Station) authorized by DONG-FENG COMMERCIAL VEHICLE CO.,LTD..

Methods to release dual diaphragm type spring brake air chamber

1. Remove release screw from the bracket, open the rubber dust cap at the rear part of air chamber, insert the hook end of release screw into air chamber spring cavity and rotate to a degree, and confirm the tray is hooked;
2. Install washer and nut, rotate the nut with hand, and rotate the nut till the screw is out by about 40mm with a wrench. The spring braking is then released.



H-Z61-117

1. Manual bolt
2. Nut
3. Washer
4. Dustproof plug



WARNING:

1. Manual release of parking brake of spring brake air chamber is limited to emergency only. Running the vehicle without parking brake is quite dangerous and may result in injury.
2. Ensure that the vehicle will not slide automatically before taking the above steps! The vehicle will lose parking braking function temporarily after the above steps are taken!
3. Afterwards you must find out the reason for insufficient spring brake air pressure for prompt repair. After troubleshooting, be sure to remove the release screw from air chamber spring cavity to restore the parking braking function. And refit the release screw to the bracket and tighten it for next use.

Piston type spring brake air chamber

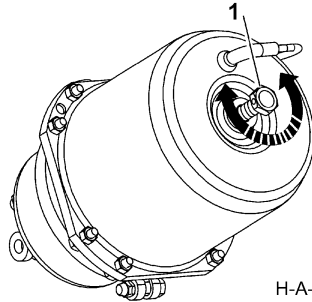
Structure and Operation

The spring brake can be released by rotating the spring brake release bolt with a spanner counterclockwise until the bolt cannot be tightened any more.



WARNING:

- 1. Manual release of parking brake of spring brake chamber is limited to emergency only. Running the vehicle without parking brake is quite dangerous and may result in serious accidents.**
- 2. Afterwards you must find out the reason for insufficient spring brake air pressure for prompt repair. After troubleshooting, refit the bolts to restore the parking braking function.**



H-A-063

1. Spring brake release bolt

Accessory System

Please refer to the specific configurations of your vehicle.

Cigar lighter

To use the cigar lighter, press it directly and wait for 10s after releasing it; then the resistance wire in its front will be heated red and pop out and return to the original position automatically. At this moment, you can pull it out to light the cigar. Put it back in place after using it.



H-B69B-060



WARNING:

Never connect the cigar lighter for a long period. It must be drawn out manually if it fails to pop out automatically.

Ash tray

When using it, first press the cover to pop it out, and then push it back to close it. When cleaning it, first open the cover, and then pull the whole ash tray out upward.



CAUTION:

For the sake of safety, always close the ash tray before leaving the vehicle.



H-D760-055

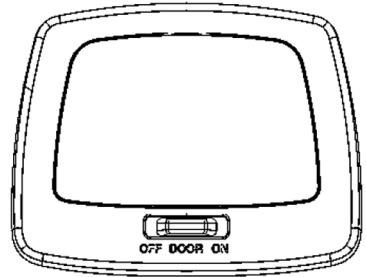
Front reading lamps

They are installed on inner front roof. Pressing the left and right switches will turn on the left and right reading lamps, and pressing the switches again will turn off the lamps.

DOOR position: when the switch is turned to DOOR position, the interior lamp will turn on in case any door is opened, and it will turn off in case door on both sides are closed;

ON position: the interior lamp will turn on once the switch is turned to ON position regardless of the position of the door;

OFF position: the interior lamp will turn off once the switch is turned to OFF position regardless of the position of the door.

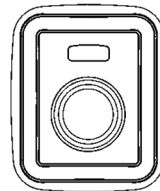


H-D760-038

Side reading lamp

Pressing the switch can turn on the side reading lamp.

Pressing the switch again can pop up the switch to turn off the side reading lamp.



H-D760-039



CAUTION:

the berth reading lamp is designed with a rotating lamp holder, so the light direction can be adjusted as needed.

1. Switch

Sunroof

Structure and Operation

Automatic opening/closing sunroof

Press the opening switch to automatically open the sunroof; Press the closing switch to automatically close the sunroof.

Manual opening/closing sunroof

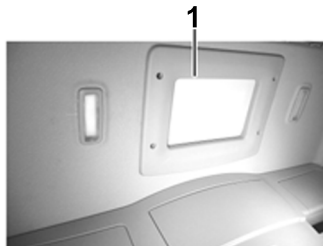
Press and hold the opening/closing switch: the sunroof or the sunshade will begin to move, and the time for movement depends on the operation time of the switch.

The sunroof will stop moving when the switch is released. Automatic closing of sunroof.

If the sunroof or the sunshade is at the opening position, the sunroof can automatically return to the initial closing status after the on-board power supply is off for 5s.

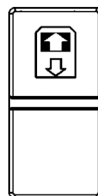
Reset method of sunroof:

Operate the sunroof as follows: open the sunshade, flip the glass up, and open the glass outer slide rail and close it (no interruption is allowed during operation); when closing is done in place, press and hold the closing button for 40-60s to realize automatic learning and memorizing.



H-D760-125

1. Sunroof



H-D760-131



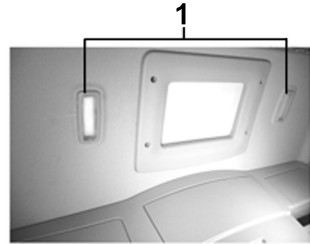
CAUTION:

1. With respect to the sunroof, the following circumstances may occur due to powerful electromagnetic interference or other factors:
2. The sunroof moves for a short distance or does not move after the closing button has been pressed, while the sunroof can make progressive movement if the closing button is pressed and held;
3. The sunroof can move, but in disorder after the closing button has been pressed or pressed and held;
4. The sunshade can close in place after the closing button has been pressed;
5. The sunroof can automatically open after the key switch has been turned off.
6. In case the circumstances above occur, please reset the sunroof; after this operation, if the fault has not been eliminated, please operate the sunroof and turn off the power key when the sunroof is operating, and then turn on the key after 10s, and finally reset the sunroof. In case the fault has not been eliminated, please drive your vehicle to the After-sale Service Station of DONGFENG COMMERCIAL VEHICLE CO.,LTD. for related inspection.

Ceiling lamp

The ceiling lamp, located at the interior top of the cab can be controlled by three switches which work separately:

- Instrument panel ceiling lamp switch
- Upper berth ceiling lamp switch
- Lower berth ceiling lamp switch



H-D760-009

1. Ceiling lamp

Berth reading lamp

The upper and lower berths are designed with reading lamps,

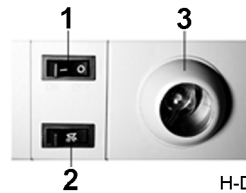
when the switch is turned to ON, the berth reading lamp will turn on;

when the switch is turned to OFF, the berth reading lamp will turn off;



CAUTION:

the berth reading lamp is designed with a rotating lamp holder, so the light direction can be adjusted as needed.

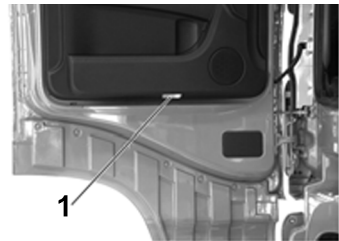


H-D760-008

1. Berth reading lamp switch
2. Ceiling lamp switch
3. Berth reading lamp

Step lamps

They are installed on the inner sides of doors and used for step lighting. The left and right step lamps are controlled by left and right door switches respectively. When the door is open, the step lamp at corresponding side will be turned on; and when the door is closed, the step lamp at corresponding side will go out.



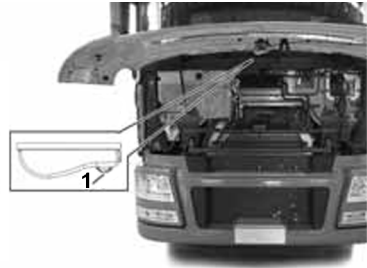
H-D760-034

1. Step lamp

Structure and Operation

Maintenance lamp

It is installed on the inner side of front wall for front wall maintenance lamp.



H-D760-044

1. Maintenance lamp switch

Glove box

Please refer to the specific configurations of your vehicle.

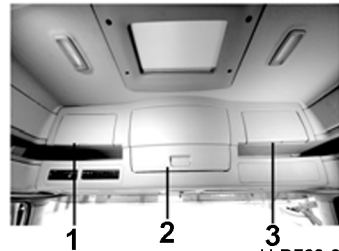
Front roof glove box

The front roof glove box is composed of a central glove box, a left glove box and a right glove box, which are used for storing large objects.

To open the central glove box, pull the buckle to separate it from the central lock pin, and tilt the box cover upwards.

To open the left and right glove boxes, press the buckles downwards, and tilt the box covers upwards.

To close the glove boxes, tilt the box covers downwards until the buckles are pressed into the central lock pins.



H-D760-019

1. Left glove Box
2. Central glove box
3. Right glove Box



CAUTION:

1. Please do not place too small, fragile articles or the objects prone to shed dust into the glove box so as to avoid the serviceability of the glove box being affected.
2. Please confirm that the glove box cover is closed properly when using the glove box.



WARNING:

1. Do not place corrosive articles or hard pointed objects into the glove box;
2. Do not place heavy articles on the glove box cover.

Central glove box

This glove box is located at the center of the console and used to keep carry-on tools and small articles.

Opening: pull the glove box handle upwards and pull the glove box backwards to open it.

Closing: push the glove box to close it.



1 H-D760-042

1. Glove box handle

Small tray table

It is located in the center of the console, and used for temporary writing, dinning, etc.

Opening: press the small table to pop it up.

Closing: push the small table back to close it.



H-D760-043

1. Glove box handle

The refrigerator

Please refer to the specific configuration of the purchased model. The refrigerator is located at the bottom of the lower berth and is used to cool food, etc.

On and off

Open: open the refrigerator button hand, clockwise rotation knob, refrigerator began to cool.

Close: turn the knob to "0" to close.

Temperature setting

MAX position: about -2 c inside.

MIN position: about 12 ? inside.

Defrost

Take food or other items out of the refrigerator if necessary and store them in other refrigeration facilities.

Turn off the refrigerator and wipe off the frost.



H-D760-040

1. refrigerator clasp hands



H-D760-120

1. MIN
2. 0 position
3. The MAX
4. Light

Side tool kit

Out-opening tool kits are provided for driver's side and passenger's side in the D760 cab, and they are equipped with lamps for easy taking of objects by readers. The lamp is equipped with a contact switch which will be triggered to make the lamp to turn off in case the box cover is closed; when the glove box cover pops up, the switch will automatically pop up to turn on the lamp.



H-D760-010

1. Side tool kit

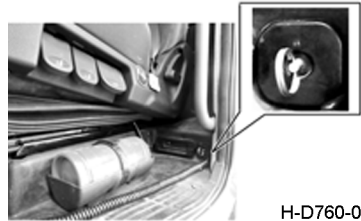
Opening/closing method of side tool kit

1. Opening: pull the side tool kit ring at the back of seat as shown in Fig. H-D760-011 to unlock the side tool kit of which the cover will pop up for an angle; in this case, pull the cover along the lower edge of the side tool kit cover to open the tool kit;



CAUTION:

In case the lock is not completely unlocked and the side tool kit cover can not be opened as the ring is pulled, please keep the operation of pulling the ring to open the side tool kit cover, so as to open the side tool kit.



H-D760-011

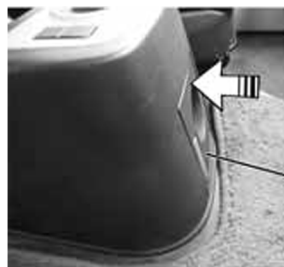
2. Closing: pull the cover downward along the lower edge of the side tool kit cover until it is located as a lower position, and give the cover a hard covering; during closing, a clamping sound of the buckle can be heard, and after closing, the cover should be lower than the cab surrounding plane; if the cover is flush with the surrounding plane or slightly protruding, it may be caused by un-tight locking of the tool kit; in this case, please close the tool kit cover again.

Cup holder

The cup holder is located below the transmission shift console.

Opening: press the cup holder to pop the cup up.

Closing: push the cup holder back to close it.



H-D760-106



H-D760-107

1. Cup holder

220V power socket

The 220V power socket, located at back of driver's seat and passenger's seat, can be powered on by pulling the handle and pressing the power switch until the green lamp turns on.

This socket, used for supplying of external power, is not controlled by the ignition switch but the master power switch of the complete vehicle. The rated load of this socket is 220V, 360W.



H-D760-012

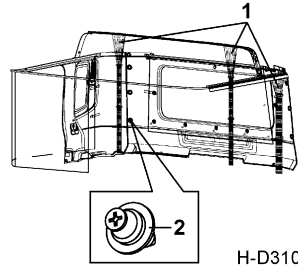
1. 220V power socket

**CAUTION:**

When getting power via this socket, the load is strictly prohibited to exceed the nominal capacity of the socket.

Curtain

1. Upon extending curtain, put the rings on curtain into corresponding hooks on the guide rail, then evenly extend it along the guide rail, overlap curtains with nylon buckle, and clip metal fasteners at lower part of side/rear curtain onto plastic buckles on the protection board.
2. Upon collecting curtain, first release the nylon buckle, then evenly collect the curtain along the guide rail, and bind it with the fastener.



H-D310-166

1. Curtain 2. Buckle

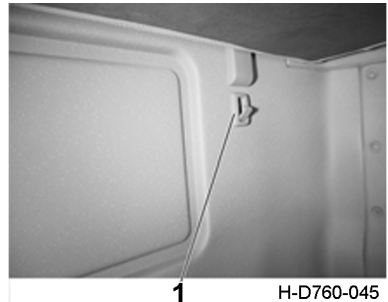


CAUTION:

Do not apply force to the lower end of the curtain when extending the curtain, or stamp on it.

Coat and hat hook

The coat and hat hook is located in the rear quarter trim.

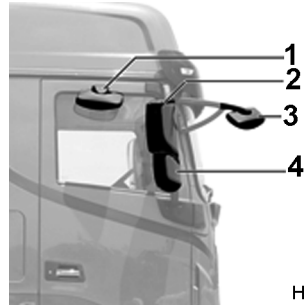


H-D760-045

1. Coat and hat hook

Rearview mirrors and under-view mirrors

The main exterior rearview mirror and wide-angle mirror are installed on driver's left and right sides, and the front under-view mirror and close-proximity rearview mirror are installed on the passenger's side. The driver can adjust the main exterior rearview mirror, wide-angle mirror, front under-view mirror and close-proximity rearview mirror to realize best rearview and down view effects.

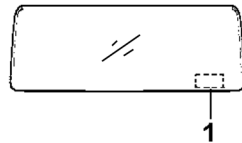


H-D760-33

1. Close-proximity rearview mirror
2. Exterior rearview mirror
3. Front under-view mirror
4. Wide-angle mirror

Microwave window

It is recommended to place it in the front area of the driver's side instrument panel without affecting the position of the driving vision.



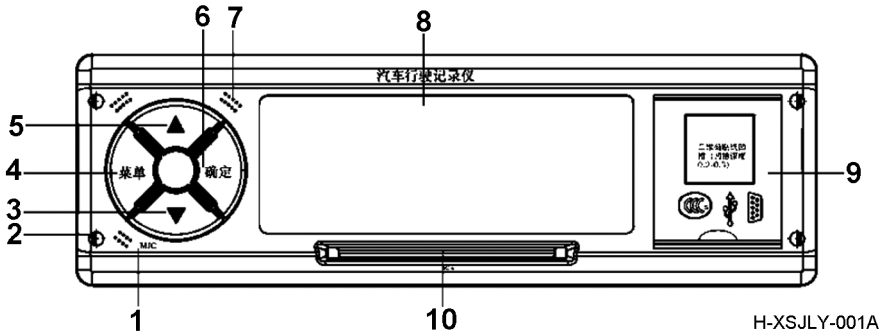
H-WBCK-760-001

1. Microwave window position

Driving recorder

The operating manual of driving recorder is provided separately.

Front panel



1. MIC
2. Keyhole: used to remove the recorder from the bracket
3. Scroll down to select functions or data column items
4. Menu: switch between the default display interface and the menu interface, and return the subdirectory to the root directory
5. Flip up and select to complete the selection of function or data column items
6. Confirmation: to confirm the function or data column item, press the button for 3s continuously in the default display interface to trigger the printing function
7. Speaker hole for internal sound output
8. Dot matrix LCD screen
9. Compartment door cover, which contains 3C label, USB screen printing, DB9 screen printing, and USB interface and DB9 interface inside
10. IC card slot



CAUTION:

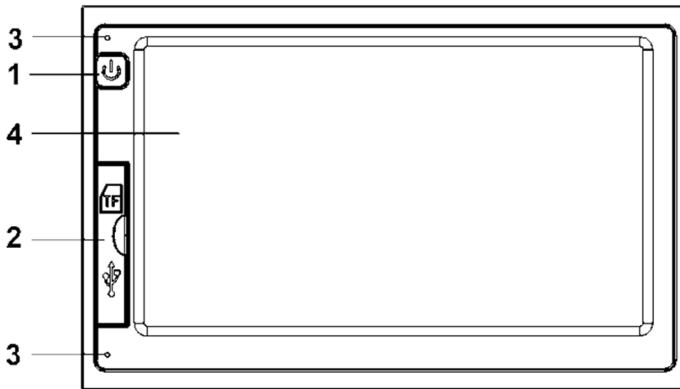
1. Press the "▲" and "▼" combination buttons for 2s to trigger SOS alarm, and the alarm information is automatically uploaded to the monitoring platform.
2. When the device deviates from the horizontal line more than 30 degrees, the device will generate a rollover alarm, and the alarm information will be automatically uploaded to the monitoring platform.

Display screen of on-board information terminal

Product introduction

Video entertainment system assembly

Front panel

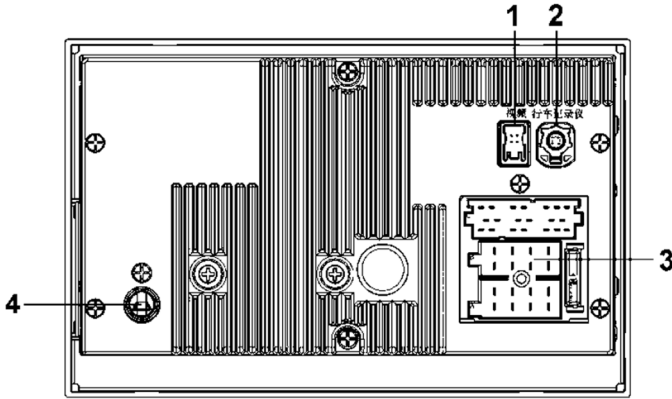


H-D560-001

1. Power/standby button
2. Hatch cover with USB screen
3. MIC port
4. LCD panel

Structure and Operation

I



H-D560-CZXXZD-002

- | | |
|-----------------------------------|-------------------------------|
| 1. Video (camera) connector | 3. Electrical connector |
| 2. Hd dash CAM (camera) connector | 4. Receiver antenna connector |

Product parameters

1. Nominal voltage: 24V DC
2. Working voltage: 16~32V DC
3. Rated working current: less than 5A
4. Static current: less than 10mA
5. Operating temperature: -30 °C ~+70 °C
6. Storage temperature: -40 °C ~+85 °C

Name	Item	Specification
Radio	AM band	Frequency range: 522kHz~1620kHz
	FM band	Frequency range: 87.5MHz~108MHz
	Number of stations stored manually	FM18, AM6
	Number of stations stored automatically	FM6, AM6
	Pre-set radio browsing playback	FM6, AM6
	Signal-to-noise ratio	FM:50dB Over AM:40dB Over
MP3	Readable audio file format	MP3/MP3pro/WMA
MP5	Video format supported	RW V B/R M /MPEG 1 /MPEG 2 /MPEG4/ ASF/MOV and other common formats
	Resolution	1280*720P



CAUTION:

Please read this instruction carefully before use.

1. Please make sure all devices and wires are connected correctly before connecting to the power supply of the display screen. Do not install or remove the screen while it is powered. If you find any missing wire or wrong connection, please cut off the power supply first, otherwise it is easy to damage the equipment.
2. Please install the equipment at the designated installation site. If any abnormality is found during the use, please immediately go to the designated maintenance site for maintenance. The equipment damage caused by installation or maintenance at a non-designated installation site or maintenance site is not covered by the product warranty.
3. In order to avoid electromagnetic interference or configuration incompatibility, please stop using the equipment at the place with notice as required.
4. In order to avoid electromagnetic interference or configuration incompatibility, please stop using the equipment at the place with notice as required.
5. If the contents in this manual are inconsistent with your products, please refer to the actual display screen.

The main function

Radio function

1. FM radio
2. AM radio

Music playback function

1. Play audio files in USB

Video playback function

1. Play video files in USB
2. Play video files in SD card

bluetooth

1. Answer calls via bluetooth
2. Bluetooth music playing

Image recognition function

E-book reading function

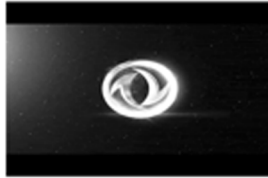
Driving auxiliary

1. Video display
2. Astern view

Product instructions

Boot interface

The master power switch of the vehicle is turned on and the ignition lock is set to ACC, and the display screen conducts self-inspection. At the same time, the system enters the startup animation interface, as shown in the figure:



H-CZXXZD-003

After the self-check of the display screen is successful, it enters the main interface. If the self-check of the display screen fails, it cannot enter the main interface. Please contact the after-sales service center for maintenance.

Main interface



H-D560-CZXXZD-004

- | | |
|--------------|------------------|
| 1. Date Menu | 4. USB device |
| 2. Time | 5. Bluetooth |
| 3. Volume | 6. Function menu |

- Date: year - month - day - week, display the current date, subject to GPS positioning time.
- Time: hour-minute, displaying the current time.

- USB device:

Icon	Instructions
 (highlighted)	The display screen is connected to the USB device successfully
 (gray) or none	The display screen is not connected to the USB device

- Bluetooth:

Icon	Instructions
 (highlighted)	The display screen has a bluetooth connection
 (gray)	The display screen has no bluetooth connection

- Volume: 

Click the sound button to enter the volume adjustment interface.

- Function Menu:

Slide the screen to rotate the icon, click the function icon to enter the corresponding function.

Standby interface

Enter the standby interface by pressing the power/standby button on the display (< 3s).



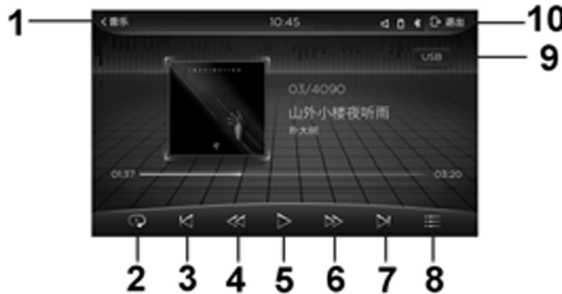
H-D560-CZXXZD-005

After entering the standby interface, can be any point by clicking on the screen, inserted U disk, or wake up the screen steering wheel buttons, normal work into the interface.

Functional interface

Music

Click the function icon "music" icon to enter music playback interface, can under the function of music broadcast, the support to the audio files stored in a USB device to broadcast and mobile phone bluetooth music playback, as shown in figure:



H-D560-CZXXZD-006

- | | | |
|----------------|-----------------|----------------------------------|
| 1. Return | 5. Play/pause | 9. BT/USB audio source switching |
| 2. Play mode | 6. Fast forward | 10. Quit |
| 3. Last song | 7. Next song | |
| 4. Fast return | 8. Menu list | |

When the external mobile storage device is successful, click "menu list" in the music interface. When the song catalog in the current storage device is exported, it is divided into all songs, folders, artists and albums. Click enter the corresponding category playlist and list. Click the corresponding song name to select the song, as shown in the picture:



H-D560-CZXXZD-007

**CAUTION:**

1. When the media device contains audio files, it will automatically jump to the music playing interface;
2. Click button  to return to the main interface, but the program continues to run in the background. Click [music] control again and enter the interface before returning;
3. Supports MP3, ACC, FLAC, APE, PCM and ADPCM music files in formats;

Recorder

Click [recorder] to enter the interface of the recorder. This interface is mainly used for communication between the display screen and hd driving recorder. Through this interface, related functions such as vehicle information query and vehicle information setting can be performed, as shown in the figure below:



H-D560-CZXXZD-060

Registration information (refer to this process for the input interface)

Click [registration information] to enter the information interface of the host computer, in which vehicle VIN, terminal ID and license plate number can be inquired. The license plate color, provincial ID, municipal ID and vehicle classification can be inquired and set.



H-D560-CZXXZD-061



H-D560-CZXXZD-062

Take the setting of license plate color as an example. Click the color of license plate to enter the interface shown below. Click the color of license plate to set to exit.



H-D560-CZXXZD-063

Province ID, city ID, vehicle classification operation can refer to the license plate color Settings.

Click [user's mobile phone number] to enter the user password 12345678 (all interfaces are valid during the ignition after one input) to enter the user's mobile phone number query interface. Under this function, you can query and set the current terminal number, as shown in the figure below:

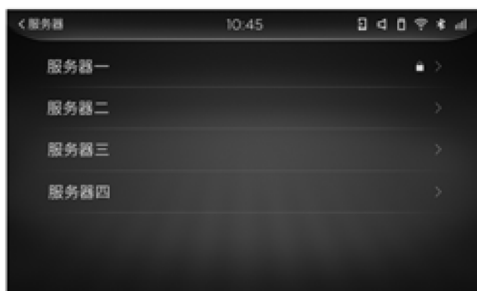


H-D560-CZXXZD-064

Terminal mobile phone number, SOS number query changes refer to this.

server

Click "server Settings" to enter the server selection interface. Click the corresponding server to query and set the APN, port number, domain name and IP of the server. The user password 12345678 should be entered for server 1, as shown in the figure:



H-D560-CZXXZD-065

Location information

Click "location information" to enter the location mode interface. Under this function, you can query the current host location mode, as shown in the figure:



H-D560-CZXXZD-066

Tired driving enquiry

Click "fatigue driving query" to enter the interface of fatigue driving query. This function can query the driving license number and the corresponding starting and ending time of fatigue driving according to the driving time.



H-D560-CZXXZD-067

Host state

Click [host state] to enter the query interface of host state. Under this function, you can query the current host information. The highlighted figure shows that the function module is open and running, as shown in the figure below:



H-D560-CZXXZD-068



CAUTION:
Some of the functions are reserved.

Load condition

Click [load state] to enter the load state interface, which can be set according to the actual load of the current vehicle, as shown in the figure:



H-D560-CZXXZD-069

Vehicle impulse coefficient

The current vehicle pulse coefficient can be viewed under the function list of recorder.

Query of mileage information

The current mileage information can be viewed under the recorder function list.

Picture

Click [picture] on the main interface to enter the picture interface. Under this function, pictures can be played. At present, pictures stored in USB devices can be played. As shown in figure:

Photo main interface



Single photo



Click on close

Click on the photo album

- 1, Rotate left and rotate right
- 2, Enlarge and contract
- 3, Autoplay Settings

Photo window view



Photo window view - auto play Settings



Click on the return

Click on the list
(area marked red)

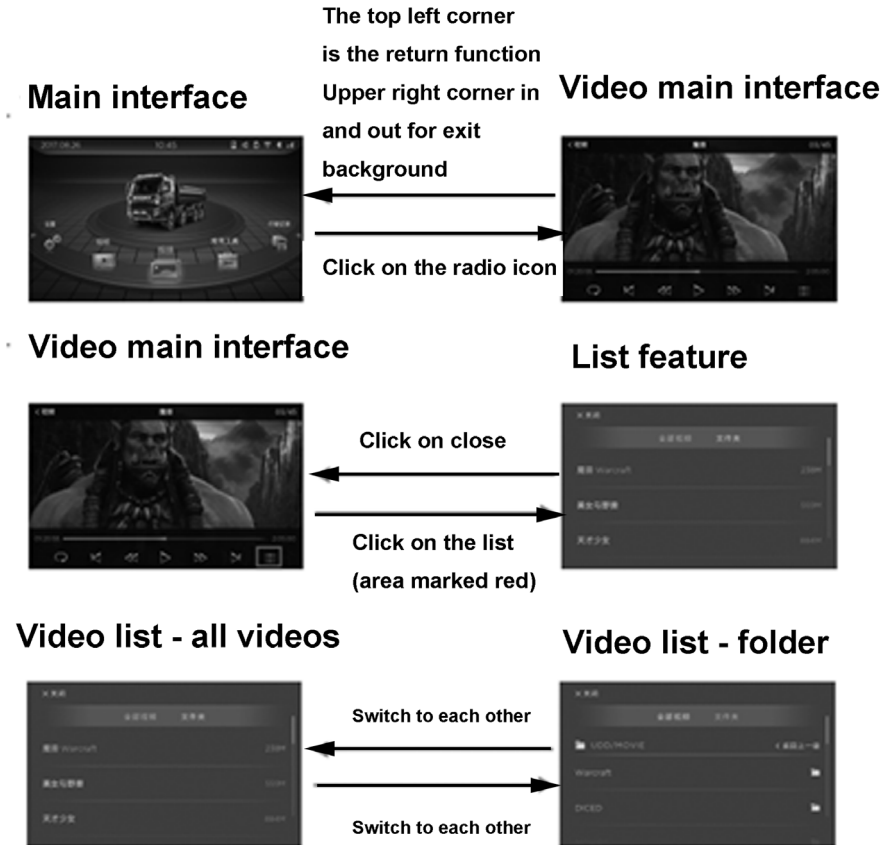
H-D560-CZXXZD-021B



CAUTION:
Support resolution not more than 2048*2048 JPEG, GIF, BMP, PNG images.

Video

Click the function list interface [video] to enter the video playback interface. Under this function, video can be played. Currently, it supports playing video files stored in USB devices. As shown in figure:



H-D560-CZXXZD-022

**CAUTION:**

1. In order to ensure the driving safety of drivers, when the driving speed is more than 5km/h and it lasts for more than 10s, the video will not be able to be played. If this function needs to be enabled, it is necessary to enter the setting interface to set the safety mode;
2. Supports video file playback in formats of H264, H263, MPEG2, MPEG4, AVI, FLV, ASF/WMV, MP4, MKV and TS.

E-books

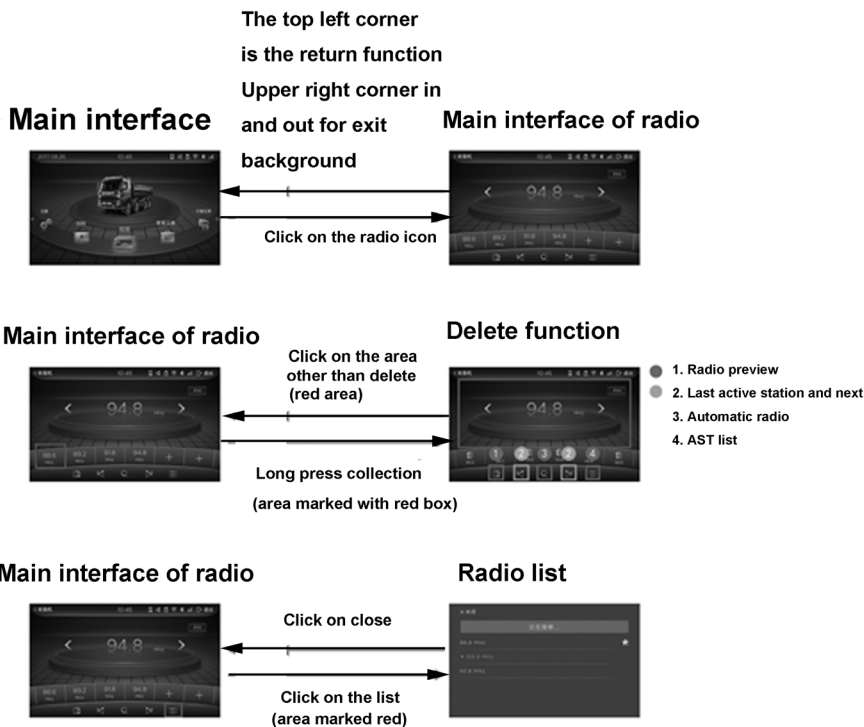
Click the [e-book] icon to enter the e-book reading interface, as shown in the picture:



H-D560-CZXXZD-023

Radio

Click the "radio" icon to enter the radio interface, as shown in the picture:



H-D560-CZXZD-024

After entering this menu, adjust the channel by clicking the "left" and "right" fine-tuning controls or adjust the channel by "up and down" buttons on the steering wheel. Click to play the corresponding channel in the selected storage area, or press the channel area for more than 3 seconds to save the currently playing channel to the corresponding location. Interface details:

Fine-tuning button:

The same function can also be realized by pressing [up and down buttons] on the upper disk of the radio frequency band;

Radio mode:

Display the current radio mode, including FM and AM. Click the toggle mode.

· Last channel: 

Click the button, jump to the previous channel of the current channel, or press the "up button" on the steering wheel to achieve the same function; (picture, video, music).

- Next channel: 

Click the button to skip to the next channel of the current channel, or press the "down button" on the steering wheel to achieve the same function; (picture, video, music).

Commonly used tools

The calculator

Click [calculator] to enter the calculator interface. Under this function, data operation and query can be carried out. The query only supports the calculation history record with calculation results during the ignition, and the number is less than or equal to 5 times.



H-D560-CZXXZD-025

Calendar

Click the "calendar" icon to enter the calendar interface. In the interface, the selected date is displayed on the right side of the corresponding week, lunar calendar and other information, as shown in the picture:.



H-D560-CZXXZD-070

Help

Click the "help" icon to enter the help interface, and you can view common questions and solutions, as shown in the figure:



H-D560-CZXXZD-071

Bluetooth

Dial-up interface

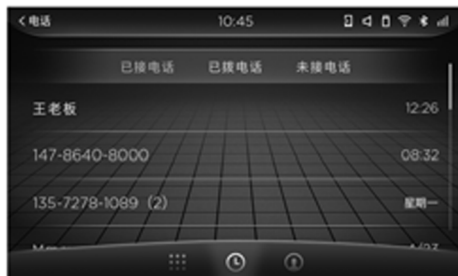
Click the "bluetooth" icon and enter the dial-up interface. Under this function, you can make and receive calls between the display screen and the mobile phone. At the same time, you can also make and hang up calls through the bluetooth on the steering wheel to realize the bluetooth call function.



H-D560-CZXXZD-026

Call records

Click the "call record" icon to enter the caller id interface. In this interface, you can query the current incoming call, missed call, outgoing call record and delete functions, as shown in the figure:



H-D560-CZXXZD-027

Contact person

Click the "contact" icon to enter the contact interface, and the contact person in the bluetooth device (such as mobile phone) connected to the real screen can be synchronized, as shown in the figure:



H-D560-CZXXZD-028

Driving auxiliary

Click the "driving assistance" icon to enter the driving assistance interface, where there is video display (video display can realize reversing image or right blind area display, specific functions need to enter the Settings, through the setting of the driving assistance function to select the function) function..



H-D560-CZXXZD-029

Set

Click "Settings" to enter the setting interface. Under this function, you can set brightness, background, key tone, sound, sound balance, sound balance, volume comfort, language, bluetooth, WIFI, system time, safe driving mode, system upgrade, factory Settings and driving assistance. As shown in figure:



H-D560-CZXXZD-030

Brightness setting

Click "brightness setting" to enter the brightness setting interface. Under this function, the user can adjust the current brightness of the display screen. The brightness of the display screen can be adjusted in three gears: 10%, 30% and 50% at night, and 20%, 40%, 60%, 80% and 100% in day mode.

Background

Click "background" to enter the background setting interface. Under this function, the user can set the background. There are two backgrounds available.

Key tone

Click [key tone] to enter the setting interface of key tone. Under this function, the user can set the key tone.

Voice

Click [sound] to enter the sound setting interface. Under this function, the user can set the sound of the display screen.

Sound and balanced

Click "sound balance" to set the sound effect. There are seven modes: soft, rock, pop, live, dance, classical and custom, among which the user can adjust the mode by himself.

Sound balance

Click "sound balance" to adjust the output intensity of the speaker in each position. When the adjustment point is in the center of the screen, the output intensity of each speaker is the same. If the adjustment point is placed in the corresponding position on the diagram, the sound intensity of the corresponding position on the vehicle becomes stronger, while other areas become weaker.

Volume comfort

The volume comfort value is supported by 40 volume levels. When the comfort switch is turned on, such as the volume value of the current adjustment $\geq$ the comfort value, the adjusted volume value will be played during the ignition. But when the ACC OFF is restarted, the system volume value will be changed to the set comfort value. If the volume currently adjusted is less than or equal to the comfort value, the system will save the adjusted value no matter what state it is in.

Language

The system supports Chinese and English languages for users to switch, default is Chinese.

Bluetooth

Bluetooth is named DFCV-BT, the name can be edited, the maximum support for 20 characters of the setting, more than the length of the byte can not be entered. The default matching password is 0000, editable, with a maximum length of 6 digits. Bluetooth supports PIN and SSP authentication. The default is SSP authentication. When bluetooth connection does not support SSP authentication, it can automatically switch to PIN authentication. When the bluetooth switch is turned on, the paired device is automatically connected when it enters the connectable range.

System time

The display supports setting the time and time display format. The time format can be set to 24h and AM/PM. The date display format can be set to xxx-yy-dd and dd-yy-xxxx.

Safe driving mode

Safe driving mode refers to the bus speed $\leq 5\text{km/h}$ and lasts for 10s. Safe driving mode can be manually selected to open and close, factory default open, close the need for user password. When safe mode opens, under the condition of the safety (bus speed of 5 km/h, or for 10 s), and display in a video broadcast, e-book reading, image recognition, pop-up prompts "vehicle, do not use to watch the video (do not use e-book reading function/do not watch picture)", to suspend play video, click on the hint to exit the current function interface.

System upgrade

The system supports U disk upgrade, insert U disk with upgrade program, automatically enter the upgrade prompt interface after ACC ON, click "confirm" and then the upgrade action can be carried out, otherwise the upgrade action will not be carried out, and the upgrade progress can be checked through the progress bar during the upgrade process.



H-D560-CZXXZD-031



CAUTION:

The usb flash drive with the upgrade procedure is required for upgrade. It does not support online upgrade. The power will be kept on during the upgrade process.

Factory data reset

The factory Settings will restore all system memory items and application memory items to the factory state, including navigation, voice recognition, calendar, calculator, e-book and other applications. User password is required to restore factory Settings.

Lane departure warning (LDW)

Please refer to the specific configuration of the purchased model.



CAUTION:

The lane departure warning (LDW) function only serves as a reminder and the driver is always responsible for the condition of the vehicle.

Turn the key switch to "ACC" and the lane departure warning function will be turned on automatically. The switch on the right side of the dashboard can control the function to be turned off or on.

In the process of vehicle driving, based on the image collected by the front view camera, the lane departure warning function can identify the current visible lane line and send an alarm message to remind the driver when the vehicle is has an unconscious lane departure.

1. When the vehicle speed is less than 50km/h, the LDW function is in standby state and will not send alarm; When the vehicle speed is ≥ 50 km/h,

LDW function is activated to detect the current visible lane line in real time.

2. LDW alarm prompt includes sound alarm and indicator alarm icon flashing prompt.

3. The color of lane line supported by LDW function includes white and yellow; When only one lane line exists, this feature supports only pairs of lanes

Alarm on one side of the line; And LDW function is suitable for standard lane with road radius ≥ 250 m.

4. When the following conditions exist, the LDW function alarm will be suppressed, and the function cannot issue the alarm.

- Quick line change and continuous line change;
- The turn signal corresponding to the lane departure direction is in the state of being turned on;



H-D560-CZXXZD-052

Lane departure alarm icon (left)



H-D560-CZXXZD-053

Lane departure warning icon (right)

Structure and Operation

- c). The alarm lasts longer than 2 minutes;
- d). vehicle riding line;

When the system is shut down, the system will not give lane departure warning and alarm during the ignition. If the vehicle key is put in LOCK gear and the key is put in ACC gear, the system will automatically restore to the open state.



Warning:

This function only detects the visible lane line in the camera field of view, which may cause false alarm when no lane deviation occurs. In addition, although the vehicle has occurred a lane deviation, there may be no alarm situation. The recognition capability of the camera may be limited in the following situations, where the image acquired by the camera may be unclear, which may cause LDW function to fail to recognize lane lines or make wrong identification.

- 1. Severe weather conditions lead to poor visibility, such as fog, haze, rain, snow, etc.;**
- 2. Insufficient light in the camera field;**
- 3. Bright light ahead;**
- 4. The view of the camera is blocked by dirt, water or other objects;**
- 5. Sharp changes in light, such as in and out of a tunnel;**
- 6. Violent jolting and shaking;**
- 7. After the road surface is reflected by the light, the abnormal status of the lane line or the road may also affect the LDW function. The LDW function may not be able to identify the following abnormal lane lines or make wrong identification of these abnormal lane lines;**
- 8. When a vehicle enters an area without lane lines from an area with lane lines;**
- 9. When the direction of lane line of the lane in which the vehicle is located changes greatly;**
- 10. Damaged, blurred or covered lane lines;**
- 11. Construction marking (marking chaos);**
- 12. There are objects on the road surface similar to lane lines.**

Forward collision warning (FCW)



CAUTION:

The lane departure warning (LDW) function only serves as a reminder and the driver is always responsible for the condition of the vehicle.

The key switch turns to the "ACC" file, and the forward collision warning function is automatically turned on. The switch  on the right side of the dashboard can control this function to turn off or on.

There are two alarm levels of the forward collision warning function, namely, keeping vehicle distance warning and imminent collision warning. Please refer to the following table for details:

Alarm level	Start the speed	prompt	meaning
Keep distance reminders	60 km/h	Frequency response	At this point the driving speed is faster, and close to the car in front of the trend
Impending collision alarm	30 km/h	shortness	Too close to the car ahead, please slow down

1. When the vehicle speed does not reach the starting speed, the FCW function is in standby state and will not send alarm; When the vehicle speed reaches the starting speed, the FCW function is activated. At this time, the front of the vehicle can be detected in real time, and the alarm information can be sent out in case of collision risk. When the alarm is raised, the alarm icon on the dashboard is flashing.
2. FCW function supports the detection of target vehicles including cars, suvs, trucks, buses, etc.; FCW function is suitable for standard lanes with road radius $\geq 250\text{m}$.



H-D560-CZXXZD-054



Warning:

This function only detects the target vehicle in the camera's field of view and may give a false alarm when there is no danger of collision. In addition, although there is a collision risk, there may be no alarm. The recognition capability of the camera may be limited in the following situations, where the image collected by the camera may be unclear, which may cause the FCW function to fail to identify the target vehicle or make an error identification.



Warning:

1. Severe weather conditions lead to poor visibility, such as fog, haze, rain, snow, etc.;
2. Insufficient light in the camera field, such as no street lamp at night;
3. Bright light ahead;
4. The view of the camera is blocked by snow, ice, dirt, water or other objects;
5. Sharp changes in light, such as in and out of a tunnel;
6. Violent jolting and shaking



Warning:

In the following cases, when the target vehicle is in abnormal state or there is a disturbance ahead, the FCW function may be interfered with, which may cause the target vehicle to be unable to be identified, or make a wrong identification.

1. There are stationary or slow-moving vehicles at the curve ahead of the vehicle;
2. Quick line change;
3. The shape of the target vehicle is abnormal, such as special models (forklift, crane, etc.);
4. There are vehicles moving rapidly from other lanes to the front of the vehicle.

System failure

When the system is not calibrated or the internal controller, camera and shielding wire are not in good contact or damaged, the system will enter the failure alarm. When the failure alarm is given, the alarm icon of the instrument will be always on, and there will be a fault code prompt.

System shut down

When the LDWS is closed, the meter displays  ; When FCWS is off, the meter displays  .

Impact of camera on lane departure warning and forward collision warning system

The lane departure warning and forward collision warning functions were previously based on the image recognition of the camera, and only when the camera was in normal state could the system function be in the best state. Do not place or paste any objects in the field of view in front of the camera. In addition, if the windshield is replaced and the camera is reinstalled, please go to the service station to calibrate the lane departure warning and forward collision warning.

**Warning:**

In the following cases, abnormal state of the forward-looking camera may cause abnormal lane departure warning and forward collision warning function.

1. If the camera is affected by external forces and its position or Angle changes, it shall return to the service station to calibrate the camera again;
2. There is a foreign body on the glass surface covering the camera's field of view, which may affect the camera's field of view;
3. The windshield area in the camera's field of view is covered with film;
4. Wiper on.

Blind spot detection (BSD)

Blind spot detection function when the vehicle is driving at a low speed, based on the image collected by the right view camera, the target in the blind spot on the right side of the vehicle is detected, and the target in danger of collision is alerted and reminded to the driver.

**Warning:**

The BSD function can only serve as a reminder, not in all cases, and cannot replace the judgment of the driver, who is always responsible for safe driving.

The BSD function is on by default, and the control function on the vehicle is on or off. After the function is off, the indicator light on the instrument will be on and the BSDS system will be turned off.

When the BSD function is turned on and the speed is between 5 and 30km/h, the BSD function is activated to detect the target object in the blind area on the right side or close to it, and to distinguish the driver's steering intention for different alarms.

Driving intention	To distinguish the way	Alarm way
No turning, straight ahead	Right turn signal not on	First alarm
turning	Turn on the right signal	The secondary alarm

The function of BSD is mainly applied to low-speed highways such as urban, suburban and national highways under normal weather and illumination. In some special conditions, the correctness of function alarm cannot be guaranteed.

**CAUTION:**

The normal use of the system may be affected under the following circumstances:

1. Severe weather conditions lead to poor visibility, such as fog, haze, rain, snow, etc.;
2. Insufficient light in the camera field, such as no street lamp at night;
3. The view of the camera is blocked by snow, ice, dirt, water or other objects;
4. Sharp changes in light, such as in and out of a tunnel;
5. Violent jolting and shaking;
6. There are stains on the surface of the camera lens;
7. The color of the target vehicle is similar to the background color;
8. Vehicles driving on steep uphill or steep downhill sections;
9. The vehicle is running on the bridge mouth of the viaduct, and there is a driving lane under the guardrail on the right side of the viaduct;
10. The road reflects heavily after being exposed to strong light.

The horizontal detection range supported by BSD can cover 3m on the right side of the vehicle, and the vertical detection range can cover 1.5m in front of the camera and 18m behind the camera. It can detect the target objects such as bicycles, electric bicycles and vehicles that are close to each other within the detection range. BSD function is suitable for roads with road radius $\geq 125\text{m}$.

**CAUTION:**

In the following cases, the BSD function may be interfered with in the presence of distractor on the right side, which may cause the target vehicle to be unable to be identified, or make a false identification.

1. There are pedestrians within the alarm range;
2. There are vehicle shadows, shadows, reflections, stationary vehicles and other suspected target vehicles within the alarm range;
3. The vehicles drive on the continuous up and down roads;
4. There are guardrails, trees, bushes and other similar continuous objects within the alarm range.

When BSD detects a fault, the instrument will prompt "fault detection function in blind area",  the indicator light will be on, and an alarm sound will be issued (some models have no warning). If the system continues to indicate that the fault cannot be automatically restored, it is recommended to drive to the nearby dongfeng commercial vehicle service station for repair.

Blind spot surveillance (BSM)

When the vehicle is moving, the controller outputs the video signal of the right view camera to the vehicle, which controls the display of the image of the right view camera on the vehicle according to the input of the right turn signal.

Warning:



The BSD function can only serve as a reminder, not in all cases, and cannot replace the judgment of the driver, who is always responsible for safe driving.

Circular landscape image (AVM)



CAUTION:

- 1.The main engine is suitable for the 24V power supply system. Do not connect to the power supply system higher than 32V, otherwise it may cause the main engine and system failure.
- 2.270 degree circle view camera is suitable for 9-16v power supply system, please be sure to connect to the power supply system higher than 16V, otherwise the camera may be damaged.
- 3.If there is oil or mud stains attached to the surface of the camera lens, use a soft cloth with detergent solution and wring to wipe, and then dry with a dry soft cloth. Do not use gasoline, paint thinners or other chemicals to clean the lens.
- 4.Do not rub the camera lens with bricks, knives or keys. Otherwise, the camera lens may be worn, resulting in poor display.
5. If the camera needs to be replaced due to fault, please contact the manufacturer or 4S service station for replacement. Please do not use the non-original camera without permission.
- 6.SD has wipe writing life (usually 1-2 years). In case the SD card does not know anything else, please pull out the SD card in the host machine and format the SD. If the SD card is damaged, please replace the SD card, please purchase Kingston, sandie, samsung and other mainstream brands. After replacing the SD, please cover the SD card to prevent moisture from entering and causing damage to the SD card or the host.

System function

Provide users with images of objects around the vehicle under different operating conditions, such as starting idle speed, going straight and turning.

Circular display:

1. When the vehicle is going straight, the system will display the front view +270° viewing Angle by default.
2. The front view is provided with the yellow static track line (2m in length), the width of which is the safe driving distance of the vehicle, and the red line is 1m away from the front of the vehicle.
3. Ruler line can be manually clicked to enter the Settings menu to cancel.
4. At this time, the 270° circular view shows the distance of about 3 meters in front of the vehicle.



H-HJYX-001

5. When the vehicle turns right, the right rear view +270° viewing Angle will be displayed by default. At this time, the 270° viewing Angle will display multiple right side areas, and the single view will switch to the right rear display screen. (default Settings)

6. When the vehicle turns left, the left rear view +270° viewing Angle will be displayed by default. At this time, the 270° viewing Angle will display multiple left areas, and the single view will switch to the right rear display screen. (default Settings)

Video playback function

1. Video playback and set menu buttons

Click any position on the screen, the display screen will pop up the following two function buttons.

icon	instructions
	Video playback function button, through this function menu, you can set the channel of ringed image recording, as well as video playback of recorded video.
	Set menu button · configure and disable auxiliary lanes. · when the vehicle is configured to go straight, the viewing Angle will display the screen. · when the vehicle is configured to turn left and right, the viewing Angle will be displayed. · configure the record menu.

2. Video playback level 1 menu

The following figure shows the first-level menu for video playback. The first-level menu shows the day, month and year corresponding to the recorded video.



H-HJYX-002

2. Video playback menu 1

The following figure shows the first-level menu for video playback. The first-level menu shows the day, month and year corresponding to the recorded video.

3. Video playback of secondary menu

Structure and Operation

The second level menu of the video file displays a corresponding hourly interval information called recording.

4. Replay the three-level menu

The three-level menu of the video file corresponds to the time and second information of the beginning of recording video.

5. Video recording and playing interface

As shown in the figure below, it is the recorded video screen (video recording is conducted in the form of 6 grids by default), and the single video screen can be touched to zoom in and out of the single video.



CAUTION:

The upper right corner of the recorded video shows the time, speed and information. Key functions are shown in the following table.

icon	instructions
	Return to the video menu list.
	Set menu button
	Fast rewind button
	Fast forward button

Set menu interface

The following figure shows the logical migration diagram of the video recording interface, which can be configured for the display mode of straight line and steering, and the channel of video recording.

1. Set auxiliary line when going straight

If shown as "√", the auxiliary line is open; if shown as "×", the auxiliary line is closed.



H-HJYX-003

2. Display mode Settings when going straight

Display mode Settings for straight lines can be set to forward view + panorama (default), and forward view.



H-HJYX-004

3. Display mode Settings for steering

When turning, the display mode can be set to left/right rear view + panorama view (default setting), left/right front view + panorama view, left/right front view + left/right rear view, left/right front view, left/right rear view, right/left rear view.



H-HJYX-005

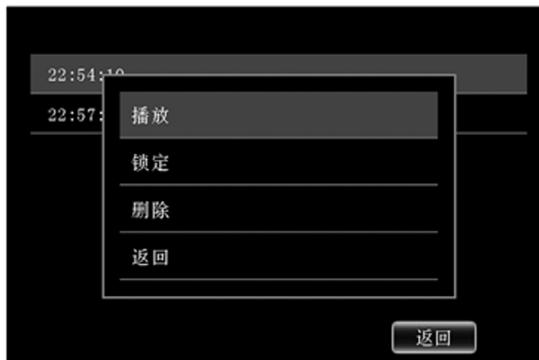
4. Video channel setting



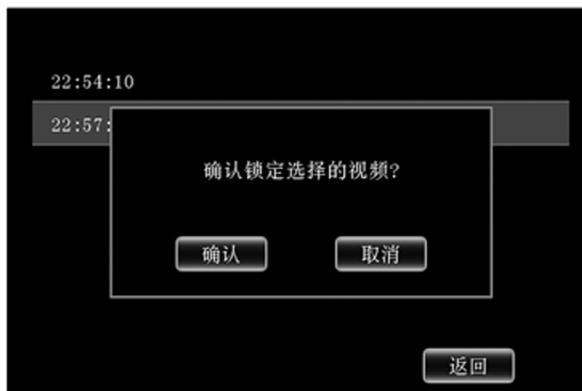
H-HJYX-006

Video locked and non-locked state Settings

As shown in the figure below, the video recorded by long press can pop up the operation screen, and the user can set the corresponding video to be "locked" video. The so-called locked video means that the system will not automatically cover and delete the locked video when the SD card storage space is full.



H-HJYX-007



H-HJYX-008

Locked behind the video files will appear a lock icon, lock video must manually unlock before can be deleted.



H-HJYX-009



CAUTION:

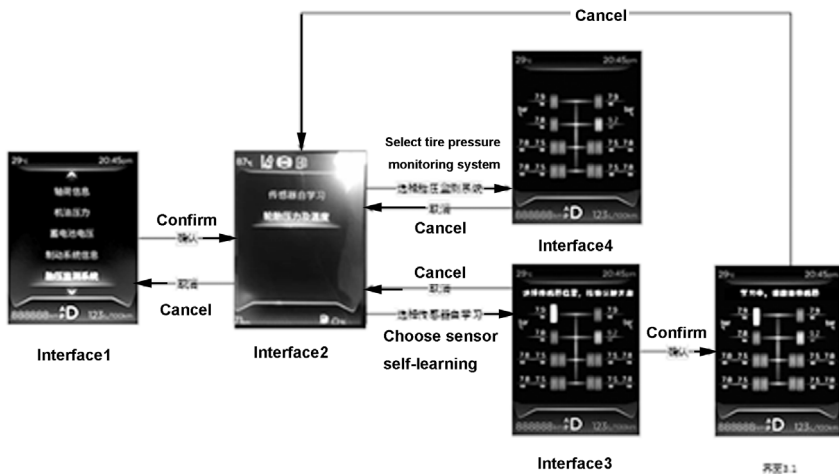
AVM is only intended to assist driving and is not applicable in all situations. The driver is always responsible for driving safely. The normal use of the system may be affected under the following circumstances:

1. Severe weather conditions lead to poor visibility, such as fog, haze, rain, snow, etc.;
2. Insufficient light in the camera field, such as no street lamp at night;
3. The camera is blocked by snow, ice, dirt, water or other objects;
4. Sharp changes in light, such as in and out of a tunnel;
5. Violent jolting and shaking;
6. There are stains on the surface of the camera lens;
7. The road reflects heavily after being exposed to strong light.

Description of tire pressure monitoring system

System function

1. Check the pressure and temperature of each tire through the instrument menu key;
2. The tire pressure is too high or too low to alarm; Tire high temperature alarm;
3. System fault indication (support sensor battery low, sensor signal loss and other fault codes);
4. Manual learning of tire pressure sensor ID;



H-TYJC-001

When there is an alarm or fault, it will pop up in the main interface and disappear after 5s on the 4-tire pressure interface. The fault will be displayed as a small icon until the fault disappears.

1. When the tire pressure is too low, too high or the temperature is too high, the tire will show red, and the fault data will also show red without flashing.
2. When a wheel message timeout, the value display "--".
3. When there is a fault, the alarm position interface pops up on the main interface and disappears 5 seconds later. It is displayed on the main interface in the form of TPMS fault light  until the fault disappears.

Manual learning function introduction

1. Manual learning provides a convenient way for the driver to update the tire pressure sensor ID. The driver can complete the learning through the sub-menu of "self-learning sensor" of the instrument without the help of after-sales diagnosis instrument. This feature is often used in two situations:

A. When the tire is replaced and a new sensor is replaced, it is necessary to relearn the sensor ID of the position;

B. The tires of two positions on the same vehicle are switched, and no new sensor is replaced;

This function selects the sub-menu of "self-learning sensor" by the driver, selects the tire position that needs to be learned, and presses the confirm button to trigger learning. Next, the driver can trigger the sensor in 5 minutes. The driver can trigger the sensor in two ways. The first is triggered by the use of hand-held low-frequency tools provided by the 4S store, and the second is triggered by the opening of the valve valve core to deflate the tire. There will be continuous text reminders on the instrument interface of learning progress, success and failure, and the driver can return to the cockpit after the sensor is triggered

Get feedback on learning outcomes. After successful learning, the newly replaced sensor ID will be recorded to the corresponding location of the TPMS control unit assembly; If the learning fails, please check the reason for the failure according to the corresponding text reminder, then exit the sub-menu of "self-learning sensor" and re-enter and re-learn.

2. Safety conditions for manual learning before manual learning, drivers must check whether the vehicle meets the following conditions:

A. The vehicle is at rest (the speed is 0 and the engine speed is 0);

B. The ignition key is in the ON gear (the engine is not started);

C. The sub-menu of "tire pressure monitoring system" works normally;

3. Operating instructions

Replace the new sensor before left

A. Confirm that the vehicle meets the safety conditions for manual learning;

B. Enter the sub-menu of "self-learning sensor" of the instrument, select the left front wheel and click OK to confirm;

C. If the menu of the interface shows "in learning, please activate the sensor". Please get off the bus within 5 minutes and complete the trigger of the sensor on the left front wheel. The trigger means are hand-held low-frequency tool trigger and valve outlet trigger.

D. After completing c, the pilot returns to the cockpit to check the text reminder of the instrument. If the interface menu shows successful learning, please exit the sub-menu to complete the learning process (if you need to continue learning other sensors, please repeat a, b, c, d);

E. If the learning failure is displayed in the interface menu, please check whether the safety conditions and precautions for manual learning are met according to the failure reasons.

Left front and right front switch, no new sensor is replaced

A. Confirm that the vehicle meets the safety conditions for manual learning;

B. Enter the sub-menu of "self-learning sensor" of the instrument after the switch is completed, select the left front wheel and click OK to confirm;

C. If the menu of the interface shows "in learning, please activate the sensor". Please get off the bus within 5 minutes and complete the trigger of the sensor on the left front wheel. The trigger means are hand-held low-frequency tool trigger and valve outlet trigger.

D. After completing c, the pilot returns to the cockpit to check the text reminder of the instrument. If the screen menu shows successful learning, please exit the sub-menu. Then enter the sub-menu of "self-learning sensor" again, select the right front wheel and click OK to confirm. If the menu of the interface displays "in learning, please activate the sensor". Please get off the bus within 5 minutes and complete the trigger of the sensor on the right front wheel.

E. If the interface display is successful, the tire switching learning process is successfully completed. If the learning failure is displayed in the interface menu, please check whether the safety of manual learning and precautions are met according to the reason of failure.



CAUTION:

1. The single learning operation process can only learn a single position sensor ID. If there are multiple sensors to be learned, please exit the "self-learning sub-menu" after completing one learning and repeat the operation;

2. After selecting the tire position and clicking OK, the instrument interface will display "please activate the sensor while learning", and the driver is required to activate the corresponding position sensor within 5 minutes;

3. If the reason for the learning failure is "sensor ID conflict", that is, the twin sensors are activated at the same time, there are two possible reasons. One is to use a handheld low-frequency tool to trigger when the twin sensor is closer to being simultaneously

Trigger, therefore, it is necessary to keep the straight distance between the valve mouth of the twin as far as possible (that is, the valve mouth of the twin is 180 degrees opposite), and try to be close to the valve mouth of the position to be learned when triggering, and away from the other side of the valve mouth; Second, when the deflator is triggered, there are other vehicles nearby to learn to deflate at the same time;



4. If the reason for failure is "engine speed is not 0", please turn off the engine and keep the ignition key in ON gear;
5. If the reason for failure is "the speed is not 0", please check whether the vehicle is in the running state. If so, please exit the "self-learning sensor sub-menu" and start self-learning after parking;
6. If the reason for failure is "learning timeout", please exit the "self-learning sensor sub-menu", please check whether the sensor was successfully triggered within 5 minutes after the study began. If not, please re-enter the study and trigger the corresponding position sensor within 5 minutes;
7. When the bleed is triggered, pay attention to the bleed rate to meet certain requirements, that is, the pressure difference of 22Kpa is reached within the sensor sampling period. Screw the valve nut, hold the valve core with a tool and let off air for about 15s. If the instrument has a long sound of 3 seconds, it means that the learning is successful. If not, continue to deflate. (it is suggested that the tire that needs to learn the position should be inflated to about 50Kpa above the nominal tire pressure after replacing the new sensor, so that the tire pressure can just recover to the nominal tire pressure after the completion of the deflating trigger and complete the learning);
8. If the reason for the failure is "learning failure" and there is no prompt for the corresponding reason, please turn off the ON gear and cut off the power supply of the vehicle, then turn ON the power supply and ON gear again for self-learning. If the learning failure is still shown, please seek help from 4S shop professionals for diagnosis;

After all the learning is completed, the on-file signal and vehicle power supply can be turned off, and then the power supply and on-file signal can be turned ON to restart TPMS.

Steering voice alarm

When the vehicle is in motion, pull the handle of the right turn signal, and the vehicle will turn right when it makes a voice alarm to remind other road users to pay attention to the movement state of the vehicle turning right in time. Vehicles to resume straight line stop alarm work.

Taillight detection function (for main vehicle only, except trailer)

Because the taillight is LED, it is impossible to judge the damage of single side lamps, so the filament alarm function is the rear fog light and brake light. When the lamps on both sides of the rear position light are damaged, the filament detection indicator light on the instrument will be lit. This function is used to indicate the working status of the driver's taillights.

Door open alarm function

When the light is turned on and either door is open and the ignition lock is in OFF gear, the buzzer alarms. This function is used to remind drivers to turn off the lights when they leave the car.

Differential alarm

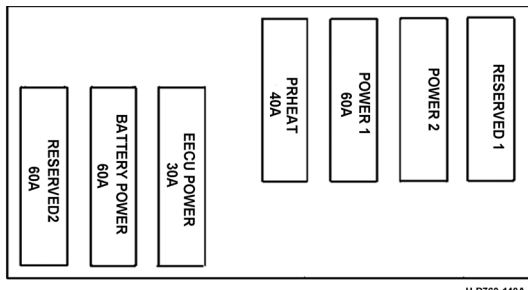
When the differential switch is pressed, the differential lock starts to work, and the buzzer alarms to remind the driver to close the differential switch in time when driving out of the fault road surface. Otherwise, the differential will be damaged, resulting in excessive tire wear.

Fuse box

Chassis distribution box

located in the battery box.

Chassis distribution box is used for main circuit fuse of electrical distribution system. When replacing the fuse or relay of the main circuit, it is necessary to confirm the load of the fuse or relay used and find out the corresponding fuse or relay through the mark on the label of the central distribution box.



H-D769-140A

Fuse box

When replacing a fuse or relay, it is necessary to confirm the load of the fuse or relay used. Find the corresponding fuse or relay according to the mark on the nameplate of the central distribution box.

Please refer to the specific configuration of the purchased model.

Fuse box label

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
15A	20A	5A	15A	10A	10A	5A	30A	5A	20A	10A	15A	10A	20A	10A	
ECAS 1	BCM 3	Mainten ance lamp	Wiper & Washer	Electric horn	Compressed air dryer	Heater & parking2	Cab lift	BCM 8	BCM 6	Heater & parking1	Insulation can1	Indoor lamp	DC-AC inverter	Ignition switch	
30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	
5A	5A	5A	15A	15A	5A	5A	5A	5A	5A	10A	5A	5A	5A	5A	
Oil tank heat	Air condition2	LDWS TCU2	High beam	Low beam	Reteader2	BCM 7	Instrument panel1	AMT SCU2	ECAS 2	Master ABS/EBBS1	Trailer ABS/EBBS2	Urea injection pump	Stopping switch	VECU	
45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	
10A	5A	15A	15A	15A	15A	5A	20A	5A	20A	15A	5A	5A	5A	5A	
Nox sensor	Tachogra ph 2	Front fog lamp	Position lamp	Rear lighting lamp	Insulation can2	Starter	Cigar lighter2	DC-DC2	Cigar lighter1	Auxiliary headlamp	Oil preheat	Power sunroof2	MP3/CD2	BCM 9	
60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	
15A	20A	10A	25A	10A	25A	10A	15A	10A	10A	15A	10A		10A	30A	
Subwoofer	DC-DC1	Electronic pump	Air- condition1	VECU	Trailer ABS/EBBS1	Retarder1	Master EBBS2	AMT SCU1	Urea piping heat	Master ABS/EBBS1	AMT TCU2		LDWS SCU1	AMT TCU1	
75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	
10A		5A	20A	5A	20A	10A	5A	20A	5A	20A	15A	15A	10A	10A	
Air magnet valve		Power switch	Right-door SCU	Instrument panel 1	BCM 5	Tachogra ph 1	OBD	Left-door SCU	Central lock controller	BCM 7	MP3/CD1	Urea injection pump	Power sunroof1	Reading lamp	

H-3722025-C6106-a

**CAUTION:**

The fuse box label is located on the inside of the middle and lower guard on the passenger side.

Relay box label

位置	名称	适用
1	Ignition switch ON relay1	
2	Ignition switch ON relay2	
3	Ignition switch ON relay3	
4	Ignition switch ON relay4	
5	Ignition switch ON relay5	
6	Ignition switch ON relay6	
7	Neutral relay1	
8	Neutral relay2	
9	VECU relay	
10	EECU relay	
11	Electric horn relay	
12	SCR relay	
13	Ignition switch ACC relay1	
14	Ignition switch ACC relay2	
15	Ignition switch ACC relay3	
16	Ignition switch ACC relay4	
17	Urea piping heat relay1	
18	Urea piping heat relay2	
19		
20	Position lamp relay	
21	Stop relay	
22	Rear lighting lamp relay	
23	Urea piping heat relay3	
24	Front fog lamp relay	

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

3735105-C6103

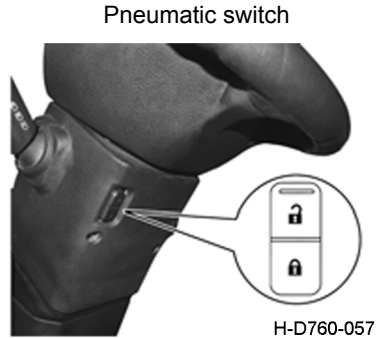
**CAUTION:**

The relay label is located on the inside of the middle and lower guard on the passenger side.

Adjustment of Steering Wheel

Angle adjustment

1. Hold the steering wheel by right hand;
2. Press the upper unlock button on the pneumatic valve switch by left hand;
3. Adjust the fore-and-aft angle of the steering wheel as needed;
4. Keep it at a proper position until locking exhausting sound is heard or press the upper lock button on pneumatic valve switch.



UP-DOWN adjustment

1. Press the upper unlock button on the pneumatic valve switch by left hand;
2. Hold the steering wheel to a proper position by both hands;
3. Adjust the steering wheel upward and downward as needed;
4. Keep it at a proper position until locking exhausting sound is heard or press the upper lock button on pneumatic valve switch.



CAUTION:

Ensure that you can hear locking exhausting sound of pneumatic valve switch.

Ensure to adjust the steering wheel when the air pressure of the complete vehicle is more than 0.4Mpa.



WARNING:

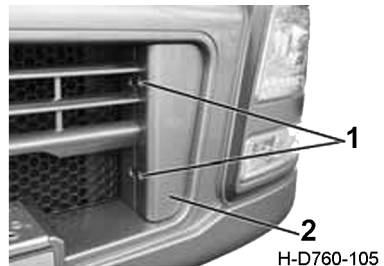
Adjusting the position of the steering wheel is strictly prohibited during driving.

Towing Hook

Before using the towing hook, remove its pin cover as follows:

Removal method for towing hook pin cover at driver's side

1. Use a screwdriver to remove the two bolts on towing hook cover, and take the towing hook pin cover out from the slot.
2. Take the towing hook from the toolkit and screw into the hook threaded holes.



1. Bolt
2. Tow hook pin cover

After using the towing hook, reinstall its pin cover properly by the steps opposite to the above.



CAUTION:

1. The front towing hook of the vehicle is only used under the normal driving road surface. If the vehicle is equipped with two front towing hooks, double towing hooks must be used to ensure that the force of the double towing hooks is uniform.
2. When using the front towing hook, it is required that the tractor must remove the trailer; Trucks and engineering vehicles shall be empty as much as possible (or the weight shall not exceed the rated load mass).



H-D760-102

1. Towing hook

Front Face Shield

Opening of front face shield

1. Pull the primary lock handle under the driver's side instrument panel in the cab to unlock the primary lock;



H-D760-035

1. Primary lock handle of face shield

Fuse box

2. Pull the secondary lock handle which is located at the lower edge of the left face shield outside the cab from rightward to leftward by right hand, and hold the middle lower edge of the front face shield by left hand to pull the face shield in heading direction of the vehicle, in this case, the shield can be unlocked.



H-D760-036

Closing of front face shield

When the front face shield is in opening status, hold the middle lower edge (or rope) of the shield to lock the shield.

1. Pull the front face shield forward by left hand.
2. Unlock the secondary lock by left hand.

Side Spoiler

The left side spoiler can be opened and closed. The spoiler shown in the top-right figure is in the closing status, but that shown in the opening status.



H-D760-028

Closing status of side



H-D760-029

Opening status of side

Opening of side spoiler

Hold the rear inner pipe of the lower side spoiler to pull it outward in the heading direction, in this case, the lower side spoiler can be opened.



H-D760-058

Closing of side spoiler

Push the front edge of the lower side spoiler inward and rearward to close the lower side spoiler.

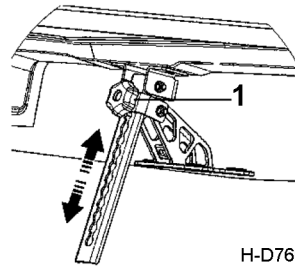


H-D760-066

Roof spoiler

The roof spoiler is equipped with a height adjusting mechanism which can meet requirements of different heights of the cargo body. Adjustment method:

1. Release the adjusting knob and press it downward to disconnect the stop block from the long adjusting lever, in this case, the adjusting knob can slide upward and downward in the adjusting groove.
2. Push the roof spoiler upward or downward, and after the height of the roof spoiler is determined, release the adjusting knob to complete adjustment.



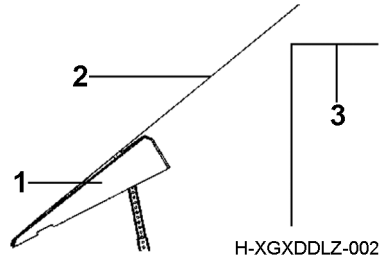
H-D760-059

1. Adjusting knob



CAUTION:

1. During adjustment of the roof spoiler, it is required to adjust the adjusting levers on left and right sides, and it is not allowed for adjusting levers to have different lengths; otherwise, the roof spoiler may suffer twist, causing damage to the spoiler.
2. Tighten the adjusting knob after adjustment. The lower adjusting lever should be pressed against the upper adjusting lever; otherwise noise may be heard during driving, causing damages to the parts.



1. Roof spoiler
2. Roof spoiler extension line
3. Cargo body

Fire Extinguisher

The fire extinguisher is located under the driver's seat. For the detailed operations, refer to the instructions on the fire extinguisher body.



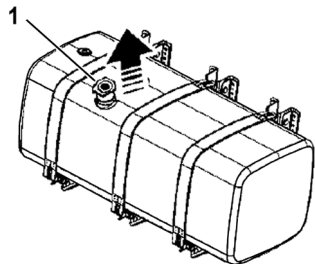
1

H-D760-014

1. Fire extinguisher

Refueling

Open the fuel tank cap and add clean fuel of the specified grade up to the 95% of its volume at maximum.

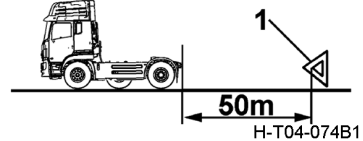


H-D760-192

1. Fuel tank cap

Warning Triangle

Warning triangle should be placed 50 m away from the stopped truck, easily being noticed by the drivers of the vehicles behind.



1. Warning triangle

Triangular stop block

Compare the specific configuration of purchased model products.

When the vehicle is parked on the ramp, a triangular stop block is placed under the drive wheel to act as an auxiliary stop brake.

Each car is equipped with 2 triangular stop blocks, usually in a black cloth bag, placed under the sleeper cab.

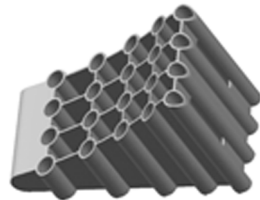
When the vehicle stops on the ramp below 18%, the driver pulls up the handbrake and leaves the cab. He inserts the two triangular stop blocks under the left and right drive wheels to observe that the vehicle does not move and slide before leaving.

Iron triangular brake block



H-SJZDK-001

Plastic triangle brake block



H-SJZDK-002

Reflective vest

Reflective vest is made of high visibility reflective material, can be in the night or special weather conditions play a warning role, prevent the occurrence of accidents, to ensure their own safety.

Each car is equipped with a reflective vest, usually in a black cloth bag, placed under the cab sleeper.



H-FGBX-001

Inverter instructions

Indicator status

1. Green light: normal operation;
2. Red light flashing: overload protection, short-circuit protection, overvoltage protection, overtemperature protection, constant power protection, leakage protection, etc.;

3. Light not on: under voltage protection.

The rated power of the inverter is 300W, which can adapt to the electrical appliances below 600W. When the power of the using electrical appliances is between 300W and 600W, the inverter enters the constant power output mode.



H-NBQ-002

1. Inverter socket
2. The indicator light



CAUTION:

1. Electrical appliances with power of > 600W are prohibited;
2. When the electric appliance is finished, pull out the electric appliance in time;
3. When using, please pay attention to the safety of electricity, do not allow children to contact the socket, pay attention to the high voltage danger;
4. Do not insert your finger or conductive object into the socket socket, and pay attention to high-voltage electric shock;
5. Please place the liquid and other items far away from the socket.
6. The inverter belongs to the heating body. Users are prohibited to place heat-resisting or flammable articles such as clothes on the inverter body, which may affect the heat dissipation of the inverter or cause fire



H-NBQ-003

1. The sleeper
2. Inverter socket
3. The seat

Main auxiliary tank changeover valve operation

Instructions for oil route switching

1. When the handle is in the "main fuel tank" position, the fuel inlet of the main fuel tank communicates with the fuel inlet of the engine; The main tank oil return port communicates with the engine oil return port;

2. When the handle is in the position of "auxiliary fuel tank", the inlet of auxiliary fuel tank is communicated with the inlet of engine; The fuel return port of the auxiliary tank is communicated with the engine return port;

Operating instructions

1. When two tanks are filled with the same brand of fuel, the user can switch according to the amount of fuel remaining in the fuel tank or the user's demand.

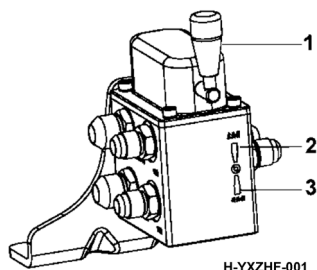
a. Under the condition that the vehicle is stopped, the operation without flameout can be realized.

b. If the user needs to stop the vehicle during driving, then manually operate the handle at the switch valve of the main and auxiliary fuel tank and rotate the handle to the fuel tank mark that needs to be used.

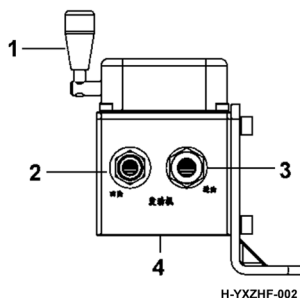
2. When two tanks hold different grades of fuel, if the ambient temperature is higher than 0 degree, switch the handle to the corresponding mark of the valve according to the user's requirements, and then use the corresponding fuel tank.

a. Under the condition that the vehicle is stopped, the operation without flameout can be realized.

b. If the user needs to stop the vehicle during driving, then manually operate the handle at the switch valve of the main and auxiliary fuel tank and rotate the handle to the fuel tank mark that needs to be used.



1. Handle
2. The main tank
3. Drop tank



1. Handle
2. Oil return
3. oil intake
4. Engine

Fuse box

3. When fuel of different grades is stored in two tanks, if the ambient temperature is lower than 0 degree and the fuel is easy to wax, it is necessary to fill the fuel pipeline with high-grade fuel before flaring in order to avoid the problem that the engine cannot be started after long-term flaring.



CAUTION:

The auxiliary tank is filled with high grade fuel oil which can withstand low temperature.

Operation method

1. 3 minutes before the vehicle shuts off, the vehicle stops, the user gets off and rotates the handle to the mark of "auxiliary fuel tank" to fill the fuel pipeline with high-grade fuel and prevent wax.

2. Before starting the vehicle, check that the switch handle is at the mark of "auxiliary fuel tank". If so, it can be started normally. If not, rotate the handle to the "fuel tank" mark

3. Since there is no fuel heating device in the main fuel tank, users should judge by themselves whether the fuel in the main fuel tank is waxed and whether the waxing degree meets the normal operation of the vehicle. The user decides whether to switch to no. 0 fuel in the main tank according to the judgment.



CAUTION:

- 1. The valve body of this product is strictly forbidden to be removed;**
- 2. After the conversion from the main oil tank to the auxiliary oil tank, the interval shall be more than 3 seconds, and then from the auxiliary oil tank to the main oil tank. The continuous conversion operation shall not be longer than 10 minutes;**
- 3. In low temperature weather, in order to prevent the switch and the pipeline from freezing and being unable to start the fire, please switch the oil line to low-temperature oil before getting off the bus, so that the oil line and the switch are filled with low-temperature oil;**

Cab Tilting

Please refer to the specific configurations of your vehicle.



CAUTION:

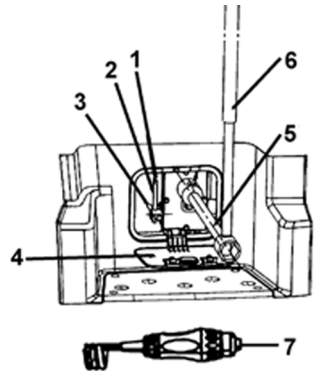
Check that the cab door is locked and objects in the cab put in order, so as to avoid objects falling off during cab tilting, damaging the cab.

Always open the front face shield prior to tilting the cab; otherwise the shield may be damaged.

Tilting of electric cab

Open the front face shield and keep it opening during tilting.

1. Cab lift: adjust the reversing handle to the lifting position, remove the electric lift switch, stand on the side of the cab, and press the switch. (or insert rocker, rocker swings back and forth around the center axis) to achieve lifting in place.
2. Cab back down: adjust the reversing handle to the back down position, hold down the electric lift switch, and replace the electric lift switch after completion. (or insert a joystick that swings back and forth around the center axis) to fall back into place.
3. When the cab is not locked and in position, the indicator light on the instrument will give warning



H-D760-109A

1. Reversing handle
2. Electric tilting and lifting switch
3. End cap
4. Socket and center axis
5. Control lever
6. Extension lever
7. Electric lift switch (front)



WARNING:

1. Before tilting the cab, it is required to stop the vehicle, shut the engine down, and shift into neutral, and it is prohibited to tilt the cab on a slope or do other operations before the cab is tilted in place.
2. During tilting of the cab, ensure that the shield is opened, and there is no person or objects in front of or around the cab, so as to avoid accidents.
3. During driving, the reversing handle should be set at the Return position.
4. During tilting of the cab, the hydraulic locking sensor may make a tisket sound under normal conditions, and the red tilting display figure on the instrument panel in the cab will be illuminated; when the cab is lowered in place, the tisket sound may disappear, at the same time, the tilting display figure on the instrument panel may disappear; it is only possible to start the engine and move the vehicle when it is confirmed that the cab is locked in place.

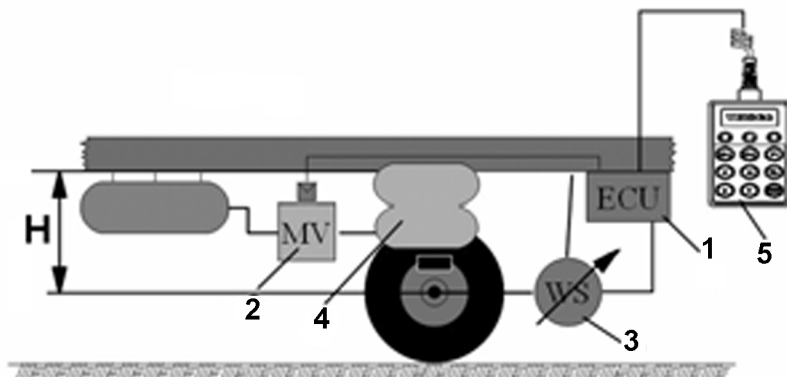
ECAS operation

Please refer to the specific configurations of your vehicle (this section is only applicable to the model with air suspension).

The rear air suspension system is designed with the international advanced and mature electronically controlled air suspension (ECAS). The air suspension, a complex system element assembly, can bring the elasticity effect by air in the compressive and tensile rubber airbag. Therefore, its stiffness will change as the load changes. Compared to the traditional leaf spring, this suspension features low inherent frequency, long service life and light weight, and it can ensure the body height when the load changes. The air suspension has an outstanding feature, that is, it can ensure that the vehicle height keeps unchanged under no-load and full-load conditions.

Working principle of ECAS

The working principle of ECAS is as shown in Fig. H-T01-026.



H-T01-026

- | | |
|-------------------|----------------------|
| 1. ECU | 4. Airbag |
| 2. Solenoid valve | 5. Remote controller |
| 3. Height sensor | H: Design index |

Based on a constant comparison between reading provided by the height sensor and design index height H stored in ECU, ECAS can identify the current height of the vehicle at any time; once the difference between current height and design index height (H) exceeds the tolerance range, the solenoid valve will be activated, and opening or closing the corresponding valve will increase or decrease pressure of the airbag, so it is required to adjust the actual height of the vehicle to the initial design index height.

ECAS has powerful functions; it can not only control the normal height (i.e., design index height), but also control preset height. ECU, regarded as the heart of ECAS, has the following functions:

1. Continuously monitoring input signal
2. Comparing input value and index value
3. Converting signal into internal counting
4. Assessing required control response in case of deviation
5. Activating solenoid valve to operate
6. Managing and storing different index values (normal height, fault memory, etc.)
7. Regularly monitoring operability of all components
8. Monitoring axle load (with the help of pressure sensor)
9. Checking possibility of received signal for fault detection
10. Finding system fault

Indicator light:

The security and fault diagnosis of ECAS system are displayed by indicator light. Two ECAS indicator lights are installed on the dashboard. One is a red failure light and one is a yellow warning light. When the ignition switch is turned on, the indicator light will be on for 2 seconds to inform the driver that the ECAS system is working normally.

Simple fault judgment:

Red indicator light is always on, indicating that the fault is not serious;

The red indicator light flashes, indicating that the fault is serious.

The yellow indicator light is always on, indicating that the vehicle is not running at the normal height. The reset button of the remote control can be used for reset. In the process of vehicle driving, if the vehicle height is at the position of non-driving height, ECAS will automatically adjust the vehicle height to the driving height to ensure the safety of the vehicle after the speed exceeds 30km/h; If you find that ECAS system does not have this function in the process of driving, please contact the manufacturer for troubleshooting. The yellow indicator light flashes, indicating that the system pressure is insufficient, please start the vehicle to make the air compressor work, and the air pressure of the storage cylinder is sufficient.

ECAS is an inspection-free system, and the fault path of the system ensures that the system can conduct self-monitoring without additional system checks. Detected faults are stored in the ECU's permanent memory. Except for the parts not controlled by ECU in the inspection system (sensor linkage, indicator light, etc.), when the ECU detects a fault, the indicator light will flash, and only at this time need to go to the maintenance workshop for inspection. The best way to check is to use a diagnostic instrument that not only provides the type of fault, but also the frequency of the occurrence of the fault and whether the fault is present.

**CAUTION:**

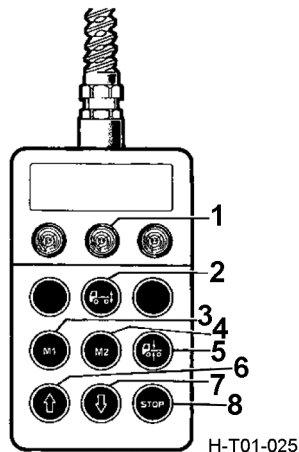
ECAS system failure need to use special instruments to detect and adjust. Be sure to contact the vehicle manufacturer and do not replace parts, especially ECU. When the ECU is replaced, if the parameter setting is wrong, the system will not have any function.

Use of remote controller

For easy use and operation by the driver, ECAS is equipped with a remote controller. The remote controller of this vehicle is installed on left side of the driver's seat.

The remote controller can be operated as follows:

1. After the vehicle has been started by igniting, the remote controller can not be activated. It can be activated only when the remote controller switch is pressed. When the switch is pressed, the indicator lamp right above it will turn on for indicating, at this time, the remote controller can work. The indicator lamp will turn off when the switch is pressed again; at this time, the remote controller can not work.
2. M1 and M2 are used for storing two frequently-adopted heights. After the height has been stored, the vehicle can reach the preset height (H1) by pressing M1; the vehicle can reach the preset height (H2) by pressing M2. The height memory switch plays an important role in connection or disconnection of tractor and trailer. In case the trailer connected to the tractor keeps unchanged, at the first try of connecting or disconnecting the tractor and trailer, store the heights of two tractor frames by using the M1 and M2 height memory switch. It will be very easy to carry out next connection and disconnection (second connection of tractor and trailer can be realized by pressing M1, and second disconnection of tractor and trailer can be realized by pressing M2. See Point 5 "Operation of STOP Button" for height storage method.
3. Pressing the reset switch can realize the initial design index height of the vehicle.
4. Operating the "↑" switch and "↓" switch can realize manual adjustment of vehicle height. The vehicle will continuously go up or down when the "↑" switch or "↓" switch is pressed and held.
5. The "STOP" switch, designed as a red stop switch, has two functions: one is that pressing this switch can stop height adjustment of ECU and remote controller, and the other one is that operating this switch can store the height value with the help



1. Indicator lamp
2. Remote controller switch
3. M1 height memory switch
4. M2 height memory switch
5. Reset switch
6. UP switch
7. DOWN switch
8. STOP switch

of M1 and M2. For example, pressing "↑" switch to lift the vehicle to the required height, and with the "STOP" switch and M1 pressed, the height will be stored by M1. In the same way, the height value can be memorized by M2.



CAUTION:

1. Before driving, please make sure the airbag height is normal.
2. After the operation of the remote control, please press the reset button to make the vehicle return to the normal height.
3. Operate the vehicle to rise or fall through the remote control. Since the ECAS solenoid valve is charged and vented rapidly, it is necessary to pay attention to the safety of the system when the air is overloaded and vented.
4. Frequent operation may lead to insufficient air supply to the air storage cylinder and make the remote control operate out of order. At this point can start the vehicle, so that the compressor work, play enough air storage cylinder pressure, or has not been flameout.

Use of Differential lock

Please refer to the specific configurations of your vehicle.

Differential lock should be used when the vehicle is stopped or runs at a speed equivalent to walking. In case that the vehicle is running on the muddy and uneven road, causing slipping of intermediate/rear driving axle and vehicle stranding, the vehicle can be driven out of the defective road surface smoothly through differential lock.

In case that the cab instrument panel is equipped with an inter-wheel differential lock switch, when driving on a muddy road with a tire slipping one side, depress the clutch pedal and turn on the inter-wheel differential lock switch. When the inter-wheel differential lock indicator lamp comes on, the inter-wheel differential lock of rear axle will be engaged at the same time. Engage the transmission at proper gear, release the clutch pedal and then the vehicle can drive away from the defective road.

Turn off the two differential lock switches immediately after driving out of defective road.



H-D760-069



H-D760-13

Inter-wheel differential lock switch and indicator light

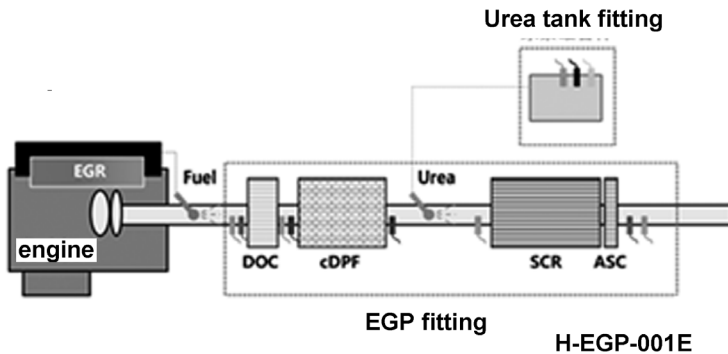


CAUTION:

1. Never press the differential lock switch when the vehicle is running normally. Never use the differential lock for long time; otherwise, it may damage the differential and result in excessive wear of tire.
2. Differential lock switch must be pressed after the vehicle is stopped fully; otherwise, the differential may be damaged.

Post-processing system

The hardware architecture principle of the post-processing system is shown in the figure below:



EGP assembly includes:

1. Diesel oxidation catalytic converter: DOC refers to the device installed in the exhaust system of diesel vehicles, oxidizing (burning) hydrocarbons (diesel) injected into DOC to provide a high temperature environment for DPF regeneration.
2. Diesel particulate filter: DPF for short, refers to the device that filters in the exhaust system to reduce particulate matter (PM) in the exhaust.
3. Selective catalytic reductor: referred to as SCR, it refers to the device that catalyzes selective catalytic reduction of urea solution and NOx in the exhaust emission system of diesel vehicles.



Warning:

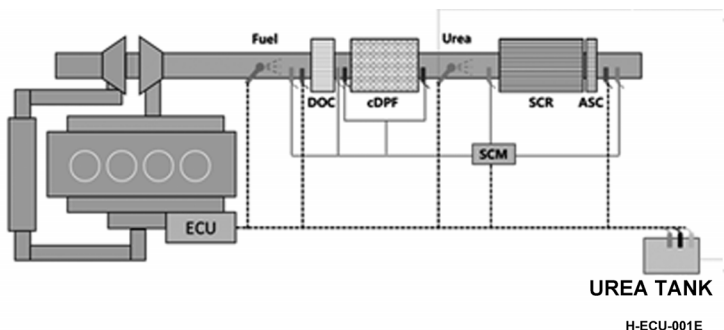
In order for the engine reprocessing system to work properly, use the required grade of engine oil in this manual, as well as ultra-low sulfur diesel with a sulfur content of 10ppm or less to maintain the specified oil change interval without risk of engine damage.

Urea tank complement

Urea tank assembly includes urea tank, metering pump, urea quality/level/temperature sensor and other components.

Control function

The control system has complete SCR, DPF control and OBD functions. All post-processing functions are integrated into the ECU, as shown below.



Urea filling

During the normal maintenance interval, vehicle users are required to add urea water solution according to actual needs. Urea water solution shall use urea water solution permitted by dongfeng commercial vehicle.

Filling steps:

1. Clean the mouth of the urea tank to prevent foreign bodies from falling into the tank after opening the cap of the urea tank;
2. Unlock and open the cap of urea tank;
3. Open the urea filling hole cover;
4. Use special urea filling tools, such as containers, funnels, urea filling guns, etc. Ensure that the filling tool is clean and cannot be mixed with other liquids, such as fuel oil and oil. The filling speed should be no more than 40 l/min, and the overflow of each filling should not exceed 30 ml.
5. Close the filling hole cover;
6. Close the lid as soon as the filling is finished.



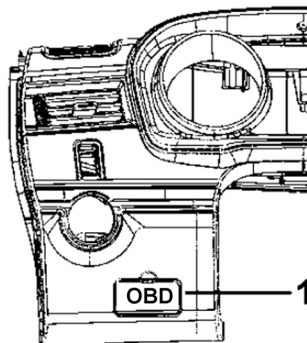
Warning:

1. **Keep the urea solution out of your eyes. If it gets into your eyes, rinse immediately with plenty of water for at least 15 minutes. Don't take it internally. If urea solution is accidentally inhaled, seek medical attention immediately.**
2. **Do not use inferior urea or other solutions instead of urea solutions. Do not try to mix agricultural grade urea with water to make diesel engine exhaust treatment solution. Agricultural grade urea does not meet the required technical specifications, all of which may damage the reprocessing system.**

OBD diagnostic interface

OBD diagnostic interface the diagnostic instrument can access the fault information through the OBD diagnostic interface equipped with the vehicle. Open the cover plate and dock the diagnostic instrument interface with the OBD diagnostic interface to realize the diagnosis of the vehicle.

OBD diagnostic system has the function of monitoring and analyzing the faults related to emissions. Once the automobile exhaust exceeds the standard, the indicator light of the instrument (MIL) will be on and inform the driver. In the event of serious failure, the engine torque limiter will be activated. The electronic control unit (ECU) of the engine records the fault information and related codes, and displays the relevant fault on the LCD screen of the instrument, so that the maintenance personnel can quickly and accurately determine the nature and location of the fault. In case of vehicle breakdown, please contact the local service station for inspection and troubleshooting.



H-D320-061

1. OBD diagnostic interface and cover plate

Electrical Connection Between Semi-trailer Tractor and Trailer

When connecting the semi-trailer tractor with the trailer, the 7-pin socket shall be used along with the corresponding plug.

Socket

See Fig. H-GCCZ-001 for internal pin code of socket and the List of Trailer Light Distribution for functions of corresponding pins.

Plug

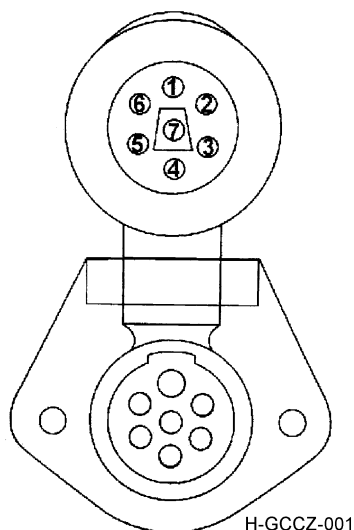
See Fig. H-GCCT-001 for internal jack code of socket and the List of Trailer Light Distribution for functions of corresponding jacks.

For the semi-trailer tractor with 7-core trailer cable assembly at delivery, when connecting it with the trailer, it is only required to pull the plug at one end of the 7-core trailer cable assembly out of the socket on the semi-trailer tractor and then insert it into the socket on the trailer.

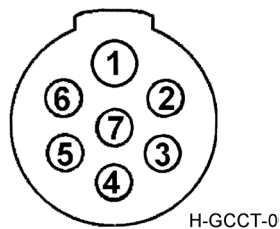
If the semi-trailer tractor is not equipped with the 7-core trailer cable assembly at delivery, please purchase it from the manufacturer.

Product type in DONGFENG COMMERCIAL VEHICLE CO.,LTD. (7-pin trailer cable assembly): 3730060-H0100.

Socket



Plug



Fuse box

Arrangement of trailer power socket outlet contacts

Terminal No.	Wire No.	Usage	Maximum available power of trailer(W)
1	100	Ground wire	-
2	8239	Clearance lamp and marker lamp	200
3	9321	Left turn signal lamp	85
4	2533	Brake lamp	85
5	9322	Right turn signal lamp	85
6	9243	Rear fog lamp	85
7	2433	Reversing lamp	85

Semi-trailer Tractor Coupling and Operation

Coupling

The coupling for semi-trailer tractor is installed behind the cab

Jumper hose joint

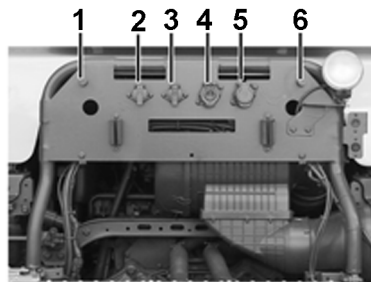
This hose is used to convey the compressed air to the trailer. Seen from back to front of the vehicle, the red one is the gas supply hose joint and the yellow one is the control signal connector.

Jumper spiral pipe

Seen from back of the vehicle, the red brake air supply spiral pipe for supplying compressed air to the trailer is located on right side, and the yellow brake control spiral pipe for sending brake signal to the trailer is located on left side.

Jumper power

Jumper cable is used for supplying power to trailer. It is divided into ordinary power cable and ABS power cable. When disconnected from the trailer, the cable connector may be fixed onto the spare socket.



H-D760-115

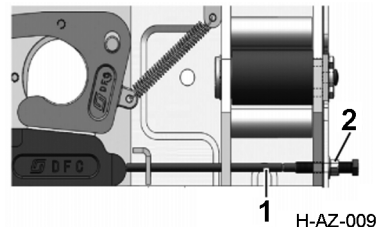
1. Brake control spiral pipe joint
2. Trailer power cable socket
3. Trailer power cable empty socket
4. Trailer EBS/ABS Power cable empty socket
5. Trailer EBS/ABS Power cable socket
6. Brake air supply spiral pipe joint

Connecting device**CAUTION:**

1. Before the saddle is used for the first time, be sure to add sufficient grease.
2. The gap adjustment must be made before the saddle is used for the first time;
3. The lever must be pulled out until the notch can be stuck on the edge bayonet of the saddle shell, otherwise the inclined wedge and locking hook will be damaged;
4. After the mounting, the lock card should be automatically reset and locked at the side of the handle lever. Otherwise, it will be easy to cause the automatically detach to vehicle after starting.

Gap adjustment method:

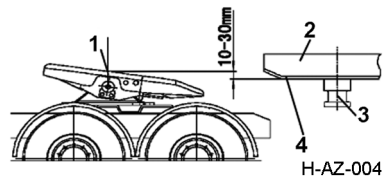
1. Make sure that there are no impurities between the opening end cover of the saddle and the traction pin of semi-trailer, and then make a splice.
2. Loosen the lock nut and turn the adjusting screw at least 5cm outward;
3. Tap the handle lever inward to make the wedge inward until you feel that the handle cannot move inward (that is, the lock hook has been wedged), stop hitting the handle;
4. Rotate the adjusting screw inward by one person and hold the handle by another until he see or feels that the handle is moving outward (that is, the adjusting screw is in contact with the wedge) and then rotate the adjusting screw inward by 1.5 turns.
5. When the adjusting screw is not moving, fix the locking nut and the adjustment is completed.



1. Adjust screw 2. lock nut

Connection operation method

1. Preparation before mounting: adjust the supporting leg of the semitrailer so that the towing pin plate of the semitrailer is appropriate to the height of the saddle. It is advisable to place the traction pin plate of semi-trailer about 10~30mm lower than the center position of the saddle of tractor.

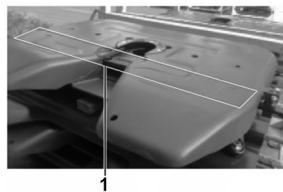


1. Saddle surface
2. The semi-trailer
3. The traction pin
4. Traction pin plate

Fuse box

2. Connect a hang:

- a). Turn the latch spring upward and dial it to the horizontal;
- b). Pull the lever assembly outward and clip the notch on the handle bar to the bayonet on the edge of the saddle shell (the traction seat is in the pre-hung state);
- c). Drive the tractor slowly backwards so that the semi-trailer pin enters the opening of the lock hook;
- d). Pull pin pushes the lock hook to rotate, and when the handle lever returns to its original position, the lock card is automatically reset and locked, that is, the attachment is completed.



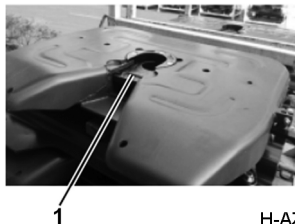
H-AZ-005

1. The position contacted with saddle during connection process



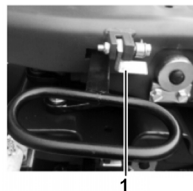
H-AZ-006

1. Pre-hanging state: the handle bar is stuck on the bayonet at the edge of the saddle shell, and the lock car is in a horizontal state



H-AZ-007

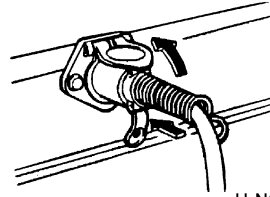
1. Completion status of the joint: reset the handle lever, and seal the v-shape with inclined wedge



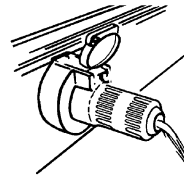
H-AZ-008

1. Completion status: The lock pin is automatically reset and locked at the side of the handle lever

- e). Open the cable socket cover of the trailer, and then align the protruding portion of the cable across the socket with the socket's notch so that the plug is fully inserted into the socket. Finally close the socket and the plug is fixed. Pre-hanging state: the handle bar is stuck on the bayonet at the edge of the saddle shell, and the lock car is in a horizontal state
- f). If the trailer is equipped with ABS braking system, connect the trailer with ABS cable.
- g). Please connect the two hose connectors for the delivery of compressed air from the tractor to the trailer respectively with the connector corresponding to the trailer.



H-N05-208



H-T05-402

**CAUTION:**

Never connect wrong hose connectors.

- h). Make sure the trailer's gas path and circuit are working properly.
 - i). Pull up the supporting pin of the trailer.
 - j). Remove the parking brake of the trailer and remove the triangle plank.
3. Hang off:
- 1). Lower and support the supporting feet of the trailer.
 - 2). Remove jumper cables and hoses. After the hose is removed, the trailer is automatically stopped, and the exhaust valve of the trailer's air storage cylinder is opened to vent the air.
 - 3). Pull out the lever assembly;
 - 4). Place the notch on the handle bar on the bayonet at the edge of the saddle shell (the traction seat is in the pre-hanging state);
 - 5). drive the tractor slowly forward so that the semitrailer's towing pin is completely free from the lock hook through the saddle V port.

Operating instructions for rear fender upper cover plate



CAUTION:

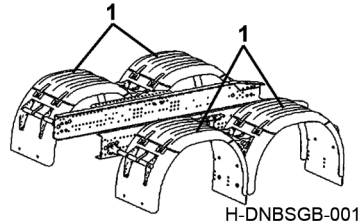
The upper cover plate of the fender should be removed when the tractor is carrying a trailer.

Upper cover plate of fender

Double rear axles: 4

Single rear axles: 2

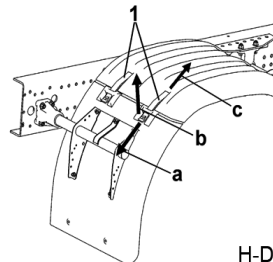
When the tractor is carrying a trailer, please remove the upper cover plate above the middle axle and the rear axle (the single rear axle model only has the rear axle). Otherwise, interference between the bottom of the trailer and the upper cover plate of the fender may occur under certain limit conditions, resulting in damage to the upper cover plate.



1. Upper cover plate

Operation instructions for removing the upper cover plate of fender:

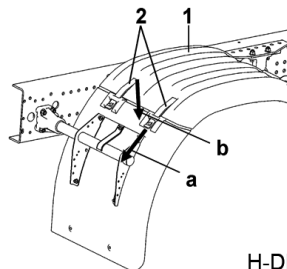
1. Clamp the outer end of the rubber band with pliers and stretch it towards the direction of arrow a.
2. If the pliers are not loose, then raise them along the direction of arrow b to the rubber band, so that it is free from the fender clasp. The rubber band fails to fastens the upper cover plate.
3. Pull the upper cover plate along the direction of arrow c, and the fixation point of the upper cover plate of the fender will fail. After repeated operation of other rubber bands, the upper cover plate can be taken down.



1. Rubber band

Operation instructions for installing upper cover plate of fender:

1. Align the upper cover plate with the fender.
2. Insert the rubber band into the limit hole of the fender.
3. Clamp the end of rubber band with pliers, and stretch the rubber band along the direction of arrow a. When the pliers are clamped and stretched, press the rubber band down (direction b) into the fender clasp to tighten. At this point, the rubber band clamping operation is completed, and other rubber band can be repeated.



H-DNB-002

1. Upper cover plate
2. Rubber band

Starting & Driving

Please refer to the specific configurations of your vehicle.

Engine start (Cummins engine)

1. Carry out daily inspection.
2. Verify that the gear lever is at the neutral position of the low range, or at the neutral position of the automatic transmission.
3. Turn on the master power switch.
4. Turn the ignition switch to "ON" position, and the engine stop and maintenance warning lamp, WARNING lamp, high water temperature indicator lamp, low oil pressure alarm lamp and MIL will be on; if the engine is running normally, the engine stop and maintenance alarm lamps, WARNING lamp and the high water temperature indicator lamp will stay on for 3s and then go out. If no OBD fault exists, the MIL will go out within 10s, and if any OBD fault exists, the MIL will stay on or flash.
5. If your vehicle is equipped with intake preheater, the device will automatically detect if the intake preheating is required according to the environmental conditions. During cold start of the vehicle at low ambient temperature, when the ignition switch is at ON position, the wait to start indicator lamp will be on, indicating that the engine intake pipe is being preheated. The lower the ambient temperature, the longer this indicator lamp stays on (up to 30s). After it goes out, turn the ignition switch to START position to start the engine.
6. If the vehicle is equipped with fuel primary filter with glow plug, the electric heater of the fuel primary filter should be activated to help the engine cold start when the ambient temperature is below 7°C. Turn on the fuel preheater switch on the instrument panel, then the fuel preheating indicator lamp will be on, the temperature-controlled heater of the fuel primary filter will heat the fuel, and when the fuel temperature rises to the specified value, the heater will stop working automatically. Turn off the fuel preheater switch and then the indicator lamp will go out. When the ambient temperature is above 7°C, turn off this switch.
7. If the vehicle is equipped with fuel tank heating device, please switch on the fuel tank heating switch.
8. Dongfeng Commercial Vehicles Co., Ltd. only provides the electrical interface of fuel tank heating device on the chassis, please consult the manufacturer of the final stage of the whole vehicle for the specific use method.
9. Depress the clutch pedal instead of the accelerator pedal to the floor, and turn the key to "START" position to start the engine. Air in the fuel system may lead to start difficulty, so it is better to exhaust the fuel system. Please refer to the attached Operation and Maintenance Manual of Cummins Engine.

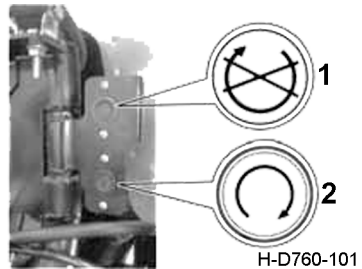
10. After the engine starts, release the key immediately to let the engine enter the idle running status. Be sure to observe the engine oil pressure within 15s.
11. Cummins engine has the function of quick warm-up, and when the coolant temperature is low, the engine will be, after starting successfully, warmed up automatically at a high speed (higher than idle speed), to make the coolant temperature rise fast.
12. Run the engine at an idle speed for 3-5min before running it under load.
13. If the engine is not started three times, check whether the fuel supply system is working properly.

**CAUTION:**

1. The time to start the engine by starter each time should not exceed 30s. The interval of two starts should be 2 min at least.
2. Do not start for a long time or frequently; otherwise battery electricity loss or starter damage will be caused.
3. For the sake of safety, always depress the clutch pedal when starting the engine.
4. Never run the engine at idle speed for long time. Cummins engine can never run at idle speed for more than 10min, or the engine will be damaged.

Starting with cab tilted

1. Move the manual valve control lever backward to brake locking position, and turn the key switch to "ON".
2. Move the transmission gear lever at the neutral position; clear those overturn-prone articles inside cab.
3. chock the wheels.
4. Follow the specified safe operation procedures to tilt the cab.
5. Press the starting switch (black) on the engine start and shutdown switch box to start the engine.
6. To stop the running engine, press the shutdown switch (red), so the engine shuts down.



1. Shut-down switch
2. Start switch

**WARNING:**

1. Do not touch the gear lever while the engine is running after cab tilting.
2. Do not lower the cab with engine running.

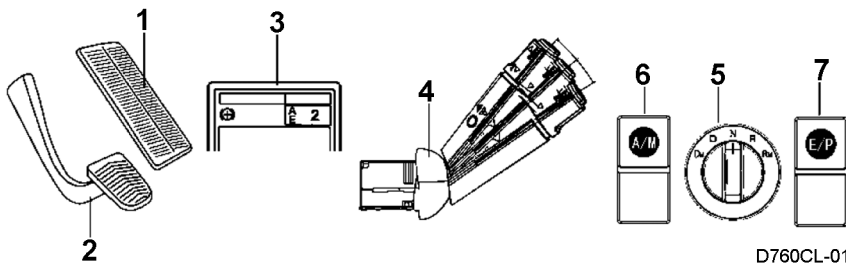
Starting & Driving

Steering System Start

To start the truck at the ambient temperature less than 10°C, idle the engine for more than 30 s, and rotate the steering wheel only after the temperature of steering fluid rises, so as to avoid hard steering or damaging the power steering pump.

Transmission Operation

Please refer to the specific configurations of your vehicle.



1. Electronic throttle pedal
2. Brake pedal
3. Instrument display screen
4. Combination switch - RH
5. AMT gearshift rotary switch
6. A/M mode switch
7. E/P mode switch

Operation of ZF12 AMT

Gearshift knob

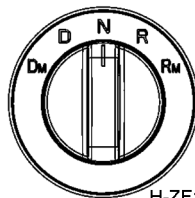
N: neutral;

D: normal driving of vehicle;

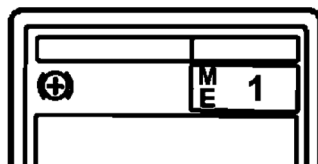
DM: slow driving of vehicle in a short distance;

R: normal reversing of vehicle;

RM: slow reversing of vehicle in a short distance. 108



H-ZF12AMT-001



D760CL-017A

A/M gearshift

When the engine has not been started, M mode is default mode.

When the engine has been started, A mode is default mode.

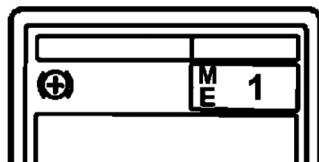
Pressing the selector switch can select A/M mode.



H-D760-141

1. A/M selector switch

Regardless of AT or MT, A or M may be displayed. "M" displayed for MT. "A" displayed for AT.

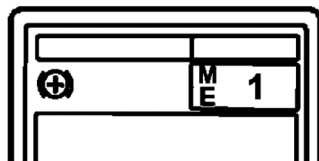


D760CL-017A

MT operation

Shift the transmission to M gearshift mode.

Uplift the gear lever for upshifting; if time for upshifting is not more than 1.5s, one gear will be increased, if more than 1.5s, two gears will be increased, and if upshifting is kept, two gears will be increased until the highest gear is reached.



D760CL-017A

Press the gear lever downward for downshift; if time for upshifting is not more than 1.5s, one gear will be decreased, if more than 1.5s, two gears will be decreased, and if down-pressing is kept, two gears will be decreased until the lowest gear is reached.

AT operation

Shift the transmission to A gearshift mode.

1. Auto selection of transmission system: STRAT, UPSHIFT and DOWNSHIFT, and the clutch and gearshift can be completed automatically.
2. Manual interference on gearshift can be realized, and in "A" mode, direct upshifting and downpressing of the gear lever can realize direct gearshift.



H-ZF12AMT-003

Combination switch for upshift and downshift



CAUTION:

1. It is possible to turn the gear lever to "N" position from any position at any time;
2. The engine is under the automatic control of the transmission, so it is not necessary to release the throttle pedal during gearshift;
3. The transmission has protection function, so it will not perform incorrect gearshift;
4. During driving, observe the tachometer display; in order to guarantee economic driving, ensure that the engine speed is within the economic speed range and drive in the high range as much as possible, but downshift in advance is required before driving up or down on a slope.

Starting & Driving

E and P gearshift mode

E: economic mode

P: power mode

It defaults the initial mode to E mode, and it will change to P mode by pressing the switch, and return to E mode by pressing the switch again, and so on.

Note: E/P shown on the selection mode instrument indicates operation of accelerator pedal.



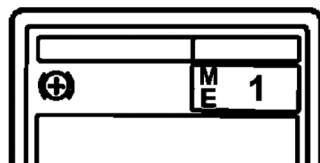
H-D760-018

When depressing the accelerator pedal, it is required to adjust the accelerator position flexibly based on road conditions and vehicle speed, avoiding fluctuation in the speed which may increase fuel consumption during driving;

During automatic gearshift of the transmission, never release the accelerator pedal and keep it stable;

Depress the accelerator pedal to a small or medium extent as much as possible, and drive at a constant speed, avoiding fast acceleration;

The transmission gearshift is selected by TCU according to working conditions, while the driver can pay all attention on determination of road conditions and keeping driving at a constant speed.



D760CL-017A

Starting instructions

1. Pull up the hand brake to ensure that the rotary switch is turned to "N".
2. Start the engine, and do self-inspection on transmission procedures; afterwards, "N" will be displayed.
3. When the rotary switch is turned to "D", it will automatically engage at START gear (if necessary, the START gear can be corrected manually), at this time, the clutch disengages.
4. Release the brake and depress the accelerator pedal (clutch engages) to start the vehicle. When the accelerator pedal is not depressed, the vehicle will not run, because the clutch under control of the transmission disengages.

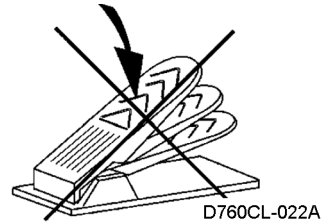
Operation of accelerator pedal

Do not change the position of accelerator pedal during gearshift.

During gearshift, the working conditions of engine will be under control of output signal from transmission shift actuator.

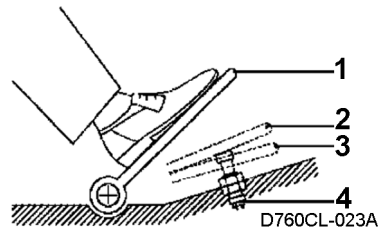
Operation of clutch release mechanism will be under control of transmission shift actuator.

1. When depressing the accelerator pedal, keep the pedal stable as much as possible and avoid frequent change of accelerator and fluctuation in the speed.
2. During automatic gearshift of the transmission, never release the accelerator pedal and keep it stable.
3. In case of driving on smooth road or at no load, depress the accelerator pedal to a small or medium extent as much as possible, and drive at a constant speed, avoiding fast acceleration;
4. When driving upward on a slope (especially large slope) at full load, it is necessary to depress the accelerator pedal to a large or full extent (control of throttle opening is the same with that of MT).
5. The gearshift is automatically selected by TCU based on working conditions, and the driver is not required to pay more attention on the gearshift points and schedule, etc.



Overdrive switch

In order to make use of engine power to the largest extent, you can depress the accelerator pedal to the end to trigger the kick-down switch or signal of full throttle with CAN (it is generally used in overdriving), in this case, delayed upshift or downshift can be realized.



1. Accelerator pedal
2. Kick-down position
3. Full-throttle position
4. Overdrive switch

Hill-start assist function

1. The hill-start assist function is only applicable to the vehicle with EBS; in case of vehicle with ABS, starting can be done by pressing the hill-start assist function enable switch with the help of parking brake lever;
2. Depress the foot brake pedal;
3. Release the foot brake pedal to activate this function, and depress the accelerator pedal to start on a slope.



H-D760-017



WARNING:

When this function is activated, the accelerator pedal shall be depressed within 3s; otherwise this function will be in failure, causing slope sliding.

Parking

1. Release the accelerator pedal and depress the brake pedal to decrease speed till the vehicle stops completely.
2. The clutch will disengage automatically before the vehicle stops to ensure that the engine does not shut down.
3. In case of long-time parking, it is necessary to shift at neutral.
4. Keep the brake and parking brake when the vehicle is stationary.



CAUTION:

In case the vehicle is stationary and the engine is still running, after engaging a gear, the vehicle will start driving by depressing the accelerator pedal, so it is necessary to apply the parking brake.

In case you may leave the vehicle when the engine is running, you must shift to Neutral and apply the parking brake.

When driving on a slippery road, applying parking brake may cause engine shutdown and steering booster will not function.

Kick down

In case of overdriving or driving down on a slope, in order to get full power of the engine, it is possible to depress the accelerator pedal to the end to activate kick down, in this case, the throttle is in full opening, and the transmission will do downshift or delay upshift according to the program-calculated load directive.

Kick down of the accelerator pedal can only be realized by depressing the pedal to the forced position in "A" mode, but in "M" mode, it cannot be realized by depressing the pedal to the forced position.

Linkage mode

The linkage mode is also known as creeping mode.

In the linkage mode, the engine torque is under control of the transmission, and the clutch is in half-engaged status.

In the linkage mode, the engine speed is between idle speed and low speed range (1,000rpm).

RM

RM (lower reverse speed can be realized by analog of manual control of reverse speed can be applied in case of reversing in complex road conditions, or as required by actual conditions (such as coupling of trailer).

DM

DM can be applied in case of starting, following the vehicle ahead during traffic jam, a lot of vehicles and people or narrow road section, etc., or driving at a speed lower than the idle speed.



CAUTION:

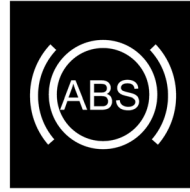
1. It is better to drive the vehicle in linkage mode for a short time as much as possible. In linkage mode, clutch wear is considered as abnormal wear, so it is required to shorten the driving time in linkage mode as much as possible.
- 2.2. The vehicle should be stopped before application of linkage mode, and the engine speed should be between idle speed and low speed range (1,000 rpm).
- 3.3. Before driving in creeping mode, shift the transmission into "N", "2", "1" or "R", direct shift into linkage mode is not allowed at other gears due to the protection function.
4. In linkage mode, manual operation of the gear lever by the driver will be ineffective, that is no manual interference on gearshift is allowed.
5. It is allowed to shift from DM to D, but it is prohibited to shift from RM to R.
6. With regard to the model with AMT of Dongfeng, it is specified that D, N and R shall be displayed on the instrument, but display of RM and DM on the instrument is not required.

Braking Operation

Please refer to the specific configurations of your vehicle.

Antilock braking system (ABS)

The Antilock Braking System (ABS for short) is a mechanical-electrical integration system designed to prevent the locking of wheel due to large braking force (especially on smooth road) to get the most effective brake and brake operation stability, and further to avoid traffic accidents and to reduce the damage from accidents.



H-D310-123

Tractor ABS MIL

The system keeps the control of the vehicle traveling direction in emergency braking, reduces traffic accidents, improves driving safety, and lessens tire wear and cost of maintenance.

When the tractor ignition switch is at ON position, the ABS will make self-inspection (the solenoid valves may make "pull-in" sound in turn), and the tractor ABS malfunction indicator lamp will stay on for about 3s and then go out. If the tractor ABS malfunction indicator lamp stays on, it indicates that the ABS is faulty. In this case, please contact the Technical Service Center (Station) authorized by Dongfeng Commercial Vehicle Company immediately for troubleshooting.

Electronically Controlled Brake System (EBS)

Compared to the traditional brake system, the electronically controlled brake system (EBS for short), designed with an electronically controlled air brake, can eliminate the defects, such as slow response of mechanical brake, poor braking comfort, etc. In case the electronically controlled return circuit of EBS is in failure, the air pressure control circuit of EBS, as the standby control circuit, can guarantee braking performance of the brake system.

EBS is designed with brake management, ABS, ASR and EBS diagnostic functions, and also with optional ESC, etc. as auxiliary function platform.

Electronic Stability Control System (ESC)

The electronic stability control system (ESC for short) is designed as an active safety system for assisting the driver to control the vehicle. It can strengthen stability of the vehicle under bad driving conditions and increase the control range of driver, so that the vehicle can still be under control in case dangerous and unpredictable conditions.

ESC can determine the driver's intention via various sensors, and automatically interfere with stability of the vehicle before the stability reaches the critical status, that is, it will control the output torque of the engine, and apply braking force on one or

more than one wheels, so as to control the vehicle attitude effectively and guarantee driving stability. ESC strengthens protection on rollover, sideslip and folding.

As the key switch is turned on, ESC functions will be activated automatically.

CAUTION: ESC cannot exceed the physical limit and should adjust driving status according to road and traffic conditions; no bad driving habit due to safety guaranteed by ESC is allowed.



CAUTION:

1.ESC cannot exceed the physical limit and should adjust driving status according to road and traffic conditions; no bad driving habit due to safety guaranteed by ESC is allowed.

Parking operation

To stop the vehicle smoothly, operate the brake pedal as follows:

1. Depress the brake pedal by 1/2-2/3 travel at the point 25-35m away from the expected parking position.
2. Begin to release the pedal gradually at the point 5-6m away from the expected parking position.
3. Depress the brake pedal gently to stop the vehicle completely when approaching the parking position.



CAUTION:

- 1.Normally, never depress the brake pedal suddenly to the end and depress it all the time other than in emergency. The sudden braking may result in personal injury or vehicle part damage.**
- 2.Avoid depressing the brake pedal repeatedly for times in a short period; otherwise, a lot of compressed air in the air reservoir will be consumed, and thus the braking effect of vehicle will be affected, making the vehicle out of control.**
- 3.Apply the foot brake to stop the vehicle normally.**
- 4.Do not apply the emergency braking except for emergency. In particular, in raining days when the road surface is slippery, applying the emergency braking may result in lateral sliding or other hazardous conditions.**
- 5.After the vehicle is washed or passes through a deep water pit, water may enter the brake drum and reduce the braking efficiency. Depress the brake pedal for several times while driving the vehicle at a low speed to drain the water so as to guarantee the normal operation of brake.**

Auxiliary brake

See Structure and Operation for auxiliary braking operation

Parking

1. Turn the rotary switch of AT back to N position.
2. After the vehicle stops, shift the gear lever of AT to neutral position of low range, and turn the manual valve control lever to parking brake position.
3. Do not shut down the engine immediately when stopping the vehicle. The engine must run idly for 3-5min till the engine coolant temperature reduces. In particular, run the engine idly after the vehicle runs under heavy load or at a high speed to prevent engine scuffing or turb°Charger damage.
4. Turn off all switches, especially the power switch after shut down of the engine.

Slope Driving Method

1. When driving down a slope, you should apply the auxiliary brake effectively to keep the vehicle speed within the safe range.
2. When the vehicle runs at low gear or runs down a slope, make sure that the engine speed does not exceed the maximum allowable speed.
3. Test whether the service brake works normally before running down a steep or long slope.
4. When gearshift from high range to low range is performed, the speedometer must be monitored to check the speed, and the engine speed should be monitored with engine tachometer.

Maintenance & Adjustment

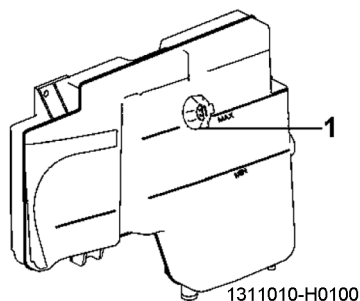
To prolong the service life of vehicle, guarantee the safety and pleasure of driving, always perform careful and periodic maintenance on the vehicle. This manual describes some common maintenance and adjustment methods. As for more detailed information about inspection and adjustment as well as the parts replacement, please contact the nearest Technical Service Centre (Station) of Dongfeng Commercial Vehicle Company of Dongfeng Motor Co., Ltd.

Please refer to the attached Operation and Maintenance Manual of Cummins Engine for the maintenance schedule.

Please refer to the specific configurations of your vehicle.

Inspection and Adding of Coolant

1. To check the coolant level, turn the ignition key to ON position and check whether the low water level warning lamp comes on. If the lamp comes on and the buzzer sends out warning signal, please add coolant. Alternatively, observe the coolant level from the auxiliary water tank behind the cab. If the level is below the "MIN" mark indicated on the tank, please add coolant.
2. Open the cab front face shield.
3. Tilt the cab front face shield and add the coolant from the filler of auxiliary water tank behind the cab until the level reaches the filler lower edge. Never add the coolant too fast through unscrewing the filler cap (the filler cap, pressure valve and vacuum valve are integrated); otherwise, it will be difficult to drain out the air in the engine water jacket.
4. After coolant top-up, warm up the engine to check the level again. If the tank is not full, top up it again.
5. Check the sealing and working conditions of the filler cap and the pressure valve cap.



1. Filler cap and pressure valve cap



CAUTION:

1. Before adding coolant, check the engine and the radiator for leakage, and repair it if any.
2. Tighten the filler cap of auxiliary water tank after filling. Otherwise, cavitation is liable to occur on the engine cylinder liner.
3. Normally, do not remove the pressure valve cap. Remove the pressure valve only after the coolant temperature is below 50°C; otherwise, the spraying of high temperature coolant or steam may cause personal injury. Remove the pressure valve cap slowly to release the cooling system pressure.
4. It is recommended to use dedicated long-life anti-rust and anti-freeze coolant. Never use the running water or hard water from well or river.

Draining of Coolant

Open the drain valve under the radiator to drain off the coolant in the cooling system.



CAUTION:

Before adding coolant, check the engine and the radiator for leakage, and repair it if any.

Maintenance of Air Filter

Inspection and cleaning cycle of filter element

When the air filter block alarm light is on, maintain the filter element. Generally can only clean the main filter core, safety filter core can not be maintained, can only be replaced..



H-D760-110

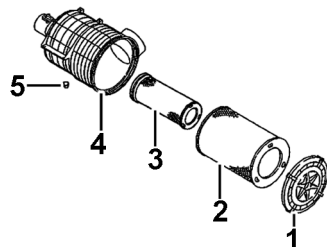
1. Clip

Replacement cycle

Please refer to page 208 for the maintenance period. Or when the main filter is cleaned and maintained for more than four times, the internal and external filter elements must be replaced simultaneously.

Replacement of air filter element

1. Pull the six clips and hold them by hands to pull the end cover.
2. Gently shake the outer element leftward and rightward by hands to pull it out slowly.
3. If it is necessary to replace the inner element, gently shake the inner element leftward and rightward by hands to pull it out slowly.
4. Wipe the contact of cap and carriage clean, so as not to affect the installation and sealing effect.
5. Refit each component following the procedures reverse to removal.



H-D760-111

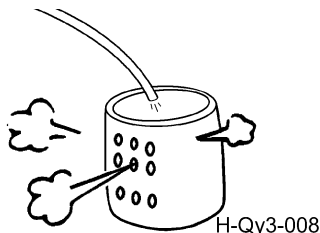
1. End cap
2. Outer element
3. Inner element
4. Housing
5. Drain valve

Cleaning method of filter element

Blow the filter element clean with the compressed air of 0.5MPa or lower from inside to outside.

Inspection method of filter element

Illumine the lamp and place it inside the filter element to check for damage and pinhole. And check whether the washer is damaged, and replace it upon any abnormality.



Check the inner element for dust, if any, replace the air filter assembly.



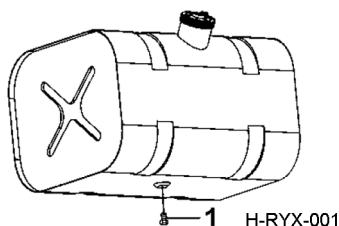
CAUTION:

1. Ensure that the filter element and end cap are mounted properly; otherwise dirt may be absorbed in, sharply shortening the engine service life.
2. Never clean the filter element with gasoline or water.
3. When cleaning cyclone hood, observe if it is damaged.
4. Check the sealing rings during installation.
5. Never remove the air filter while the vehicle is running.
6. Tighten the filter element and end cap nut, and install the sealing ring of the end cap properly. Prevent the entry of rain water into the filter.

Draining of Fuel Tank

If there is too much sediment in the fuel tank, a great deal of impurities will enter the pipe and accelerate the pollution of fuel primary filter, and even clog the oil line. Therefore it is necessary to drain the sediment out from the fuel tank in time.

Remove the drain valve from the bottom of fuel tank, drain off the sediment and fluid at the bottom of fuel tank, and then refit and tighten the drain valve.

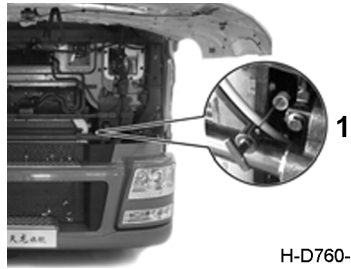


1. Drain valve

Maintenance of Cummins Engine

Inspection and replacement of engine oil

Check the maintenance period refer to page 208.



H-D760-103

1. Oil dipstick



CAUTION:

1. The lubricating oil new vehicle and lubricating oil used for follow-up maintenance or replacement have different grade, which cannot mix and change the oil replacement mileage.

Inspection method of engine lubricating oil level

1. Stop the truck on flat ground, and check the oil level after the engine is warmed up and then shut down for 5 min. Take the oil dipstick out, wipe it up with a piece of clean rag, and fit to its original position.
2. Pull the oil dipstick out again and observe the oil level. The oil level should be between the two scale lines. Add clean lubricating oil if insufficient. Drain the excessive oil from the oil drain plug.

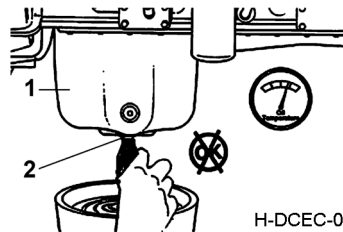


H-DCEC-003

1. Upper marking
2. Lower marking

Change of engine oil

1. Drain off the lubricating oil from the oil sump when the engine is hot. If the engine is cold, warm it up before changing the oil. Run the engine until the coolant temperature is up to 60°C, shut down the engine, remove the drain plug immediately to drain off all the oil and suspended pollutants in the engine.
2. Clean around the oil filter seat and remove the oil filter with the oil filter wrench.



H-DCEC-001

1. Oil sump
2. Oil drain port

3. Before installing the new oil filter, add clean oil to the filter and apply a thin layer of clean oil to the sealing surface of the gasket..
4. Install the oil filter on the filter seat. Tighten the oil filter until the gasket touches the filter seat surface.
5. Install and tighten oil drain plug of oil sump.
6. Open the oil filler cap on the engine and refill the engine with clean oil to the upper scale of the oil gauge.
7. Idle the engine for about 5 minutes to allow oil to flow from the upper parts of the engine back to the sump.
8. Check the oil level again. If necessary, add or drain the oil to the scale on the oil gauge.



H-DCEC-003

1. Upper marking
2. Lower marking

**CAUTION:**

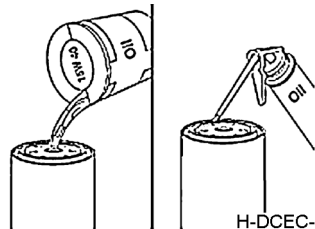
1. Always drain the oil after the engine completely stops and the coolant temperature drops below 60°C.
2. Upon oil drainage, pay attention to the oil temperature to avoid scalding.
3. The oil pressure must be displayed on the instrument within 15 seconds of starting the engine. If oil pressure is not shown within 15 seconds, shut down the engine immediately to avoid damage. Verify that the oil level in the oil sump is correct.

Oil filter

Check the maintenance period refer to page 208

Replacement method

1. Select the oil and oil filter specified by Dongfeng and fill the oil filter with clean oil. Apply a thin layer of clean oil to the sealing surface of the gasket before installing the new oil filter.
2. Install the oil filter on the filter seat. Tighten the oil filter until the sealing pad touches the surface of the filter holder.



H-DCEC-002

**CAUTION:**

1. Do not tighten the filter with a filter spanner during the installation. Otherwise the threads may deform and the filter may be damaged.
2. When mounting a new filter, note whether its model conforms to that required by this engine.

Fuel filter

Check the maintenance period refer to page 208

Replacement method

Please refer to the attached Operation and Maintenance Manual of Cummins Engine.



CAUTION:

1. Do not tighten the filter with a filter spanner during the installation. Otherwise the threads may deform and the filter may be damaged.
2. Tighten the drain valve by hand instead of any tools.
3. Do not open the drain valve completely when draining water.

Fuel Primary Filter (oil-water separator)

Check the maintenance period refer to page 208

Fuel prefilter oil water separator discharge

Turn the ignition to LOCK and stop the engine.

When the engine stops working for more than 30 minutes, release the drain plug and release the water from the drain plug. After draining, tighten the draining plug firmly.



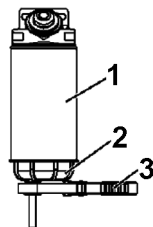
CAUTION:

1. When the water reaches the alarm height of the fuel filter water level sensor and the water in the oil alarm light is on, do not continue driving. Otherwise it will cause engine damage.
2. For safety reasons, be sure to put the fuel in the tray and do not dirty the floor.
3. If any oil spills on other accessories, wipe off the oil thoroughly.
4. After unscrewing the filter element, a clean oil storage tool must be prepared to prevent the siphon caused by full tank from leaking a lot of fuel.

Replace the filter element of the Fuel-water separator

Fuel and water separator disassembling operation method

1. Make the engine inoperative for more than 30min, and unscrew the water drain plug and drain water through the water drain plug.
2. Drain the fuel and water separator clean. Unplug the sensor connected to the collecting cup (depending on actual model) of sensor connected to the water collector, and use a special tool to unscrew the transparent water collector which may be used again and its accessories. Clear oil contamination or foreign matters in the water collector, and check the water collector for damage, if any, replace it. If the water collector is damaged, place it properly after cleaning.
3. Clean the base, especially the junction of base and water separator. Unscrew the filter housing with a special tool, and clear fuel contamination at junction of base and water separator.
4. Screw a new water separator housing to the base by hands till the seal ring contacts the base, and then tighten the water separator for 270° (according to print requirements for the water separator subject to the model) with a special tool.
5. Place a new seal ring into the water collector seal ring slot and lubricate the surface of seal ring. Screw a water collector to the water separator by hands till the seal ring contacts the water separator, and then tighten the water collector and water separator for 180° (according to print requirements for the water separator subject to the model) with a special tool.
6. Refit the quick-fitting sCket of sensor connected to the water collector, unscrew the air drain bolts on the base and press it with a hand pump till the water separator is filled with fuel, and then drain air through the air drain bolts.



H-D760-121

1. Water separator assembly
2. Water collector



WARNING:

Fuel leakage may cause fire, so be sure to install the filter element firmly to avoid fuel leakage.

Maintenance & Adjustment

Precautions for removal and refitting

1. When replacing the water separator, it is necessary to handle the drained fuel properly to avoid environmental contamination.
2. When pumping fuel with a hand pump, always unscrew the air drain bolts to avoid damage to the hand pump.
3. It is prohibited to place the filter near high temperature or open fire to avoid damage to the water collector and water separator.
4. It is prohibited to wildly operate or knock the water separator by using a tool to avoid damage to the water collector and threads.
5. According to the maintenance requirements, drain filtered water from the water separator on a regular basis.
6. Upon completion of a new water separator, before first use, always press the hand pump for 15-30 times to ensure full flow of fuel and normal start of the engine. In winter or low-temperature area, after first use of the water separator, it is required to press the hand pump frequently with more than 30 times for each pressing.

CAUTION:



1. Do not tighten the fuel filter and water separator with the water separator spanner during installation; otherwise the threads may deform and the filter may be damaged.

2. Tighten the drain valve by hand instead of any tools.

3. Do not open the drain valve completely when draining water.

Please refer to the attached Operation and Maintenance Manual of Cummins Engine for the engine assembly.

Bleeding of fuel system

Please refer to the Cummins engine operation and maintenance manual accompanying the vehicle.

CAUTION:



1. Bleeding is strictly prohibited when the engine temperature is very high.

2. Each starting time of the engine shall not exceed 30 seconds, and the starting interval shall be at least 2 minutes.

Drive belt inspection

Please refer to the Cummins engine operation and maintenance manual accompanying the vehicle.

Supercharger maintenance

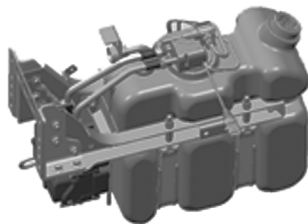
Please refer to the Cummins engine operation and maintenance manual accompanying the vehicle.

Maintenance of urea tank

Periodic maintenance cycle

Check the maintenance period refer to page 208

1. Clean the vent valve with compressed air.
2. After injecting urea, the rubber plug should be blocked to prevent urea spillage.
3. There is a drain port at the bottom of the urea tank to discharge the sediment.



H-NSG-001B

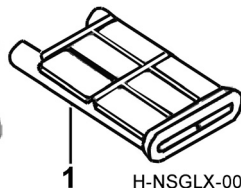
Filter element for urea tank

Replacement cycle

Check the maintenance period refer to page 208

Replacement method:

1. The filter in the vehicle urea tank is used to prevent foreign matters that may be suspended in the vehicle urea from entering the injection system. Debris may cause permanent damage and premature failure to the post-treatment metering pump.
3. The filter in the vehicle urea tank is located inside the vehicle urea tank, below the liquid level temperature sensor.



H-NSGLX-001

1. Urea tank filter element



CAUTION:

1. Before using containers or funnel for distributing, treating or storing vehicle urea, make sure to thoroughly wash away any impurities with water and then rinse with distilled water.
2. Do not use tap water for rinsing instruments or vehicle urea tanks for transporting vehicle urea. Tap water will contaminate vehicle urea.
3. If distilled water is not available, rinse with tap water and then rinse with urea in the car.
4. Failure to carry out maintenance as required may result in torque limit or speed limit.

Urea pump maintenance

During the use of the jet system, attention should be paid to:

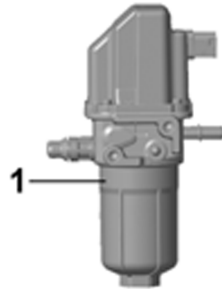
1. After stopping the car and shutting down the engine, the battery power cannot be cut off immediately, and the post-processing system needs to complete the emptying process, which lasts about 5 minutes (depending on the situation of the vehicle traveling far before stopping), that is, the power cannot be cut off within 90 seconds after stopping the car.
2. Regularly check whether there is any leakage or white crystallite at the quick plug joint of the post-treatment jet unit. If there is any leakage or crystallite, please replace the new joint in time.
3. The metering pump filter is used to prevent foreign matters that may be suspended in vehicle urea from entering the injection system. Debris may cause permanent damage to urea pumps or urea nozzles and premature failure.

Urea pump filter

Replacement cycle

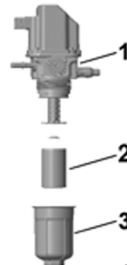
Check the maintenance period refer to page 208

1. Urea pump injection unit
2. Filter element of urea pump filter
3. Filter shell of urea pump



H-NSB-001

1. Urea pump



H-NSB-004

1. Urea pump injection unit
2. Filter element of urea pump filter
3. Filter shell of urea pump

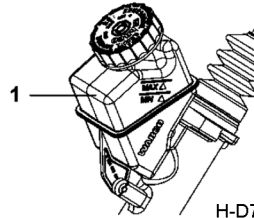
Inspection of Clutch Fluid Level

This inspection is not required for model with AMT.

Normal replacement

Check the maintenance period refer to page 208

The clutch reservoir is located inside the front face shield in the cab. Under normal conditions, the level of the fluid reservoir should be near the MAX mark. Add fluid if the level is below MIN mark. Check the pipeline system for leakage before filling. If any leakage presents, please repair it before filling.



H-D760-063

1. Clutch fluid reservoir



CAUTION:

1. Never use the brake fluid of different quality or different grades.
2. It is strictly prohibited to use mineral oil as brake fluid, and confirm that the clean brake fluid is used.
3. Never have the brake fluid contact any painted surface so as to avoid damage to paint film.
4. Pay special attention to sealing and preservation.
5. Never allow dirt or dust into the reservoir.

Check and replace transmission oil

ZF12 AMT

Replacement period of transmission fluid

In order to ensure safe and reliable operation of the transmission, it is required to replace the fluid within the specified period.

Normal replacement

Every 240,000km or 24 months

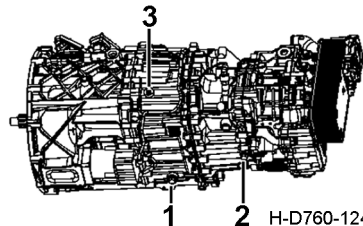
Filling volume

The filling volume of transmission fluid is noted on the nameplate. Do replacement of fluid as required by the fluid replacement procedures to ensure correct filling volume.

Replacement of transmission fluid

Always park the vehicle on the flat ground and shut the engine down before fluid replacement.

It is proper to replace the fluid when the vehicle is still hot after long-distance driving, because the fluid at this time is still at the working temperature and has a low viscosity, allowing for easy flow.



H-D760-124

1. Drain plug
2. Drain plug
3. Filler



WARNING:

Avoid scalding due to hot transmission fluid and parts and avoid fire caused by contact to the fire source.

1. Remove the drain plug and place it into a proper container. Handle the fluid according to environmental protection requirements.
2. Clean the drain plug 2 with magnet.
3. Replace seal rings of drain plug and filler.
4. Tighten the drain plugs 1 and 2 to the specified torque (60 Nm).

Add oil

1. Add the transmission fluid through the filler.
2. It indicates that the transmission is filled with fluid when the level reaches to the lower end of the filler, in this case, continuous adding may cause overflow of fluid out from the filler.
3. Tighten the filler to the specified torque (60 Nm).



CAUTION:

Check the transmission for fluid leakage when checking the level.

Check and replace retarder oil (ZF)

Check the oil level



CAUTION:

Insufficient oil in the transmission will lead to transmission damage and accident risk



WARNING:

Insufficient oil in the transmission will lead to the retarder failure, brake torque weakening or failure. Please use the auxiliary brake carefully when continuing to drive, or maintain the transmission.

Operation method:

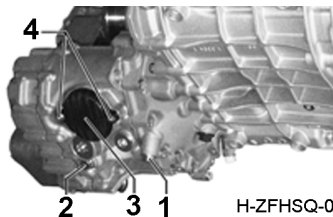
1. When checking the oil level, the retarder must be closed before stopping, which can ensure the correct oil quantity in the transmission
2. In order to prevent incorrect inspection, the oil level of the transmission with retarder must be checked according to the following methods:
 - 1). Horizontal positioning of vehicles
 - 2). engine flameout
 - 3). the transmission oil temperature drop to below 40°C
3. Check the transmission oil level regularly
4. Confirm whether there is oil leakage in the following parts when checking the oil level
 - 1). transmission
 - 2). retarder
 - 3). Oil/water heat exchanger
 - 4). Relevant cooling piping

Check the oil level

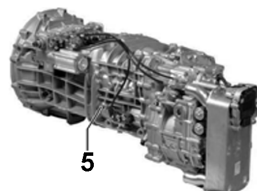
1. Stop the vehicle, and pull on the hand brake, be careful not to use the retarder
2. Loosen the overflow port screw plug
3. If the oil level is lower than the overflow port, continue to fill the oil until the oil overflows.
4. Replace the new gasket and tighten the relief plug

Oil drain

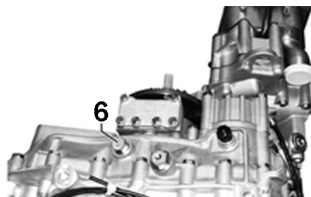
1. Collect transmission oil into appropriate containers and dispose according to environmental regulations;
2. Please change the oil after a long drive, when the oil temperature is still high and the oil viscosity is low;
3. Park the vehicle in a horizontal position and turn off the engine;
4. When oil draining, loosen the oil draining plug of the transmission and the oil draining plug of the retarder;
5. After oil draining, the oil drain screw plug (magnetic) must be cleaned and replaced with a new gasket;
6. Install new filter element;
7. Finally, tighten the drain screw plug.



H-ZFHSQ-001



H-ZFHSQ-002



H-ZFHSQ-003



CAUTION:

Contact with hot transmission or transmission oil may cause burns. Please take protective measures.



WARNING:

1. When checking the oil level, the retarder must be turned off before stopping.
2. Please tighten the oil drain plug according to the torque specified in the technical parameters section, otherwise the transmission may be damaged.

1. Oil drain plug of transmission
2. Oil drain plug of retarder
3. Oil absorption filter element
4. Install filter element bolts
5. Oil spill port and oil changing port
6. Refueling port after maintenance

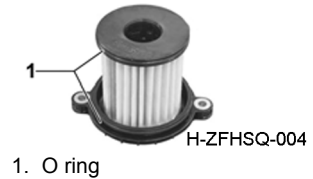
Filter element replacement

Drain the oil first and then replace the filter element.

Please use the new filter element every time you change the oil.

1. Loosen the oil absorption filter element bolt;
2. Remove the oil absorption filter element
3. Lubricate the new O-ring on the new filter element
4. Load the new filter element into the retarder shell
5. Tighten the bolts and fix the filter element

Tightening torque: 23 ± 2 Nm



CAUTION:

There will be some residual oil in the retarder!

Add oil

Add oil after regular oil change

1. Add oil to the transmission and check the oil level can be done only after the vehicle is horizontally parked and the engine is turned off.
2. For vehicle with transmission installed horizontally, the transmission shall be placed horizontally before refueling, otherwise the quantity of refueling is not accurate;
3. Please use a new filter element every time after you change the oil;
4. For oil grade and oil change cycle, please consult ZF TE-ML oil table according to the transmission nameplate information;
5. The amount of fuel added is only a reference value, which may vary with the type of transmission and installation angle;
6. For refueling quantity and tightening torque, please refer to the technical parameters section;
7. If PTO is assembled, the amount of refueling shall be considered;
8. If the heat exchanger and retarder are installed separately, please consider the amount of oil in the connecting pipe.



CAUTION:

Insufficient oil in the transmission will lead to transmission damage and accident risk



WARNING:

Insufficient oil in the transmission will result in retarder failure, brake torque weakening or failure.

9. Loosen the screw plug at the oil spill port, add oil from the oil spill port until overflow, install the gasket and tighten the screw plug at the oil spill port.

10. Test run the vehicle (at a speed of about 10 km/h for at least 1 minute), briefly run the retarder (the highest gear) at the beginning, and then cancel it.
11. Engine shut down;
12. Loosen the screw plug at the oil drain plug;
13. Check the oil level, and fill the oil until it overflows if necessary;
14. After using the new gasket, tighten the oil spill port screw plug.

**CAUTION:**

1. Please check the oil level below 40°C temperature.
2. The correct position of the oil surface is at the bottom of the overflow port, that is, the oil overflow position.
3. Check the oil level after the test drive, which is the correct refueling process, so as to ensure the accurate refueling volume and the split heat exchanger. Check after the test drive for about 5 minutes, to prevent the heat exchanger idling.

Add oil after maintenance

1. Add oil to the transmission and check the oil level can be done only after the vehicle is horizontally parked and the engine is turned off.
2. For vehicles with transmissions installed horizontally, the transmissions shall be placed horizontally before refueling, otherwise the quantity of refueling is not accurate;
3. For oil grade and oil change cycle, please consult ZF TE-ML oil table according to the transmission nameplate information;
4. The amount of fuel added is only a reference value, which may vary with the type of transmission and installation angle;
5. For refueling quantity and tightening torque, please refer to the technical parameters section;
6. If PTO is assembled, the amount of refueling shall be considered;
7. If the heat exchanger and retarder are installed separately, please consider the amount of oil in the connecting pipe.

**CAUTION:**

Insufficient oil in the transmission will lead to transmission damage and accident risk

**WARNING:**

Insufficient oil in the transmission will result in retarder failure, brake torque weakening or failure.

8. Loosen the screw plug at the oil spill port, add oil from the oil spill port to the overflow, install the gasket and tighten the screw plug at the oil spill port.
9. Test run the vehicle (at a speed of about 10 km/h for at least 1 minute), briefly run the retarder (the highest gear) at the beginning, and then cancel it.
10. Engine shut down;
11. Loosen the screw plug at the oil spill port;

12. Check the oil level, and fill the oil until it overflows if necessary;
13. After using the new gasket, tighten the oil spill port screw plug.



CAUTION:

1. Please check the oil level below 40°C temperature.
2. The correct position of the oil surface is at the bottom of the overflow port, that is, the oil overflow position.
3. Check the oil level after the test run, which is the correct refueling process, so as to ensure the accurate refueling volume and the split heat exchanger. Check after the test run for about 5 minutes, to prevent the heat exchanger idling.

Drain the residual coolant



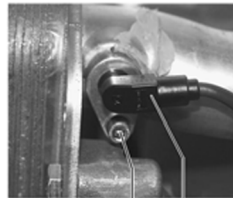
WARNING:

Touch hot gearbox or engine coolant may cause burns, please take precautions.

Residual coolant can only be removed when the temperature sensor is removed

1. Loosen the bolt;
2. Remove the temperature sensor;
3. After draining, use the new O-ring, then install the temperature sensor back and tighten the bolts

Tightening torque: 9.5 ± 1 Nm



1 **2** H-ZFHSQ-005

1. Bolts
2. Temperature sensor

Maintenance and Adjustment of Brake

Manual adjuster

Check the maintenance period refer to page 208

Normal inspection

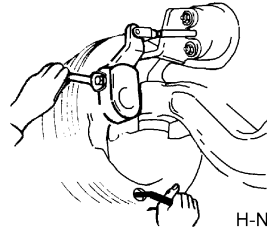
Every 5,000km

Clearance between friction plates of brake drum and brake shoe:

At the center of brake shoe: 0.3-0.5 mm

Limit wear of brake drum: 2mm;

See the limit marks on both sides of the friction sheet.



H-N05-402

Method of local adjustment

1. Fit the ring spanner over the worm shaft head, rotate the worm shaft to make the friction plate contact the brake drum, and then rotate the worm shaft in reverse direction by 1/2 turn. The brake drum should rotate freely without contacting any part at this moment.
2. Check that the push rod travel of the brake chamber is within 25 ± 5 mm.



CAUTION:

1. Check the brake clearance frequently and adjust it in time if the braking is weak. Attention should be paid to the followings during adjustment:
2. Never change the push rod travel by tightening the connecting fork of brake chamber.
3. To adjust the rear brake, always park the vehicle on flat place and ensure the air reservoir pressure is above 700 kPa.
4. Use the triangular blocks to chock the wheels at the front and back, and after releasing the parking brake, adjust the rear brake clearance.

Automatic Adjuster

Please refer to the specific configurations of your vehicle.

If the brake is equipped with an automatic adjuster, the clearance between the brake shoe and brake drum can be adjusted smaller automatically when the friction lining is worn and the clearance exceeds the set value, so as to reduce the maintenance time and ensure driving safety.

During normal operation, add lubricating grease from the grease nipple every 20,000km. Check the reverse adjusting torque every 20,000km, namely by rotating the worm shaft counterclockwise (repeat three times); if the torque is less than 18N·m, make sure to replace the adjuster, and check if the parts and assemblies of the brake return smoothly without seizure during operation.

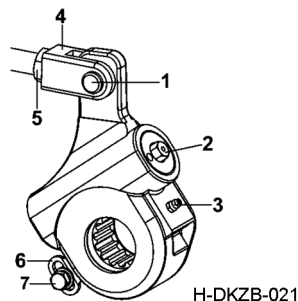
Check the brake friction lining for wear regularly, so as to avoid degradation of the braking performance and damage to other parts due to excessive wear of friction lining.

To replace the brake shoe, rotate the worm shaft to keep the camshaft at the minimum opening position. After the friction lining is replaced, depress the brake pedal about 30-40 times with the complete vehicle air pressure no less than 300kPa to reduce the brake clearance. When the vehicle is in service, the shoe friction lining clearance will be adjusted automatically and continuously along with the proceeding of running-in, till it is kept within the designed reserved clearance range.

Method for manual adjustment of brake clearance

For new vehicles or vehicles whose friction lining has been replaced, if the normal operation is affected as the clearance between brake shoe and drum is incorrect or the clearance becomes smaller due to thermal expansion of new friction lining or running in hilly region (frequent braking), the brake clearance can be adjusted larger manually.

1. Fit the double offset ring spanner over the worm shaft head, rotate the worm shaft to make the friction lining contact the brake drum, and then rotate the worm shaft in reverse direction by 1/2-2/3 turn (a click will be heard during rotation in reverse



1. Shaft pin
2. Worm shaft
3. Grease nipple
4. Connecting yoke
5. locking nut
6. Control arm
7. Fastening bolt

direction); the brake drum should rotate freely without contacting any part at this moment.

2. In case the worm shaft cannot rotate because the automatic adjuster has been in service for a long time or has not been maintained, lubricated in time, remove the fastening bolt of the control arm and follow step 1 to put it into service. In this case, the adjuster loses automatic adjusting function, and you should go to the service station to have the automatic adjuster repaired or replaced in time.



CAUTION:

1. **Never adjust the brake clearance by hand except for the above-mentioned condition;**
2. **Check the wear condition of friction lining regularly to prevent braking failure due to overworn friction lining.**
3. **During manual adjustment of brake clearance, never change the push rod stroke by tightening the connecting yoke of brake chamber push rod;**
4. **To adjust the rear brake, always park the vehicle on a flat place and ensure the air reservoir pressure is above 700kPa.**
5. **Adjust the rear brake clearance only after the wheels are chocked at the front and back, and the parking brake is released.**
6. **In case the automatic adjuster is abnormal, make sure to stop the vehicle immediately to check the automatic adjuster and other components of the brake system, and take necessary measures to eliminate the fault.**
7. **Before tightening the fastening bolt of control arm, rotate the control arm around camshaft in the direction of arrow marked on the automatic adjuster housing.**

Automatic adjuster with control arm

Maintenance of automatic adjuster

1. Add lithium base grease (DFCV-C20-L) to adjuster every 20,000 km.
2. Rotate the worm hexagonal head anticlockwise every 20,000 km, then measure if the rotating torque is higher than 18 Nm, and repeat measurement for three times. If the torque measured is less than 18 Nm, replace the adjuster assembly immediately.

Common faults & countermeasures

Improper adjustment of brake clearance (like brake drag during driving) is usually caused by the fault of brake system rather than automatic adjuster as the automatic adjuster can only adjust brake clearance smaller. This problem is likely to occur under the following conditions, and please take corresponding measures; otherwise driving safety might be affected due to large clearance:

1. Running-in of new vehicle

During the running-in period, improper adjustment of brake clearance is likely to occur as the initial thermal expansion of new friction lining is great, which may reduce brake clearance. In this case, adjust the brake clearance larger manually for 2-3 times.

2. Replacement of friction lining

After replacement with a new friction lining, check the contact between brake shoe and drum, and make sure the difference of upper and lower shoe symmetric point clearance falls in the acceptable range (below 0.3mm). Try to keep the upper and lower shoes contact the drum simultaneously while braking, so as to avoid large clearance due to braking with one shoe. If the difference of symmetric point clearance is too large, turn the excircle of brake shoe friction lining or polish the projection of friction lining with sand paper.

3. Thermal expansion of brake drum

When braking is frequently applied (like on long downhill at mountain area), the brake drum will expand with heat, and the enlarged clearance (brake drum expansion) will be adjusted smaller by automatic adjuster, and brake drag may occur after the brake drum is cooled. In such case, users can adjust brake clearance larger manually after the brake is cooled.

Method for disabling automatic adjustment function

If the worm shaft cannot be rotated to adjust too small brake clearance larger during brake drag, users can disable the automatic adjustment function for some time, and use it as a manual adjuster. Specific method: for automatic adjuster with control arm, remove the fixing bolt of control arm; for automatic adjuster without control arm, remove the small pin shaft and gear rack, rotate the worm shaft to make the shoe friction lining contact the brake drum, and then rotate the worm shaft in reverse direction by 1/3-2/3 turn, and use a feeler gauge to check that the clearance is 0.5-0.8mm.

After the automatic adjustment function is disabled, please check and replace the part at Dongfeng service station immediately.

Disc Brake

**WARNING:**

Never use pneumatic or electric wrench during all the processes.

**CAUTION:**

Expertise is required for the inspection and maintenance of disc brake, so please go to Dongfeng franchised service station to do related maintenance.

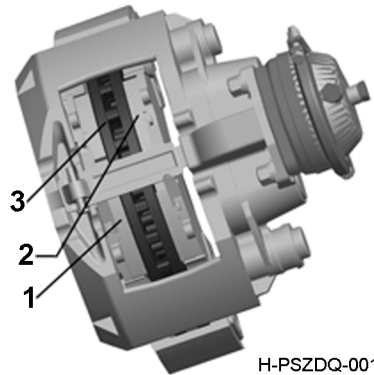
Working principle

Floating caliper is adopted, and the wear of friction lining is compensated automatically through mechanical adjuster. Driven by the brake chamber, this adjuster pushes the inner brake pad to contact the brake disc, such that the brake caliper moves horizontally along the sliding pin, making outer brake pad contact the brake disc and realizing braking function.

Automatic adjuster ensures proper clearance between brake pad and brake disc.

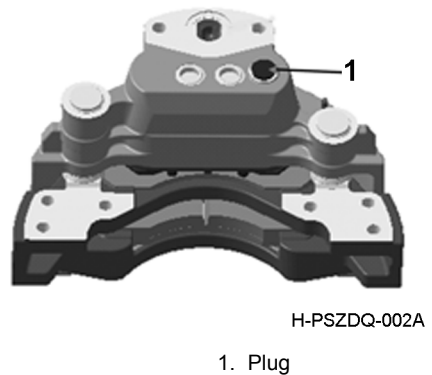
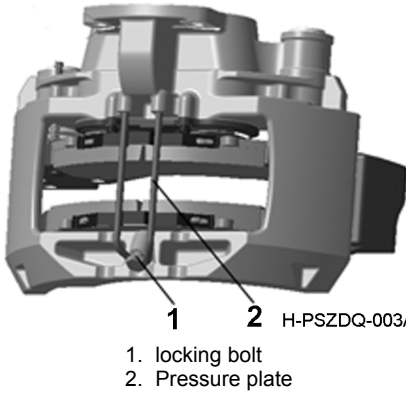
Method for manual adjustment of disc brake clearance

Park the vehicle safely, remove the tires, and pull the caliper body toward the outside of wheel until it cannot be moved, and then use a feeler gauge to check the clearance between outer brake pad and brake disc. If the clearance falls out of the acceptable range, please do maintenance for the automatic adjuster. Clearance: 0.6-1.2mm.



H-PSZDQ-001

Inspection of sliding function



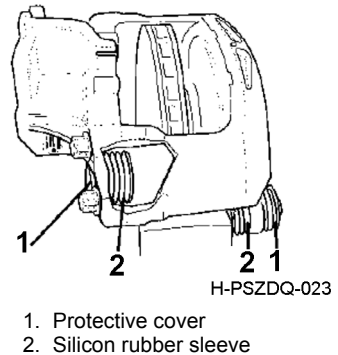
Applicable to Haldex disc brake only.

1. Park the vehicle safely, and remove wheels of the brake axles to be inspected;
2. Remove the brake pad;
3. Grasp the brake caliper with hand firmly at the position easy for pushing and pulling it to move axially;
4. Push and pull the brake caliper with hand to check if it can slide smoothly;
5. If the brake caliper can slide smoothly, it works normally; otherwise, perform troubleshooting of the brake.

Inspection of sliding pin rubber sleeve

Applicable to Haldex disc brake only.

Check protective sleeves and 6 silicon rubber sleeves at both ends, as well as the protective cover. If any cracks or other damages are found, replace the part immediately.



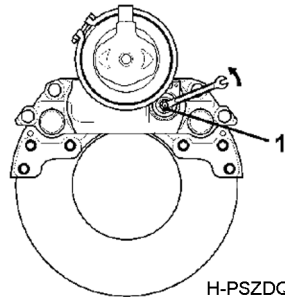
Inspection of adjusting screw rubber sleeve

Applicable to Haldex disc brake only.

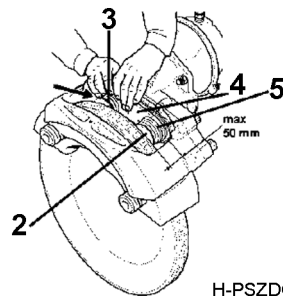
Use an 8mm wrench to rotate the adjusting shaft until the push plate is pushed out completely and about 45-50 mm from the cover plate.

The maximum pushing distance of push plate from bottom plate is 50 mm. Check the helical spring sleeve and rubber sleeve for any obvious cracks or other damages; if any, replace them immediately.

Rotate the adjusting shaft in reverse direction to the limit. Check if the helical spring sleeve can return completely, to ensure there is no fold interference or damage.



H-PSZDQ-022



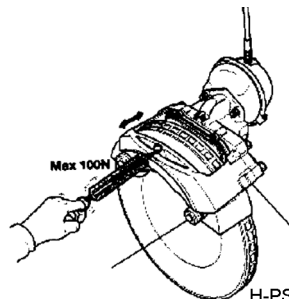
H-PSZDQ-024

1. Adjusting shaft
2. Push plate
3. Rubber sleeve
4. Bottom plate
5. Helical spring sleeve

Inspection of sliding function of brake caliper

1. Park the vehicle safely, remove the tires, then push/pull caliper with hand to check if it can slide smoothly;
2. If the brake caliper can slide smoothly, the sliding function is normal; otherwise, perform troubleshooting of the brake.
3. If the maximum sliding resistance is exceeded, check if there is any dust or foreign matters that impede the sliding of brake caliper.

Maximum sliding resistance: 100 N.



H-PSZDQ-007

Inspection of brake pad

Inspection of brake pad wear

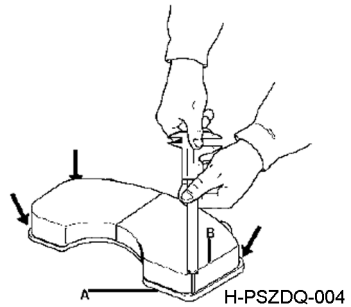
Measure the distance from bottom plate A to friction surface B.

Inspection of uneven wear of brake pad

Maximum uneven wear: 1mm (measure 4 points)

If the wear is uneven, check if the brake caliper can slide properly on the sliding pin, if there is dust between the brake pad and push pate, and if the automatic adjuster functions normally.

Wear of brake pad:



Disc brake	Haldex
Thickness of new brake pad friction material (mm)	22
Minimum thickness of residual friction material (mm)	2



CAUTION:

- 1.Slightly depressing the brake pedal may accelerate wear of inner brake pad.
- 2.While replacing the brake pad, all brake pads of the two brakes at the same axle must be replaced together.

Inspection of brake disc

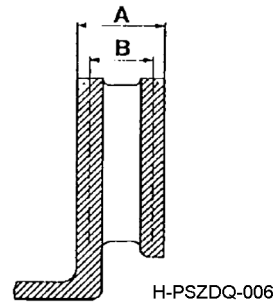
Inspection of brake disc dimension

A= Thickness of a new brake disc

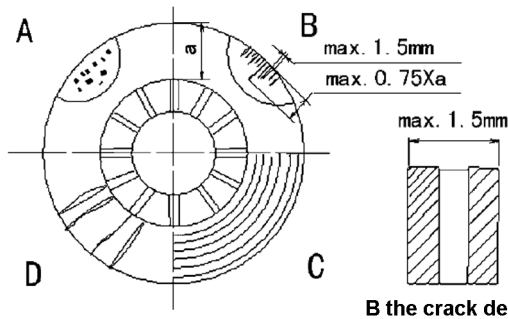
B= Thickness of brake disc worn to the limit;
the brake disc must be replaced at this moment.

Brake disc parameters:

Disc brake	Haldex
Thickness of a new brake disc (mm)	45
Thickness of brake disc worn to the limit (mm)	37
Maximum thickness difference (mm)	1
Uneven wear at one side shall be no more than 4 mm	



Inspection of brake disc cracks



B the crack depth

H-PSZDQ-005

B indicates the cracking depth

a= Width of friction lining contact face

A= Small spots distributed on the surface; continuous use is allowed

B= Radial cracks with depth and width less than 1.5 mm, and length less than 3/4 the width of friction lining contact face; continuous use is allowed

C= Cracks with annular groove and; continuous use is allowed depth less than 1.5 mm

D= Radial through cracks; continuous use is not allowed



CAUTION:

While replacing the brake disc, all brake discs of the two brakes at the same axle must be replaced together.

Inspection of friction lining wear

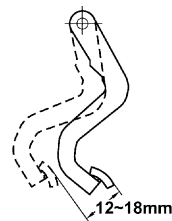
As friction lining is worn to the limit or faulty, the wear indicator will be on. Please replace the friction lining at this moment.



H-D760-076

Inspection of Brake Pedal Stroke

1. Step on the brake pedal slightly to check if the free stroke is within 12-18 mm.
2. There should be no seizure when the brake pedal is depressed to the floor.
3. There should be an exhausting sound when the pedal is released.



H-D310-180

Inspection of Air Dryer

The air dryer is used to dry the compressed air from compressor, thus supplying dry and clean air to the air reservoir.

Replacement cycle

Cylinder or desiccant of air dryer: every 100,000km or 12 months, or shorter if the vehicle always runs under adverse conditions (such as moist or hilly area).

Inspection of water logging

Check the air reservoir for water logging at the end of driving each day in winter or in chilly area, or otherwise once a week. For this purpose, pull the water drain valve under the air reservoir or the steel hook under the reservoir frame. If any water is found, drain off the water, and replace the cylinder or desiccant at Dong-feng service station immediately.

Inspection of exhaust outlet

If air leakage is detected at the exhaust outlet of the air dryer assembly during inflation before vehicle start, please check the exhaust valve. If the exhaust outlet fails to be closed tightly due to foreign matters, oil dirt or others, please clean the exhaust valve. the upper limit, it is normal that the air dryer exhaust outlet will exhaust for pressure relief. Only when the air pressure is consumed down to the lower limit will the exhaust valve close, and the pipeline system will be re-inflated.

Heating of air dryer

If the ambient temperature is lower than 5°C, activate the electric heater of the air dryer to prevent inoperative dryer due to icing at exhaust outlet. Turn on the air dryer heater switch on the instrument panel, and the air dryer heating indicator lamp will be on simultaneously.



CAUTION:

The sliver cylinder is provided with oil-filtration function and can filter most oil in the compressed air to prolong the service life of parts of the brake system. The sliver cylinder must be replaced together with the drying cylinder.

Air dryer heater switch



H-D760-132

Air dryer heating indicator lamp

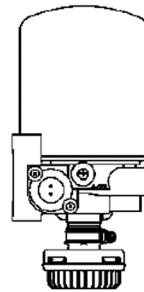


H-D310-110

Replacement of air drying cylinder

1. Before replacing the air dryer, make sure that the internal pressure has been removed completely;
2. Screw off the air dryer with hand;
3. Apply grease to the sealing ring and threaded sleeve before installing a new air dryer;
4. Screw up the dryer reservoir with hand (maximum torque: 15Nm).

Air drying cylinder



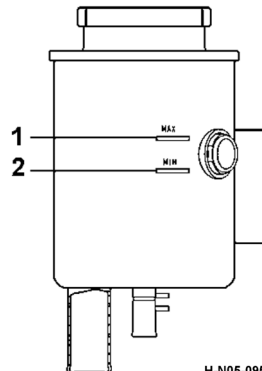
H-D760-143

Inspection and Change of Power Steering Hydraulic Oil

I

Check the maintenance period refer to page 208

Frequently check the oil in the tank for level and deterioration when the vehicle is in service, and add or change oil in time upon detection of any abnormal conditions. Wipe the oil tank clean when checking the oil level. Then unscrew the oil dipstick assembly, clean and refit the oil dipstick, then remove it and observe oil level. If the oil level is not between MAX and MIN marks of oil dipstick, hydraulic oil of the same grade should be added.



H-N05-095C

Replacement method

1. Wedge the front and rear of the rear wheels with triangular blocks, engage the transmission at neutral gear, and jack the front axle to raise the tires of both sides off the ground, or disengage the drag link from the pitman.
2. Wipe the oil tank clean first, unscrew the tank cover fastening nut to open the tank cover, unscrew the drain bolt of the steering gear and turn the steering wheel repeatedly to both limits, so as to drain the residual oil out of the oil pump and oil tank. Keep the engine running at an idle speed when necessary, and turn the steering wheel to the leftmost and rightmost for several times until no oil flows out of the port.
3. Tighten the drain bolt after confirming that the oil in system has been drained completely, and replace or clean the oil tank filter element.

1. Filler cap with dipstick

Maintenance & Adjustment

4. Add clean oil to the oil tank, run the engine at an idle speed for 3-5 s, and then stop the engine to check the oil level again and add oil. Repeat the above procedures for three times at least. During the oil addition, make sure that oil level will not drop too fast or there is no oil in the tank to prevent the system from absorbing any air.
5. Run the engine at an idle speed for 2 min, and then stop the engine to check if the oil level meets the requirement.
6. Run the engine, turn the steering wheel from left limit to right limit and repeat this for many times until the oil level stops dropping and no bubbles occur. Add the oil to the level required (that is, between the upper and lower marks of the oil dipstick). Repeat this step several times until the hydraulic oil level is between MAX and MIN marks of oil dipstick.



CAUTION:

- 1. Do not add the hydraulic oil with engine running.**
- 2. Make sure to replenish with the hydraulic oil of the same grade.**
- 3. With engine idling, turn the steering wheel to the left and right to facilitate bleeding air from the system.**
- 4. Always shut down the engine when checking the oil level.**
- 5. Never let the steering wheel stay at the extreme position for more than 15 s. In such a case, it is required to slightly rotate the steering wheel backwards so as to avoid any damage to the power steering pump.**
- 6. Before starting the vehicle for the first time at the ambient temperature below 10°C, run the engine at an idle speed for more than 30 s, and rotate the steering wheel when the steering fluid temperature rises, so as to avoid hard steering or any damage to the power steering pump.**

Maintenance of Suspension

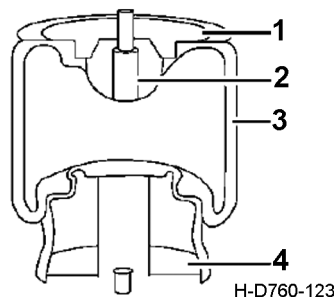
Maintenance of balanced suspension

Before the first guarantee of the new car enters the station for maintenance, clean and check whether the leaf spring and spring clamp are loose or deformed every 500~1000km, tighten the u-type bolt and retighten it twice. Check for looseness and deformation during the station maintenance and tighten the torque as required.

In the process of driving and maintenance, it is forbidden to hammer the side and surface of the leaf spring with an iron tool, otherwise the hammer scar will become the source of fatigue, and early crack and gradually expand, leading to early fracture of the leaf spring.

Maintenance of air suspension

Air spring is a complicated system assembly. It realizes the elastic effect by compressing and stretching the air in the rubber bellows, so its rigidity may change with the load. Compared with the traditional leaf spring, it features lower natural frequency, and has the ability to ensure body height as load changes, and the advantages such as long service life, light weight, etc. Air spring assembly is mainly composed of upper connecting plate, inner buffer block, rubber bellows body and lower connecting plate (usually called as the piston). Upper connecting plate can be of mounting type or vulcanized top plate type, and this vehicle model employs the vulcanized top plate. Rubber bellows body is composed of the external rubber protective layer and internal cord - rubber fiber reinforced composite layer.



1. Upper connecting plate
2. Inner buffer block
3. Rubber bellows body
4. Lower connecting plate

Air pressure in the air spring should not exceed 100Pa/7bar, and the working temperature of air spring should be -40°C-70°C.

1. Do not drive vehicles equipped with air spring suspension system on bad roads. It is required to regularly check the shockabsorber for failure and if the levelling valve is in proper position, as either shockabsorber failure or incorrect position of levelling valve will result in air spring overstretching, causing separation of upper/lower connecting metal plate from the rubber bellows body.
2. Rubber bellows body of air spring assembly may be corroded and damaged by hydraulic fluid, lubricant and other chemical solvents. While driving the complete vehicle, never let the rubber bellows body of air spring contact corrosive liquids; check and clean the air spring regularly; and the cleaning can be done with clean water only. And meanwhile, avoid too much oil in the air supply system.
3. If mixed with foreign matters during operation, the rubber bellows body may be worn out as air spring moves up and down. Therefore, it is required to check and clean foreign matters in the rubber bellows body regularly.
4. Do not use air spring assembly under no internal pressure.
5. Check the rubber bellows body of air spring for leakage due to scratching by stones, metals and other sharp foreign matters, and replace it if necessary.
6. Check if air suspension system exterior stoppers are missing or damaged regularly. Missing stoppers may cause metal installing parts, like air spring piston base, to be damaged due to overloading.
7. Overloading of air spring is prohibited. Piston base may be crushed under overload condition.
8. Normal fatigue crack of air spring assembly appears at the folded edge of bottom piston. The rubber bellows body of air spring should be replaced every 3-4 years.

ECAS system

1. Working temperature range of ECU: -40°C - +75°C.
2. When charging the vehicle with external power supply, be sure to disconnect ECU power supply, so as to protect ECU from being damaged by the external high voltage.
3. When electric welding is required for the vehicle, please disconnect the ECU. Do not use the multimeter to measure ECU.
4. The removal of all parts connected to ECU should be conducted with power off, and all parts clean and dry.
5. Do not change the fuse capacity without permission.
6. If the indicator is damaged, replace it immediately.
7. When cleaning the vehicle, ECU should be free of water.

Inspection of Drive Axle Final Drive Oil Level

Please refer to the specific configuration of your vehicle.

Wheel reduction axle

Initial replacement

Check the maintenance period refer to page 208

Inspection method

The oil level of intermediate axle should be flush with the lower edge of transition tank access hole, and add the oil if insufficient. The oil level of rear axle should be flush with the lower edge of the oil filler, check and clean the breather plug.

Normal replacement

Check the Maintenance period see "Maintenance and replacement items"

The replacement cycle should be shortened when the vehicle is under heavy load or in heavily polluted environment.

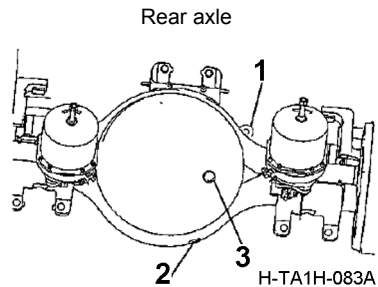
Replacement method

Replace the final drive oil under hot vehicle condition. When replacing, first screw down the oil plug, drain the oil plug, clean the oil plug and install it, add the new oil from the surface inspection hole until the oil surface and the lower plane of the oil port is equal.



CAUTION:

1. Keep dirt or dust out of the final drive when adding oil, and always keep the breather plug in a good condition.
2. Oil should be kept at a normal level. Otherwise, the use of oil may be affected by too high or too low oil level.



1. Breather plug
2. Rear axle draining screw
3. Rear axle oil inspection hole

Use and Maintenance of Tire

Selection of tire

Model	Dump truck, etc.	Cargo truck and tractor, etc.	
Service Conditions	Low speed, poor road conditions, overload exceeding 50%	High speed, good road conditions, overload not exceeding 50%	High speed, good road conditions, overload not exceeding 30%
Tubeless tire	Forbidden	Allowed	Preferred
Meridian tire	Allowed	Preferred	Allowed
Bias tire	Preferred	Not recommended	Forbidden

Never overload the vehicle

Vehicle overload will increase the tire heat-up and accelerate the wear of tire tread; which may increase the tire bead stress, cause tire bead damage and early fatigue of casing ply, and reduce the service life of tire.

Select proper tread patterns

Longitudinal pattern: low rolling resistance and good guiding performance;

Dual-purpose and transverse pattern: high tear resistance and good driving performance; Select longitudinal pattern for guide wheels and trailer wheels; select dual-purpose and transverse pattern for driving wheels

Model	Dump truck	
Position	Steering shaft	Driving shaft
National highway	Longitudinal pattern	Longitudinal pattern or dual purpose pattern
General road conditions	Longitudinal grooved pattern or dual purpose pattern	Off-road pattern or transverse pattern
Poor road conditions	Transverse pattern or dual-purpose pattern	Off-road pattern or transverse pattern
Model	Cargo truck	
Position	Steering shaft	Driving shaft
National highway	Longitudinal pattern	Longitudinal pattern
General road conditions	Longitudinal grooved pattern or longitudinal pattern	Longitudinal grooved pattern or dual purpose pattern
Poor road conditions	Longitudinal grooved pattern or dual purpose pattern	Off-road pattern or transverse pattern
Model	Tractor	
Position	Steering shaft	Driving shaft
National highway	Longitudinal pattern	Longitudinal pattern or dual purpose pattern
General road conditions	Longitudinal grooved pattern or dual purpose pattern	Longitudinal grooved pattern or transverse pattern
Poor road conditions	-	-

Replacement of tire

Tire specifications and relevant parameters are as follows

Tire category	Tire specification	External dimensions Width*static radius/rolling radius(mm)	Wheel specification	Bearing capacity, single/tire(kg)	Standard pressure, single/dual tire(kPa)
Bias tire with inner tube	12.00-2018PR	315*1125*536/536	8.5-20	3750/3350	810/740
	11.00-2018PR	293*1085*517/517	8.0-20	3650/3150	910/840
	11.00-2016PR	293*1085*517/517	8.0-20	3350/2900	810/740
	10.00-2018PR	278*1055*502/502	7.5-20	3350/2900	910/840
	10.00-2016PR	278*1055*502/502	7.5-20	3000/2650	810/740
	9.00-2016PR	259*1018*485/485	7.0-20	2900/2500	880/810
	9.00-2014PR	259*1018*485/485	7.0-20	2575/2300	770/700
	9.00-2012PR	259*1018*485/485	7.0-20	2360/2060	670/600
	9.00-2010PR	259*1018*485/485	7.0-20	2120/1850	560/490
Meridian tire	8.25-2014PR	236*974*464/464	6.5-20	2240/1950	810/740
	12.00R2018PR	315*1125*516/534	8.5-20	3750/3450	830/830
	11.00R2018PR	293*1085*499/517	8.0-20	3550/3250	930/930
	11.00R2016PR	293*1085*499/516	8.0-20	3350/3075	830/830
	10.00R2018PR	278*1054*486/502	7.5-20	3250/3000	930/930
	10.00R2016PR	278*1054*486/502	7.5-20	3250/3000	930/930
	9.00R2016PR	259*1019*471/485	7.0-20	2800/2650	900/900
	9.00R2014PR	259*1019*471/485	7.0-20	2575/2430	790/790
Tubeless tire (British system)	8.25R2014PR	236*974*452/464	6.5-20	2240/2120	830/830
	13R22.518PR	320*1124*521	9.75*22.5	3750/3450	830/830
	12R22.518PR	300*1085*504	9.00*22.5	3550/3250	930/930
	11R22.516PR	279*1054*491	8.25*22.5	3000/2725	830/830
Tubeless tire (metric system)	10R22.514PR	254*1018*476	7.5*22.5	2575/2430	790/790
	315/80R22.518PR	312*1076*500	9.00*22.5	3750/3450	830/830
	295/80R22.516PR	298*1044*487	9.00*22.5	3350/3075	830/830
	275/80R22.516PR	276*1012*473	8.25*22.5	3075*2800	830/830
	255/80R22.516PR	255*930*435	7.5*22.5	2500*2300	830/830

The principle of tire replacement should refer to the bearing capacity parameters. Under the equivalent bearing capacity, the diameter of metric tubeless tire is smaller than that of tire with inner tube, which can reduce the height of complete vehicle and enhance the vehicle stability.

For example: 315/80R22.5 18PR tire can replace 12.00R20 18PR or 11.00R20 18PR tire.

Inspection of tire pressure and tire tread

1. Use an air pressure gauge to check whether each tire pressure meets the requirements, and inflate the tire if insufficient.
2. Check if there is any foreign matter attached to the tire tread and remove it if any.
3. Check the depth of tread pattern. Make sure to replace the tire if the depth is less than 1.6 mm (less than 2.4 mm on the freeway). Measure this value at not less than six points along the tire circle.
4. Under normal operation conditions, inflate the tire according to standard pressure.

Tire Rotation

During the maintenance every 10,000 km, do tire rotation as illustrated. Principles of tire rotation:

1. For rear axle twin tires, the difference between the outside diameters of the tires should not exceed 12 mm and the smaller one should be mounted inside.
2. The front wheels should be equipped with tires of the same model with even and less wear. Do the dynamic balance test on the newly assembled front tires or front tires whose positions have been changed newly where possible.
3. After tire rotation, the rotating direction of tire should be reverse to that before tire rotation. The new tires must be used in pairs.
4. The same axle must be equipped with tires of the same specification and tread; otherwise, pulling to one side while braking, vehicle body swing, and loss of steering control may occur.
5. Check the threads of wheel hub bolt and wheel nut for scratches. For the sake of safety, replace the nuts and bolts in pairs if the thread of either one has been damaged, since the other one may be damaged as well.
6. Check the contact face (spherical face) and mounting holes of wheel rim, and if any deformation or damage is found, replace it. If the spherical face of tire nut also has damage, replace the nut.
7. Check the wheel rim and replace it if any crack is found.
8. Separate the valve cores of inside and outside tires for easy inflation during installation of twin tires.

Requirements for wheel dynamic balance

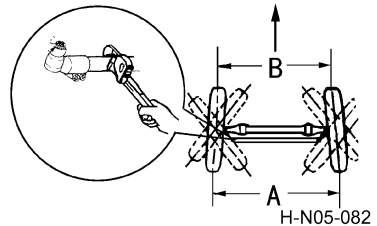
Tire specification	Wheel assembly unbalance amount (g.cm)	Tire specification	Wheel assembly unbalance amount (g.cm)
12.00-2018PR	≤8000	9.00R2016PR	≤5000
11.00-2018PR	≤8000	8.25R1614PR	≤3000
10.00-2016PR	≤5000	12R22.518PR	≤5000
10.00-2018PR	≤5000	315/80R22.518PR	≤5000
9.00-2016PR	≤5000	295/80R22.516PR	≤5000
12.00R2018PR	≤8000	295/80R22.518PR	≤5000
12.00R2418PR	≤8000	275/80R22.516PR	≤3000
11.00R2018PR	≤8000	235/75R17.516PR	≤3000
10.00R2016PR	≤5000	315/70R22.518PR	≤5000
10.00R2018PR	≤5000	255/70R22.516PR	≤5000
9.00R2014PR	≤5000	245/70R19.516PR	≤5000

Replacement and repair of wheels

When replacing the wheels, it is recommended that the wheel supplier and model be the same to those of original vehicle. It is recommended to have the tire repaired by a professional tire repair shop.

Adjustment of Front Wheel Alignment

Before the vehicle leaves the factory, front wheel alignment, e.g., front axle toe-in and tire parallelism at axle II, has been adjusted and approved. The detection and adjustment of front axle toe-in and tire parallelism with traditional measuring tape can lead to great error. Therefore, the users are not allowed to perform front wheel alignment without permission. Under normal operating conditions, consequences including front wheel alignment out-of-tolerance and abnormal wear of tires due to adjustment of front wheel alignment without permission of Technical Service Centre (Station) authorized by Dongfeng Commercial Vehicle Co., Ltd. of should be taken by the user.



The adjustment of front axle toe-in and tire parallelism with traditional measuring tape can lead to great error. If any deformation, damage and other defects occur to tie rod and drag link, Service Station will perform adjustment considering the following values:

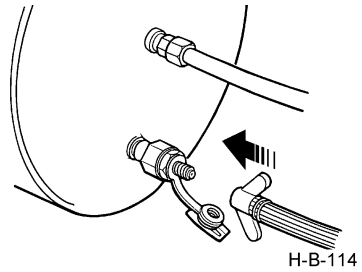
1. Front axle toe-in: 1-3 mm;
2. Tire parallelism at axle II: 0±5 mm.

Tire Inflator

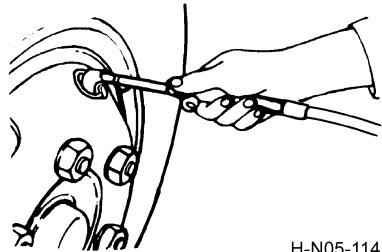
Tire inflator is a kind of equipment using the inflation valve to take air from the air reservoir directly.

Operation procedures are as follows:

1. Unscrew the plug of air inflation valve, connect the tire inflation hose with air inflation valve and tighten the joint.
2. Start the engine to operate the air compressor. Keep engine running at a medium speed during the inflation.
3. After the pressure inside the air reservoir rises to $6.5 \times 100 \text{ kPa}$, align the other end of inflation hose with the tire valve to inflate, and measure the pressure with a manometer to ensure that the tire pressure reaches the specified value;
4. Remove the inflation hose, tighten the air inflation valve cap, and then stop the engine.



H-B-114



H-N05-114

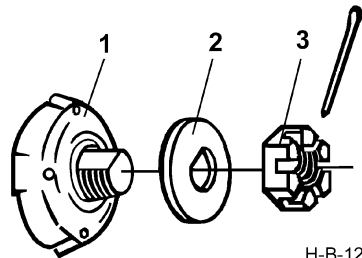
Maintenance of wheel hub bearing

Please refer to the specific configuration of the purchased model.

Check the maintenance period refer to page 208

Carry out wheel hub bearing maintenance.

Remove the wheel and brake drum, clean the hub bearing, then clean the dirty deteriorated grease in the inner chamber of the hub, fill the gap between the inner seat ring of the bearing and the cage roller with the new grease, and coat the inner and outer surface of the bearing with a thin layer of grease to assemble.



H-B-123

1. Wheel hub
2. Friction lining
3. lock nut

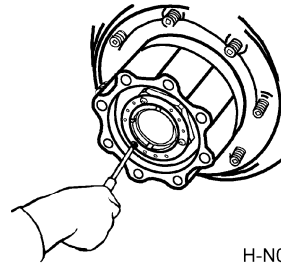
Maintenance & Adjustment

Adjustment of front wheel hub bearing (axle above 5T)

1. Tighten the lock nut to 200 N·m and rotate the hub 2-3 turns to fit the bearing completely.
2. Tighten the lock nut to 200 N·m.
3. It's allowed to turn the lock nut for 30° back to insert the split pin and get the correct hub bearing pretension force.
4. Rotate the hub 2-3 turns and the measured tangential force at hub bolt should be 20-55 N.
5. Insert the split pin for locking.

Adjustment of rear wheel hub bearing

1. Tighten the adjusting nut and rotate the wheel so as to move the bearing to the correct position.
2. Tighten the adjusting nut to 500 N·m or more, and then loosen it by 1/4-1/6 turn.
3. At this moment, the wheel should rotate freely without visible axial play or swing. Fit lock plate and fastening screw.



H-N05-403



CAUTION:

Align the lock plate screw with the adjusting nut to ensure the minimum looseness of adjusting nut.

Maintenance of maintenance-free wheel hub

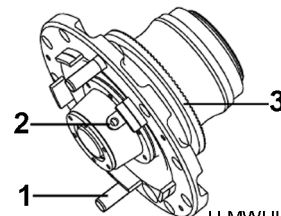
Please refer to the specific configuration of the model purchased.

Conmet maintenance-free wheel hub

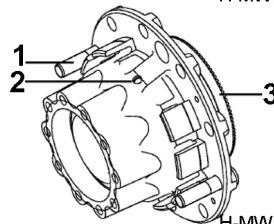
Check the maintenance period refer to page 208

To the nearest Dongfeng Commercial Vehicle Co., Ltd., Authorized technical service center (station) for the following appearance inspection, no disassembly is allowed under the condition of non-fault:

1. Visual inspection
 - 1). Check fasteners, hub caps, oil plug for loose, damaged, or missing.
 - 2). Check the hub cover, half axle flange, filling plug and oil seal for leakage.



H-MWHLG-001



H-MWHLG-002

1. Wheel fastening bolts
2. Oil filling port
3. ABS gear ring (optional)

- 3). Visually inspect the oil for contamination and use a magnetic probe to insert it from the filling hole. Adjust the oil level if necessary.
2. If it is necessary to rise the vehicle axle during other maintenance, the following inspection items can be carried out in order:
 - 1). Check whether the wheels rotate smoothly;
 - 2). Use the pry bar to reach the bottom of the wheel to move the wheel up and down. Check whether the bearing is loose or the wheel is with excessive displacement.

Installation precautions:

1. Clean and wipe the axle shaft tube and apply lubricant slightly;
2. The oil seal ring is pressed into the shaft tube and against the shaft shoulder, and the o-ring enters the groove formed by the oil seal ring and shaft head;
3. Push the hub assembly directly into the shaft tube by using the spreader, until it reaches the seat ring;
4. With 400 N. m torque: tighten the locking nut and rotate the hub at the same time.
5. If the lock washer locating hole is not aligned with the lock nut hole, please continue to tighten the lock nut until it is aligned. It is forbidden to loosen the lock nut back.
6. Fill the wheel hub with gear oil through the filling holes on the wheel hub cover or the side wall of the wheel hub, until the indicated scale of oil level (fuel capacity of steering axle is about 0.5l/single side, and fuel capacity of drive axle is about 1L/ single side).
7. There is no need to check the clearance at the conomet wheel end during inspection and installation. If you need to check the clearance, please go to the technical service center (station) authorized by Dongfeng Commercial Vehicle Co., Ltd., to check with special equipment. The clearance specification is less than or equal to 0.15mm.

Schaeffler FAG maintenance-free hub

The maintenance-free product does not need daily maintenance.

Check the maintenance period refer to page 208. Carry out a more comprehensive examination.

Major items include:

1. Pre-test

Visually inspect the structure of the center nut of the shaft head to check whether it is reliable and normal; Torque wrench can be used to test the locking torque of the center nut's anti-loose/anti-retreat structure; If the torque declines, tighten it to the required torque. Front hub 700-800 Nm, rear hub 1250-1350Nm;

2. Noise test

Lift the axle and rotate the tire in the positive and negative directions by hand. If the tire is not smooth and there is obvious noise, it indicates that the bearing is damaged and needs to be replaced. If the noise increases with the increase of tire rotation speed, it indicates that the bearing has been worn and needs to be replaced;

3. Axial clearance test

Fix the magnetic seat indicator in the relative fixed position of the axle housing, the pointer on the end surface of the brake disc or brake drum (or clean and smooth processing surface), adjust the indicator to the zero position, push and pull the wheel end repeatedly, and measure the axial clearance of the hub bearing; Axial clearance less than 0.2mm is normal; If the axial clearance is greater than 0.2mm, the bearing shall be replaced.



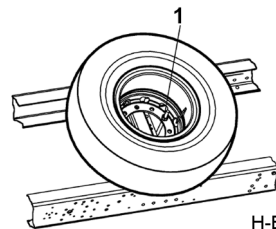
Caution for disassemble and assemble:

- 1. After the lock nut in the center of the shaft head is unscrewed, the hub assembly shall be pulled out straight from the axle shaft tube and placed in a dry place with good sanitation. Never remove the clamps/ oil seals and other parts; The O-ring at the clip groove of the inner ring of the inner bearing shall not be lost during disassembly. If it is accidentally dropped out, it can be manually put into the clip groove after cleaning.**
- 2. After axle shaft tube is cleaned and wiped clean, lightly coated with lubricating oil, and the hub assembly is pushed straight into the axle shaft tube by spreader until it reaches the axle shoulder; Note that the O-ring at the clip groove of the inner ring of the inner bearing shall not fall off. If it does, please timely reset it.**
- 3. Apply lubricating oil to the thread and compression end surface of the locking nut, and pretighten with the fix-torque tool. In the pretightening process, keep slowly rotating the wheel hub until the pretightening torque is fixed; Then rotate the hub again for about 10 rounds, and check the locking torque;**

Removal and Refitting of Spare Wheel

Spare wheel hook

1. Unscrew the nut fixing the spare tire and take it off for use.
2. Install the spare tire in reverse sequence.



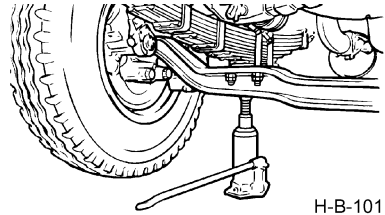
H-BT-002

1. Nut

Replacement of Tire

Removal of tire

1. Wedge the front and rear of the rear wheels (front wheels) with triangular blocks to remove the front wheels (rear wheels).
2. Unscrew the wheel nuts by the wheel nut socket spanner in the driver's tools.
3. Jack one end of the axle to raise the wheel off the ground a little.
4. Rinse the tire bolts and nuts with clean water and soak them in engine oil or apply some grease.
5. Remove the wheel nuts.



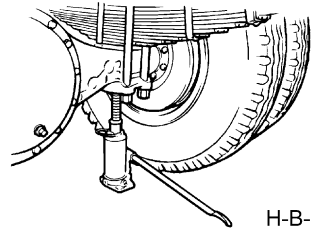
Jack up the front axl

H-B-101



CAUTION:

1. When removing the nuts, if the threads contain silt or dirt, clear the silt away with water or oil, apply a little grease on the exposed threads, and then remove the nuts. This is to avoid thread loosening or locking in case of greater removal torque.
2. To refit a nut, apply grease or oil on it so as to guarantee screw thread pair's normal service and avoid loosening or locking.

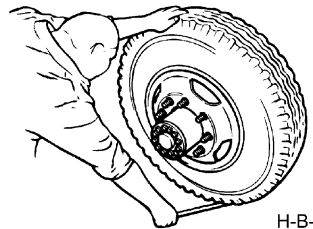


Jack up the rear wheel

H-B-102

Refitting of tire

1. Fit the wheel rim bolt hole over the wheel hub bolt by a pry bar.
2. Adjust the wheel hub bolt to the center of bolt hole and tighten the wheel nut.
3. Lower the jack slowly until the tire contacts the ground.
4. Tighten the wheel nuts to 550-650 N·m in three steps diagonally.
5. After refitting the wheel nuts, within the first 200-500 km or 1-2 days, re-tighten the nuts to the torque of 550-650 N·m.



H-B-104

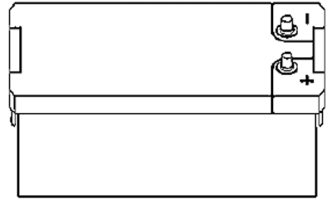
Inspection and Maintenance of Battery

Turn off the power master switch before inspection and maintenance of battery.

Check the electrolyte level

Replace the battery every 2 years.

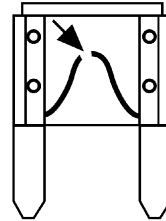
There is no need to add distilled water to the maintenance-free battery.



H-D760-151

Fusible Link

Confirm the specification of fusible link (fuse) used before replacing the fusible link. If the new fusible link is very easy to be burnt out, then find out the fault cause and eliminate it. In case of troubleshooting failure, contact the nearest Technical Service Centre (Station) authorized by Dongfeng Commercial Vehicle Company.



H-D310-186

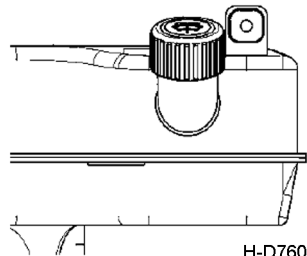


WARNING:

Never replace the fusible link with ordinary conducting wire or fusible link of other specifications.

Adding of Washer Fluid

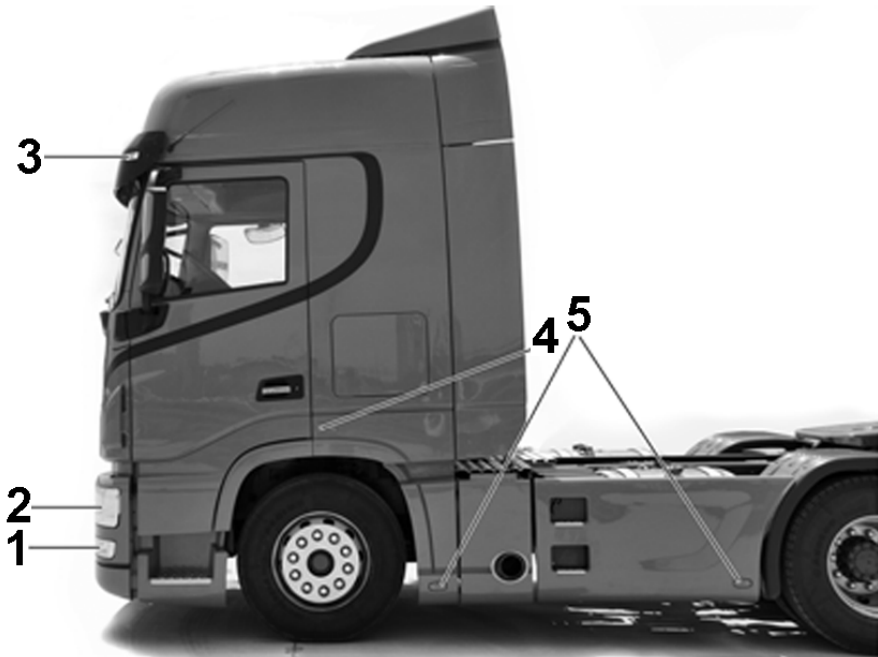
Washer fluid reservoir is located in the cab front face shield. Park the vehicle on a flat ground before adding washer fluid. Any washer fluid other than the one specified is not acceptable.



H-D760-064

Arrangement of Lamplight

Please refer to the specific configurations of your vehicle.



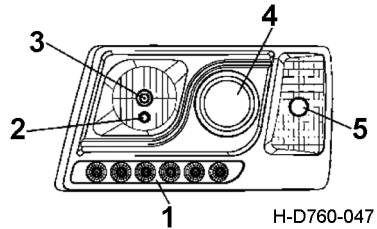
H-D760-046A

- | | |
|----------------------------------|--------------------------|
| 1. Front fog lamp | 4. Side turn signal lamp |
| 2. Front combination lamp | 5. Side marker lamp |
| 3. Front end-outline marker lamp | |

1. Front fog lamp: two pieces, with the left one symmetric to the right one;
2. Front combination lamp: two pieces, with the left one symmetric to the right one (including the front turn signal lamp, front position lamp, low/high beam and daytime running lamp);
3. Front end-outline marker lamp: two pieces, with the left one symmetric to the right one;
4. Side turn signal lamp: two pieces, with the left one symmetric to the right one;
5. Side marker lamp: four pieces, with the left one symmetric to the right one;

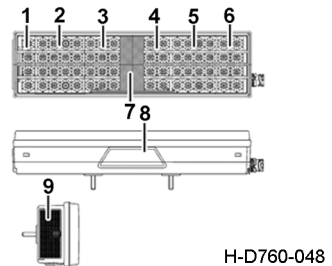
Front combination lamp

1. Daytime running lamp
2. Front position lamp
3. High beam
4. Low beam
5. Front turn signal lamp



Rear combination lamp

1. Left rear end-outline marker lamp
2. Left rear turn signal lamp
3. Left brake lamp
4. Left position lamp
5. Left rear fog lamp
6. Left reversing lamp
7. Side retroreflector
8. License plate lamp (only for left rear combination lamp)
9. Side marker lamp



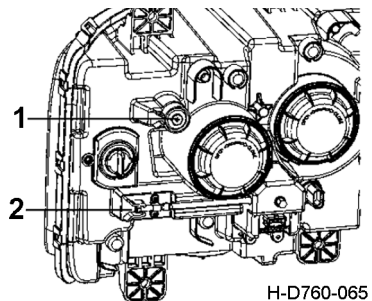
The right rear combination light is weighed relative to the left.

Lampight Adjusting Method

Front combination lamp

Structure description: reflector of front combination lamp assembly is the low/high beam combined reflector, which is regulated through adjusting screw and light adjusting motor (manual adjusting section). Lamplight adjustment should be done strictly in accordance with the figure.

1. Rotate the adjusting screw clockwise, and the reflector will move leftward; rotate the adjusting screw anticlockwise, and the reflector will move rightward.
2. Rotate the light adjusting motor (manual adjusting section) clockwise, and the reflector will move downward; rotate the light adjusting motor (manual adjusting section) anticlockwise, and the reflector will move upward.



1. Adjusting screw
2. Light adjusting motor

**CAUTION:**

1. As per design requirements: if the diameter of cross slot on light adjusting tool is not less than $\Phi 6.5$ mm, the tool may fail to reach adjusting screw gear or even damage the light adjusting guide slot on lamp housing, leading to light adjustment failure.
2. If the diameter of cross slot on light adjusting tool is less than $\Phi 5.5$ mm, the tool may be prone to slide in the guide slot, leading to light adjustment failure. Before light beam adjustment, please set the electric control switch for lamp motor as per complete vehicle design to "ZERO" position, otherwise, the following problems may occur during light adjustment: The light beam of lamp is barely regulated to the lower limit of acceptable range required by testing equipment, but when users try to adjust the light beam by controlling the lamp motor through electric control switch after purchasing the vehicle, the light beam deflects, resulting in visual non-conformity. B: After light adjusting angle exceeds the design limit, the light beam still cannot be regulated to the acceptable range required by the testing equipment. Excessive adjustment will cause reflector damage, ball joint falling and other defects.
3. It is recommended to perform light adjustment with manual screwdriver.

Preparations

1. The site for light adjustment should be flat and the screen used should be vertical to the site.
2. The vehicle should be unloaded with one driver seated and tire pressure kept normal.
3. The vehicle should be vertical to the screen and the reference center of the headlamp should be 10m away from the screen.
4. Draw a horizontal reference line on the screen. The height of the reference line should be the same as the headlamp center ground clearance. Record this height as H. Mark the position line for the left and right headlamp reference center on the horizontal reference line according to the position of the vehicle headlamp.

Adjustment of low beam lighting position

Project the low beam to the screen in accordance with the following requirements:

Cover the right front combination lamp first to let no beam leak out, and adjust the upward/downward light adjusting mechanism to make the height of the cut-off line angle or the center point of the low beam of the left lamp be $0.6 H - 0.8 H$; adjust the leftward/rightward light adjusting mechanism to make the leftward horizontal deflection of the low beam within 170 mm and the rightward deflection within 350 mm.

After the adjustment of the left low beam, cover the left front combination lamp to let no beam leak out, and adjust the low beam of the right lamp to make the height of the cut-off line angle or the center point of the low beam of the right lamp be $0.6 H - 0.8 H$; the leftward horizontal deflection of the low beam should be within 170 mm and the rightward deflection should be within 350 mm.

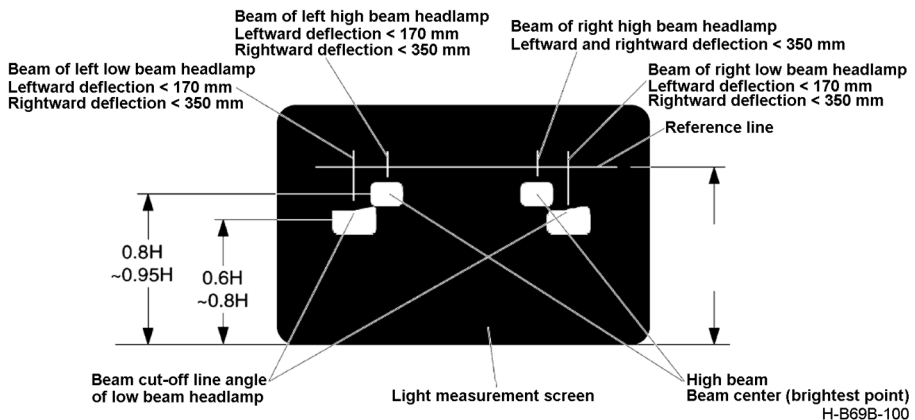
Adjustment of high beam lighting position

Project the high beam to the screen in accordance with the following requirements:

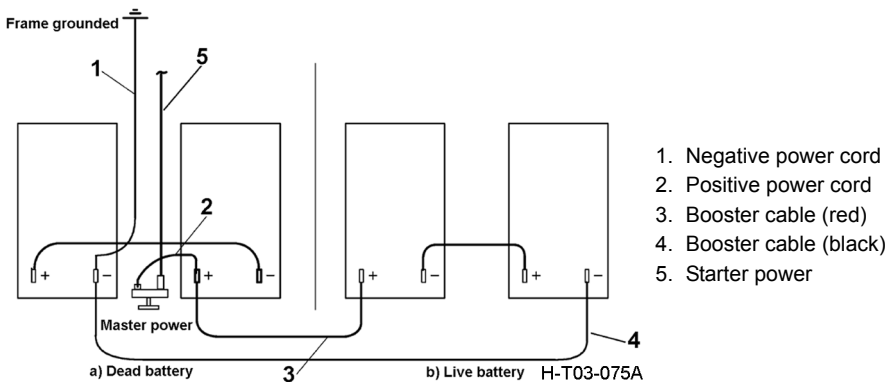
Cover the right front combination lamp first to let no beam leak out, and adjust the upward/downward light adjusting mechanism to make the height of the high beam of the left lamp be $0.8 H - 0.95 H$; adjust the leftward/rightward light adjusting mechanism to make the leftward horizontal deflection of the high beam within 170 mm and the rightward deflection within 350 mm.

The adjusting method for the single high beam of the left lamp is the same as that for high/low beam.

After the adjustment of the left high beam, cover the left front combination lamp first to let no beam leak out, and adjust the high beam of the right lamp to make the height of the high beam of the right lamp be $0.8 H - 0.95 H$; both the leftward horizontal and rightward deflection of the high beam should be within 350 mm. The adjusting method for the single right high beam is the same as that above.



Auxiliary Power Starting



In case the battery is discharged and the engine cannot be started, start the vehicle by auxiliary power. The connecting procedures are as follows:

1. Shut down the engine of the vehicle equipped with a well charged battery.
2. Connect one end of the booster cable (red) to the positive terminal of the dead battery, and the other end to the positive terminal of the live battery. Connect one end of another booster cable (black) to the negative terminal of the well charged battery, and the other end to the chassis frame of the vehicle equipped with dead battery and keep it far from the battery.
3. After connecting the booster cables, start the engine of the vehicle equipped with the dead battery.
4. After the engine being started, remove the cables in the procedures reverse to the wiring procedures.



CAUTION:

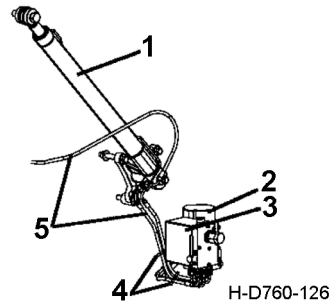
1. This way can be used in emergency only because it is liable to cause fuse burning of charging circuit. Under normal conditions, disconnect the battery to charge it when the battery is out of power.
2. Prevent power short circuit during removal and refitting of booster cable.
3. Failing to observe the above rules in the event of auxiliary power starting may damage the vehicle electronic devices.
4. Do not start the vehicle with the battery of 36 V, 48 V or higher voltage in any case; otherwise, these batteries will damage electronic devices directly. The driver and service staff must observe this rule.

Maintenance of Cab Lifting Device

Please refer to the specific configuration of the purchased model..

The system adopts No. 10 aviation hydraulic oil, which is replaced once a year, and the oil is filtered by more than 200 mesh stainless steel filter net.

Under general service condition, use the cab tilting and lifting device to tilt the cab once a week at least; and under severe service condition (like cement mixer or dump truck on construction road), tilt the cab once a day at least. Under severe working conditions, it is required to clean the surface of electric pump assembly, hand pump assembly and cylinder assembly every day, especially the dirt at vent plug O-ring, to ensure that the vent hole of vent plug in oil pump assembly is unblocked. Motor overheating will cause motor burnout. Therefore, after the electric pump has been used for 3-5 times successively, thermal protection function will be activated automatically and the motor will shut down, which is not a fault. In that case, please wait until it cools down before reusing it.



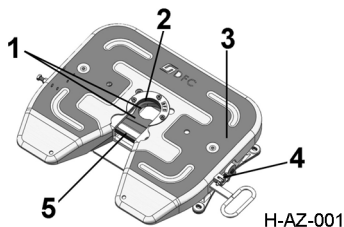
1. Cylinder
2. Electric pump assembly
3. Hand pump assembly
4. Strap assembly
5. Oil pipe

Saddle maintenance

Initial maintenance

Check the Maintenance period see "Maintenance and replacement items"

Add lubricating oil and grease to the surface of saddle hook housing, wedge and arc plate of saddle in 10,000km.

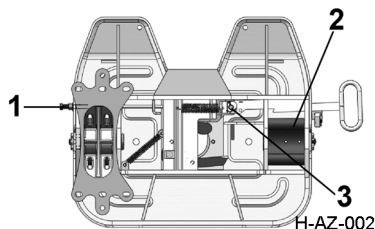


1. lock hook
2. Open end cover
3. Surface of shell
4. Twist spring
5. wedge

Maintenance interval

Check the Maintenance period see "Maintenance and replacement items"

Inspect Torque of hex bolt (measured with torque wrench, torque value: 140-160Nm).



1. Adjusting screw
2. Arc bearing plate
3. Split pin

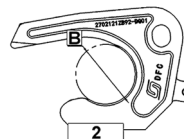
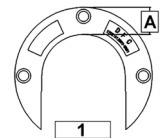
Check the Maintenance period see "Maintenance and replacement items"

Saddle No.	50#	90#
Inner surface wear limit of open end cover (mm)	34.5~35.5	36.5~37.5
Inner surface wear limit dimension (mm)	51~55	89~93



CAUTION:

The open-end cover and lock hook shall be replaced when they exceed the limit size as above.



H-AZ-003

1. Open end cover
- A: wear on the inner surface of the open-end cover
2. lock hook
- B: wear amount on the inner surface of the hook

Regular Maintenance Schedule

The regular maintenance schedule of this manual is the general maintenance schedule, please refer to the specific vehicle configuration when using. Disassembly of large assembly shall be carried out as required to facilitate maintenance of the technical status of the vehicle.

This table interval is only for standard working conditions, and the maintenance interval for severe working conditions is halved.

Cummins engine maintenance plan shall be carried out in accordance with this manual. Please also refer to the cummins engine operation and maintenance manual brought with the vehicle.

Please refer to the specific configuration of the purchased model.

Inspection and Maintenance Term

This maintenance schedule shows the inspection and maintenance items and term of the first cycle; for the second cycle, the maintenance items are the same except the running-in maintenance is not required. The inspection and maintenance term is expressed in the driving mileage and/or months whichever comes first. The user should carry out the maintenance according to the maintenance parts and interval mileage or months strictly.



CAUTION:

When performing the vehicle maintenance in accordance with the specified maintenance items, the user should shorten the maintenance interval mileage and add the required maintenance items according to the vehicle functions and local operating conditions, to ensure more reasonable maintenance and better performance of your vehicle, however, the user should never extend the maintenance interval mileage.

The relevant definitions in the maintenance schedule are as follows:

1. Project classification: divided into three categories.

The first category is the replacement category item.

The second category is inspection/cleaning/discharge items

The third category is lubrication items

User self-inspection items, except the first guarantee and inbound maintenance items, the daily or regular inspection, cleaning and lubrication items are user self-inspection items. Grease replenishment and replacement shall be performed at a technically qualified service station or facility.

2. First guarantee: the mileage unit of maintenance is 10,000km/month, whichever comes first;

3. Inbound maintenance interval: the mileage unit of maintenance is 10,000km/month, whichever comes first;

4. User self-inspection interval: the maintenance mileage unit is 10,000km/month. First come shall prevail;

5. Running maintenance: " ☆ " labeling, the new car driving 2,500~5,000 kilometers or 1 month, whichever comes first;

Maintenance and replacement items

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)
Replace transmission oil and filter element	—	—	24/24
Replace retarder oil	—	—	24/24
Change engine oil and oil filter	—	5/6	5/6
Replace the fuel filter	—	—	5/6
Replace coolant	—	—	20/24
Replace the fuel prefilter (oil-water separator)	—	—	5/6
Replace the filter screen at the inlet of the urea temperature level sensor(bottom of sensor) and clean urea tank	—	—	10/12
Replace the main filter element assembly of urea pump	—	—	20/36
Replace the fuel prefilter (oil-water separator)	—	—	5/6
Check and clean air filter element, if necessary Replace (alarm light on cleaning filter element, cleaning 4 times, Replace the filter element)	—	—	5/6
Replace air dryer dryer or desiccant	—	—	10/12 (for KNORR blue can / WABCO) 5/6 (for KNORR black cans/others)
Replace steering hydraulic oil and tank filter core	☆	—	5/12
Replace the main drive axle reducer lubricating oil (single stage)	☆	—	10/12
Replace the hydraulic oil of cab lifting device	—	—	/12
Replace clutch hydraulic fluid	—	—	10/2

Regular Maintenance Schedule

Maintenance inspection/cleaning/discharge items

Engine

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)
Charging system automatic belt tensioner for charger	—	—	10/12
Air leakage faults in the intake and exhaust systems	—	—	5/6
Check the viscous shock absorber for silicone oil loss, pits, etc	—	—	40/48
Check air compressor exhaust pipe	—	—	40/48
Check and adjust engine overhead mechanism, adjust or tighten as needed	—	—	5/6
Crankshaft pulley	—	—	10/12
Cold start auxiliary device	—	—	10/12
Check the axial clearance of belt driven fan hub bearing and adjust as needed	—	—	40/48
Check and clean cooling fan belt tensioner	—	—	10/12
Check whether the assembly torque of important parts meets the requirements (inlet manifold screw, pre-heater connection nut, inlet transition pipe (exhaust side) and supercharger connection clamp, exhaust manifold mounting bolt, supercharger mounting bolt, exhaust brake valve bracket connection bolt, exhaust butterfly valve connection nut)	—	—	10/12

Engine system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check and tighten engine front and rear suspension bolts for looseness and tighten as required	—	—	/12	The first and subsequent users are retightened every 10,000 kilometers for a total of 3 times. Every 6 Check monthly and retighten as needed
Check the height of lubricating oil level and coolant level	—	—	5/6	weekly
Check the fuel prefilter (oil-water separator) for sediment and water, and discharge regularly	—	—	/3	weekly
Check whether the fan, fan flange and mounting bolts are loose and retighten as required	—	—	5/12	The first and subsequent users are retightened every 10,000 kilometers for a total of 3 times. Every 6 Check monthly and retighten as needed
Check and tighten the ring hoop of the flexible wind shield, and retighten as required (according to configuration)	—	—	/12	
Clean and check the fastening condition of inlet and exhaust system, clamp, pipe and bracket, and retighten as needed	—	—	/12	
Check whether there is displacement in the fuel tank and urea tank. Tighten the bolts of the fuel tank and urea tank band as required	—	—	5/6	Aluminum alloy oil tank: check and retighten according to the label on the oil tank.
Clean pest control net (according to configuration)	—	—	/12	/6

Regular Maintenance Schedule

Engine aftertreatment system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)
Clean the vent valve of urea tank and release the sediment of urea tank	—	—	5/6
Clean the filter screen at the filling port of urea tank	—	—	10/12
DPF soot cleaning	—	—	First cleaning: 20/ Second cleaning: 18/ Third cleaning: 16/ The fourth time: 14/ replace DPF and cycle according to the cycle above.

Clutch system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)
Check the working state of clutch as required (including checking the clutch pedal for free travel)	—	—	10/12
Check the clutch hydraulic system, main pump and booster for oil leakage	—	—	5/3
Check the level of hydraulic oil in clutch storage tank	—	—	5/3

Transmission

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Oil level and leakage inspection	—	—	5/3	Per month
Check the outside of the transmission with the vent plug (vent tube) for cleanliness	☆	—	5/12	Per month

Braking system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check the brake pedal for free travel	—	—	/12	—
Check running and parking brake efficiency, check and adjust brake clearance as required	☆	—	5/3	2/1
Air storage tank water check, if there is water to replace the drying cylinder or desiccant	☆	—	5/3	weekly
Check front axle, middle and rear axle disc brakes to indicate lever travel (according to configuration)	—	—	5/3	2/1
Check the front axle, middle and rear axle drum brake automatic adjusting arm reverse adjusting torque	—	—	5/3	2/1
Check the wear of front axle, middle and rear axle brake drum and friction disc (drum brake)	☆	—	5/3	2/1
Check clearance self-adjusting function of front axle, middle and rear axle disc brakes (according to configuration)	☆	—	5/3	2/1
Check front axle, middle and rear axle disc brake brake block, brake disc wear (according to configuration)	☆	—	5/3	2/1
Check front axle, middle and rear axle brake disc for cracks (according to configuration)	☆	—	5/3	2/1
Check the dust cover damage of front axle, middle and rear axle disc brake (according to configuration)	☆	—	5/3	2/1
Check the front axle, middle and rear axle brake clamp sliding function (according to configuration)	☆	—	5/3	2/1

Regular Maintenance Schedule

Steering system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check the oil level of the power steering system and tighten the drain plug	—	—	—	1/
Check the fastening condition of the free travel of the steering wheel and the connecting bolts of the steering system and tighten it as required (including checking the connection condition of various parts of the steering system, the connection condition of each ball head of the steering bar, the tightness condition of steering mechanism and bracket, the tightness condition of the steering knuckle arm and the hanging arm)	☆	—	10/6	—
Check wheel bolt fastening and retighten as needed (fastening)	☆	—	5/3	Retighten twice before the first holding station, with an interval of 500~1000km, and retighten according to the prescribed force moment
Check for fastening of half shaft bolts	—	—	5/3	2/
No maintenance wheel end inspection	—	—	10/6	—
Check the tire for abnormal wear. If there is abnormal wear, check the rim (mainly visual inspection).	☆	—	5/3	Per month
Clean and check tire pressure	☆	—	—	0.5/
Tyre transposition	—	—	—	1/

Suspension system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check air suspension (including clean air spring airbags, check air spring assembly status, check system external limit block, check height sensor position if equipped)	—	—	5/3	Per month
Check and tighten all thrust rod fixing bolts for middle and rear axle (including v-type thrust rod, transverse thrust rod and lower thrust rod)	☆	—	5/3	2/
Clean and check leaf spring and spring clamp for looseness and deformation, tighten u-bolt	☆	—	5/3	Re-tighten twice before the first guaranteed entry station, with an interval of 500~1000km, according to the regulation
Check and tighten the fixing balance shaft support, air suspension bracket beam, air suspension lower thrust rod support, guide arm support fastening bolts	☆	—	5/3	2/
Check and tighten V push bracket, plate spring bracket, plate spring pin positioning bolt	☆	—	5/3	2/
Clean and inspect guide arms, tighten guide arms with u-bolts (if equipped)	☆	—	5/3	Re-tighten twice before the first guaranteed entry station, with an interval of 500~1000km, according to the regulation
Fastening bolts (if equipped) at the connection between the fixed guide arm and the beam, and at the connection between the fixed guide arm and the guide arm bracket.	☆		5/3	2/

Regular Maintenance Schedule

Transmission system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check the transmission shaft (including connection parts and cross shaft bearing is loose, there is no deviation, and the middle support of the transmission shaft is loose)	—	—	5/3	2/
Check whether the connecting bolt of the transmission shaft is loose and tighten as required	—	—	5/3	2/
Check whether the middle support of the transmission shaft is loose and retightened as required	—	—	5/3	2/

Bridge system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Clean the drive axle vent plug or vent tube	—	—	5/3	Per month
Check the rim of the process, the wheel end of the middle and rear axle, and the main reducer assembly for oil leakage	—	—	5/3	Per month

Saddle

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check the fastening of the connecting bolts between the traction seat and the bottom plate and the bottom plate and the frame	☆		5/3	
Check the wear of the saddle bearing shaft	☆		5/3	
Check for wear of rubber bushing on saddle support shaft	☆		5/3	
Check the wear of traction pin and pin shaft clamp	☆	—	5/3	

Electrical system

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check battery indicator and terminal voltage	—	—	/6	

Cab

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Check for dust accumulation in the condenser and flush properly	—	—	5/3	—
Check the air conditioning filter element and replace as needed	—	—	/3	—
Check whether the wiper can be scraped clean, and replace the wiper if necessary and clean the foreign body on the glass surface	—	—	5/3	2/
Check whether there is obvious friction between the lock and the lock body and adjust the lock position if necessary	—	—	5/3	2/
Check whether the bridge suspension joints are loose and tighten as required	—	—	5/3	—
Check for leakage and sealing of hydraulic system	—	—	10/12	Per month
Check whether the bridge lifting cylinder and the upper and lower supports of the cylinder are connected reliably and whether the bolts are loose. Tighten them as required	—	—	10/12	Per month
Check the leakage, damage and looseness of the shock absorber in the cab (front) and rear, and replace it if necessary	—	—	10/12	Per month
Check the condition of the rubber sleeve assembly in front of cab and replace if necessary	—	—	10/12	—

Regular Maintenance Schedule

Check the condition of the suspension spring assembly in front (rear) of the cab and replace if necessary	—	—	10/12	—
Check the brake pedal (check the pedal rubber cover for serious wear or deformation; Check the free travel of the brake pedal, the normal value is 12~18mm, can normally trigger the brake light switch; Check whether there is acerbity when the brake pedal is pressed to the end, and whether there is exhaust sound after the pedal is released; Adjust or replace in case of abnormality.	—	—	5/12	weekly
Check whether the pedal return spring state is normal	—	—	10/12	Per month
Check whether all switches in the pedal assembly are pressed properly	—	—	10/12	Per month
Check the steering wheel up and down, front and back adjustment and lock function is normal	—	—	10/12	Per month
Whether the light adjustment of the front combination lamp is in place	—	—	10/12	—
Check whether the washing liquid in the washing kettle is sufficient and replenish it if necessary	—	—	5/3	weekly
Check the air conditioning goggles to make sure the refrigerant is sufficient and refill if necessary	—	—	5/3	Per month

Maintenance lubrication items

Maintenance and replacement items	Running-in maintenance	The first confirmed (10,000 km/month)	Inbound maintenance interval (10,000 km/month)	User maintenance interval (10,000 km/month)
Grease is added to front axle, middle and rear axle air chamber support, brake floor and brake adjusting arm	—	—	5/3	2/1
Grease on the knuckle kingpin and steering lever	—	—	5/3	2/
Maintenance-free wheel end lubrication	—	—	50/36 is suitable for independent oil chamber (FAG)	—
	—	—	Synchronous replacement with the axle gear oil, suitable for connecting the oil chamber (and the rear axle gear oil chamber)	—
Maintainable hub bearing grease replacement	—	—	5/3	Per month
Before and after the plate spring pin, lifting lug pin, balance bearing hub (if there is a nozzle) grease	☆	—	5/3	2/
Grease (if grease nozzle)	—	—	5/3	2/
Grease is added to the surface of the saddle shell, the contact between the saddle and the traction pin and the lubrication hole of the support	☆	—	5/3	—
Saddle lock, wedge, arc bearing plate grease	—	—	5/3	—
Lubricated cab front suspension			/6	2/
After turning the lock mechanism in the cab, grease is added to the suspension latch	—	—	/6	2/
Front mask movement and lock teeth meshing part, spring position lubrication	—	—	10/12	Per month

Regular Maintenance Schedule

Regular Replacement Parts

Regular replacement part means a part that must be replaced by reliable part to guarantee driving safety because its service performance will certainly decrease over time and its performance cannot be predicted to ensure safe driving during general regular servicing and inspection.

Replacement interval (years)	1	2	3
Rubber hose of power steering hydraulic system	√	√	√
Rubber hoses of brake system	√	√	√
Rubber cup and sealing ring of brake chamber	√	√	√
Rubber hose of air compressor	√	√	√
Fuel nylon hose		√	
Gas metal hose		√	
All oil pipes of hydraulic lifting system		√	
Seals of cab lifting device			√

Service & Adjustment Data

Engine

Please refer to the attached Operation and Maintenance Manual of Cummins Engine for relevant data.

Chassis

Please refer to the specific configurations of your vehicle.

Free stroke of steering wheel		15°
Toe-in		1-3mm
Brake pedal free travel		12-18mm
Push rod stroke of front and rear brake chambers		Manual adjuster 20~30mm
Clearance between front/rear brake shoe and brake drum (in the middle of brake shoe)		Manual adjuster 0.3~0.5mm
Tensile force after adjustment of front hub bearing (at the tire nut)		25-55N
Tensile force after adjustment of rear hub bearing (at the tire nut)		29-88N
Differential bearing pre-tightening load (excluding the pre-tightening load of driving bevel gear bearing)	At driven gear bolt	68-78N
Pre-tightening load of driving gear bearing (at coupling flange bolt holes for rear axle)	Excluding oil seal resistance	20-44N
	Including oil seal resistance	30-60N
Clearance between driving and driven gears of final drive		0.3-0.4mm
Differential gear backlash	Dongfeng 460 axle	0.25-0.33mm
	Dongfeng 435 axle	0.25-0.33mm
	For Dongfeng 300 wheel reducer	0.18-0.23mm
	Dongfeng 500 axle	0.25-0.45mm
Fore-and-aft adjustment angle range of steering wheel		32°
Upward and downward adjustment distance of steering wheel		50mm

Tightening Torque

Please refer to the specific configurations of your vehicle.

Engine

Please refer to the attached Operation and Maintenance Manual of Cummins Engine for the relevant data.

Tightening torque of critical parts of chassis (applicable for D760 models)



CAUTION:

This standard provides the tightening torque of critical parts of vehicles manufactured by DONGFENG COMMERCIAL VEHICLE CO., LTD. and is applicable for the critical parts' threaded fasteners for which the tightening torque is not given in the vehicle product diagram and the technical specifications.

Tightening torque of critical parts of engine mounting

Bolted position	Thread specification	Reference tightening torque(N·m)	Remarks
Front and rear suspension bracket and frame fastening bolt	M14	190±15%	--
Mounting bolts between engine front/rear mounting cushion and auxiliary mounting cushion	M14	170±15%	--
	M20	170±15%	--
Engine and front mount bracket/fly-wheel housing and rear mount bracket fastening bolts	M18	375±15%	

Tightening torque of critical parts of cooling and inter-cooling systems

Bolted position	Thread specification	Reference tightening torque(N·m)	Remarks
Fastening bolts of fan assembly flange and engine	M08(Grade 8.8)	20-26	--
	M08(Grade 10.9)	25-30	--
	M12(Grade 8.8)	65-75	--
	M12(Grade 10.9)	90-110	--
Fastening bolts of fan and fan buffer block	M10(Grade 8.8)	38-50	--
	M10(Grade 10.9)	45-55	--
Fastening bolts of fan flange and fan buffer block	M12(Grade 8.8)	65-75	--
	M12(Grade 10.9)	90-110	--

Fastening bolts of brace and engine	M12(Grade 8.8)	65-75	--
	M12(Grade 10.9)	90-110	--
	M10(Grade 8.8)	38-50	--
Fastening bolts of brace and air spoiler	M10(Grade 10.9)	45-55	--
	M08(Grade 8.8)	20-26	--
	M08(Grade 10.9)	25-30	--
	M10(Grade 8.8)	38-50	--
	M10(Grade 10.9)	45-55	--

Tightening torque of critical parts of driveline

Bolted position	Thread specification	Reference tightening torque(N·m)	Remarks
The tightening method shall refer to Specifications for Installation and Adjustment of Φ430 Pull-type Clutch Assembly and Control System.	M10 (grade 8.8) non-flange bolt	40-60	Connecting stud bolts of clutch pressure plate & cap assembly and engine flywheel
	M10 (grade 10.9) non-flange bolt	55-75	
Connecting bolts of clutch housing and flywheel housing	M10 (grade 8.8) non-flange bolt	40-60	Pre-tighten them cross-wise and then tighten them with torque spanner.
	M10 (grade 10.9) non-flange bolt	55-75	
	M10 (grade 10.9) flange bolt	55-75	
Connecting bolts of drive shaft (including connection with transmission and axle)	M14	190±15%	Pre-tighten them cross-wise and then tighten them with torque spanner (after road test, tightening torque shall not drop by more than 10%; otherwise, re-tighten them to the specified torques)

Tightening torque of critical parts of frame

D760 First cross member	M12	90-130
	M14	150-210
	M16	210-280

Service & Adjustment Data

Tightening torque of critical parts of suspension system

Bolted position	Control position	Thread specification	Reference tightening torque(N·m)	Remarks
Front suspension and single rear axle suspension	Subassembly of front & rear leaf spring and axle - U-bolt assembly	M18	280-350	1.Adopt coarse thread, U-bolt of grade 10.9 + flange nut of grade 10; 2.Thread specifications: M18/ M20 for front suspension, and M20/ M22 / M24 for single rear axle suspension 3.The tightening torque of M24 is different for single rear axle suspension and balanced suspension
		M20	380-460	
		M22	400-480	
		M24	450-540	
	Balanced suspension	M24	600-720	
Connection of balance shaft support and vehicle frame - fastening bolt assembly	Balanced suspension	M27	860-1000	Adopt fine thread, bolt of grade 10.9 + nut of grade 10
		M16X1.5	210-280	
		M18X1.5	350-470	
		M20X1.5	430-550	

Tightening torque of critical parts of wheel

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Bolted position	Thread specification	Reference tightening torque(N·m)	Remarks
Wheel bolts	31F58-*	550-650	Central hole locating
	3103057-KD400	550-650	
	31N-*	420-490	Spherical surface locating
	31C-*, 31Q02-*	320-420	

Tightening torque of critical parts of steering system

Bolted position	Thread specification	Reference tightening torque(N·m)
Steering gear and its bracket	M16	210-280
	M18	320-420
Follower bracket and follower fixing bolt	M20	380-500
	M22	440-560

Steering pitman arm /intermediate pitman arm	34Z63-01011(M36)	400-550
	34Z61-02011(M42)	400-550
	M45	400-550
	M16	210-260
	M18	320-420
	34N-01012(M20)	380-500
Lever ball pin nut	All the lever ball pin nuts shall be tightened to 250-310N·m firstly, and then fitted with the split pins. Never loosen the nuts when aligning the pin holes.	

Tightening torque of critical parts of electrical system

Bolted position	Thread specification	Reference tightening torque(N·m)
Fastening bolt of SMJ connector	M6	5.5-6.5
Alternator	M6	5.5-6.5
	M8	6.4-9.6
Starter power terminal	M10	13.5-15.8
Starter control terminal	M5	2-2.5
ECU fastening bolt	M6	4.9-7.8
Auxiliary start switch	M6	6-10
Air filter clog sensor	M6	6-10
Fuel level sensor	M5	2-2.5
Rear combination lamp	M8	19-24
Battery cover strip	M8	The double nuts are used for locking; the tightening torque of the first nut is 7-9N.m, and that of the second nut is 19-24N.m
Master power switch connector	M8	19-24
Chassis ground point	M8	19-24
Power wiring terminal in distribution box of chassis	M5	1.8-2.2
	M6	5.5-6.5
Fastening nut of chassis distribution box cover	M5	1.8-2.2
After-treatment unit inlet temperature sensor	M12	30
After-treatment unit outlet temperature sensor	M12	30
NOx sensor	M20	50

Service & Adjustment Data

Tightening torque of critical parts of cab

Bolted position	Thread specification	Reference tightening torque(N·m)
Steering wheel	M20	130-150
D760 vehicle body mounting connecting parts	M18	320-430
	M16	230-290 (assembly of cab rear mounting)
	M16	220-80(fixing bolts for left/right tilting bracket of rear mounting cross member, shock absorber lower bracket, shock absorber bellow upper pin, shock absorber bellow lower pin)
	M14	140-180
	M12	110-130
	M10	47-63
Positive and negative power cable of starter	M12	24.5-27.5

Tightening torque of other parts of chassis (applicable to D760 models)

Tightening position	Tightening Torque (N.m)
Connecting bolts of steering gear and steering knuckle fork	30-50
Connecting stud bolts of steering upper arm and steering knuckle	280-350
Fastening nut of steering lower arm	350-450
Lock nut of steering stop bolt	80-100
Connecting nuts of steering knuckle arm and ball pin	250-310
Locking nut of steering kingpin thrust pin	24-40
Connecting nut of lower arm and ball pin	245-340
Clamp nut of tie rod	38-42
Locking bolts and nuts of steering drop arm and rocker shaft, M45	350-450
Kingpin upper cap fixing nuts	40-59
Lock nuts of ball pin for drag link, M24	250-310
Upper/lower fixing bolts of steering gear bracket and frame, M20	420-450
Lower fixing bolts of steering gear bracket and frame M22	490-520
Steering wheel lock nuts	130-150
Lock bolts of front and rear shoe shafts	72-87
Fixing nuts of front air chamber	39-59
Fixing nuts of rear air chamber	170-190

Fastening nuts of front brake bottom plate	156-206
Fastening nuts of rear brake bottom plate	160-220
Disc brake and steering connecting bolts	385-415
4.5T axle	
Front wheel nuts	320-420
Fastening nuts of drag link arm	280-350
Fastening nuts of left/right steering knuckle arm	350-450
Ball pin nuts	180-250
Nuts of tie rod clamp bolts	50-60
Kingpin plug screw	40-60
Wedge-shaped lock pin nuts	55-70
Steering stop bolts and nuts	80-100
Fastening bolts of brake bottom plate	160-220
Fastening nuts of shoe shaft	130-170
Fixing nuts of air chamber bracket	55-70
Dongfeng 435 rear axle	
Fastening bolt of axle shaft	140-180
Fastening bolts of bearing cap of drive gear of rear axle	120-140
Fastening bolts of differential housing for rear axle	220-280
Fastening bolts of differential bearing cap	440-490
Fastening bolts of final drive driven gear and differential housing	600-700
Fixing bolts of final drive housing for rear axle	130-150
Locking nuts of drive gear flange yoke of final drive of rear axle	400-540
Fastening bolts of reducer housing of center axle	130-150
Cylindrical drive gear bearing seat	80-90
Bolts of cylindrical gear housing of center axle	80-90
Bearing seat bolts of driving bevel gear for center axle	120-140
Bolts of oil seal casing of center axle	30-50
Bolts of bearing cap of center axle	450-500
Nuts of driving bevel gear of center axle	650-850
Nuts of through shaft for center axle	400-500
Nuts of bogie differential housing of center axle	120-140
Nuts of bogie differential housing cover of center axle	80-90
Drain plug of bogie differential housing cover of center axle	90-120
Bolts of oil level hole of differential housing for center axle	90-120
Bolts of oil seal seat of output end of center axle	60-70
Fastening nuts of idler shaft of center axle	350-400

Service & Adjustment Data

Fastening bolts of front flange yoke of center axle	120-140
Fastening bolts of oil seal seat of bogie differential of center axle	30-50
Dongfeng 460 rear axle	
Screw plug for checking lubricating oil level of final drive M24X2	130-195
Drain plug of rear axle housing, Z1/2	60-80
Fastening bolts of rear brake bottom plate, M16 X 1.5	230-265
Axle shaft bolts, M16 X 1.5	140-234
Fastening bolts of driving bevel gear bearing seat of rear axle, M16X1.5	214-252
Fastening bolts of differential housing for rear axle, M18X1.5	350-450
Fastening bolts of differential bearing cap for rear axle M24X2	500-550
Fastening bolts of driven bevel gear and differential of final drive, M24X1.5	750-850
Fastening bolt of final drive housing of rear axle, M14X1.5	200-235
Locking bolt of driving bevel gear flange yoke of rear axle, M45X2	600-700
Fastening bolt of final drive of center axle, M14X1.5	200-235
Bolts of cylindrical drive gear bearing seat, M12X1.25	94-114
Bolts of cylindrical gear housing, M14X1.5	160-204
Bearing seat bolts of driving bevel gear for center axle M14X1.5	160-204
Bolts of (inter-wheel) differential bearing cap of center axle, M24X2	500-550
Large nuts of driving bevel gear of center axle, M45X2	600-700
Large nut of through shaft of center axle, M42X2	650-800
Bolts of bogie differential housing of center axle, M14X1.5	160-204
Bolts of bogie differential housing of center axle, M14X1.5	160-204
Filler and drain plugs of bogie differential housing of center axle, M24X2	130-195
Bolts of oil level hole of center axle reducer, M24X2	130-195
Bolts of oil seal seat at output end of center axle, M14X1.5	130-195
Fastening nuts of front flange yoke of center axle, M45X2	600-700
Fastening bolts of oil seal seat of bogie differential of center axle M14X1.5	160-204
bolts of bogie differential lock case, M10X1.25	19-21
Dongfeng 500 rear axle	
Screw plug for checking lubricating oil level of final drive, M24X2	130-150
Drain plug of rear axle housing, Z1/2	130-150
Fastening bolts of rear brake bottom plate, M16 X 1.5	230-265
Axle shaft bolts, M18 X 1.5	220-260
Fastening bolts of driving bevel gear bearing seat of rear axle, M14X1.5	214-252
Fastening bolts of differential housing for rear axle, M18X1.5	350-450
Fastening bolts of differential bearing cap for rear axle M24X2	500-550
Fastening bolts of driven bevel gear and differential of final drive, M24X1.5	750-850

Fastening bolt of final drive housing of rear axle, M14X1.5	200-235
Locking bolt of driving bevel gear flange yoke of rear axle, M45X2	600-740
Dongfeng wheel reduction axle	
Connecting bolts of Dongfeng wheel-side rear axle final drive	
Connecting bolts of bearing seat, M14X1.5-6g	200-235
Connecting bolts of inter-wheel differential housing, M14X1.5-6g	200-235
Connecting bolts of Dongfeng wheel-side center axle final drive	
Connecting bolts of cylindrical gear housing and reducer housing, M14X1.5-6g	200-235
Connecting bolts of bogie differential housing and cylindrical gear housing, M12X1.25-6g	120-150
Input end oil seal seat, M165X1.25-6h	450-600
Connecting bolts of bogie differential housing, M14X1.5-6g	200-235
Connecting bolts of Dongfeng wheel-side axle assembly	
Connecting bolts of reducer assembly and axle housing, M14X1.5-6g	200-235
Connecting bolts of brake bottom plate and axle housing, M16X1.5-6g	290-330
Connecting bolts of frame assembly and end cap assembly, M10-6g	37-75
Connecting bolts of air chamber (cam) bracket, M14X1.5-6g	200-235
Connecting bolts at both ends of upper thrust bar support, M16X1.5-6g	290-330
Center connecting bolts of upper thrust bar support, M20X1.5-6g	500-590
Oil seal seat at output end of center axle, M114X1.5-6g	350-400
Hande wheel reduction axle	
Input flange nuts of rear axle	750-800
Input/output flange nuts of center axle	750-800
Fastening nuts of differential housing of center & rear axle	195
Fastening bolts of differential bearing cap	200-230
Bearing seat bolts of driving bevel gear	110-135
Self-locking nuts for fastening final drive assembly	105-115
Left bolts of camshaft	130-150
Connecting bolts of brake bottom plate	290-310
Round nuts of axle head	300-400
Tightening bolts of wheel-side end cover	49-60
Fixing bolts of air chamber bracket	600-620
Spring slide bolts	570
Fastening bolts of differential and conical driven gear of centre/rear axle	315-340
Fixing nuts of shock absorber and upper bracket	88-118
Fastening nuts of shock absorber and lower pin	134-167

Service & Adjustment Data

Fixing nuts of shock absorber lower pin and bracket	134-167
Locking bolts of leaf spring pin	54-69
Center bolts of rear leaf spring	170-200
Fastening bolts and nuts of trunnion bracket and vehicle frame	220-280
Safety bolts of fifth wheel friction ring	220-280

Bulb

Please refer to the specific configurations of your vehicle.

Position		Model
Front combination lamp	High beam	H7 70W
	Low beam	H7 70W
	Front turn signal lamp	P21W
	Front position lamp	W5W
Auxiliary high beam		H7 70W
Front fog lamp		H3 (70W)
Side turn signal lamp		P21W
Step lamp		W5W
End-outline marker lamp		LED
Marker lamp		LED
Cab dome lamp		LED
Front reading lamp		C5W
Side reading lamp		R10W
Berth reading lamp		R10W
Instrument cluster	Alarm indicator lamp	LED
	Instrument illuminating lamp	LED
Rear combination lamp	Rear end-outline marker lamp	LED
	Turn signal lamp	LED
	Brake lamp	LED
	License plate lamp	LED
	Position lamp	LED
	Rear fog lamp	LED
	Reversing lamp	LED
	Side marker lamp	LED
Side marker lamp		LED
Maintenance lamp		LED

Capacity Data

Please refer to the specific configuration of your vehicle.

Oiled position	Designation of grease	Filling volume (L)
Cummins ISZ engine (sump capacity)	API or CES20086 CK - 4 Or ACEAE6 and E9	39.5
Fuel tank	EN590: 2013+A1: 2017(E)	Main 550/ sub 550
Transmission	ZF TE-ML 02L/02E	23.5 (ZF AMT)
Clutch system	Brake fluid conforming to DOT 3 and above	
(Middle)Rear axle	SAE J2360API or GL - 5	For Dongfeng 485 single wheel reduction axle, final drive 18(FAG free-maintenance hub);Final drive 18(each 1 for two wheel sides, 20 in total)(Conmet free-maintenance hub,Maintainable hub)(reference value, the actual value shall be subject to the lower edge of the observation hole added to the oil surface)
Power steering gear	Dexron III and above Automatic transmission oil	4.5
Clutch system	DFCV-B30 clutch system brake fluid QC/T670-2000 standard	1.0
Cooling system	ASTMD 6210 Standard for heavy duty engine coolants for ethylene glycol and propylene glycol	79.3 (with retarder) 55.5 (without retarder)
Urea tank	Urea to ISO 22241-1 or DIN70070	45
AC	R1234yf	755±15g
Grease	NLGI gc-lb grease of consistency 2 or 3	
Cab tilting oil pump	HV hydraulic oil in accordance with ISO11158 standard	1.5

Designation and service environment of oil, grease and fluid recommended by Dongfeng Commercial Vehicle Co., Ltd

Oil product brand and the filling position		Product brand	Applicable ambient temperature
Engine	Cummins Engine	API or CES20086 CK - 4 Or ACEAE6 and E9	-25℃~40℃
Fuel tank		5#	≥8℃
		0#	≥4℃
		-10#	≥-5℃
		-20#	≥-14℃
		-35#	≥-29℃
		-50#	≥-44℃
Transmission (ZF/AMT)		ZF TE-ML 02L/02E	≥-20℃
Drive axle		SAE J2360API or GL - 5	≥-20℃
Power steering		Dexron III / V / VI Automatic transmission oil	≥-30℃
Clutch		Brake fluid conforming to DOT 3 and above	≥-30℃
Chassis and wheel hub		NLGI gc-lb grease of consistency 2 or 3	≥-30℃
Cooling fluid		ASTMD 6210 Standard for heavy duty engine coolants for ethylene glycol and propylene glycol	≥-40℃
Tilting lifter		HV hydraulic oil in accordance with ISO11158 standard	≥-30℃
SCR post-processing system		ISO 22241-1: 2006、 DIN70070:2005	≥-11℃



CAUTION:

- 1.Cummins engine oil refilling please refer to the cummins engine operation and maintenance manual accompanying the vehicle.
- 2.Vehicle urea solution should meet the ISO 22241-1 or DIN70070;The product should be stored in a sealed chamber at the recommended temperature of -5°C~ 30°C.

Oil Products and Grease

Engine lubricating oil (Cummins)

Please select the oil specified by our company based on local climate and take care of the oil change mileage. Please refer to the attached Operation and Maintenance Manual of Cummins Engine.

Designated products **Genuine Dongfeng spare parts** **Dongfeng Commercial Vehicle Co., Ltd.** **(Special oil for Dongfeng vehicles)**

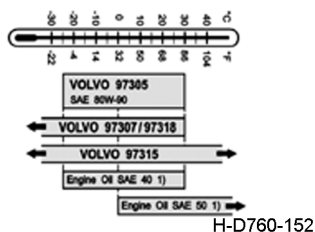
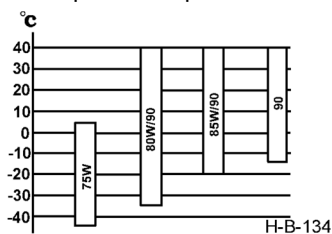
Power steering lubricating oil

use DFCV-S11 power steering lubricating oil

Designated products **Genuine Dongfeng spare parts** **Dongfeng Commercial Vehicle Co., Ltd.** **(Special oil for Dongfeng vehicles)**

Transmission lubricating oil

Users can choose the transmission oil of different viscosity grades according to the local atmospheric temperature.



Designated products **Genuine Dongfeng spare parts** **Dongfeng Commercial Vehicle Co., Ltd.** **(Special oil for Dongfeng vehicles)**

Fuel

Only use the automobile diesel fuel conforming to national standards, and the user can choose diesel fuel of different grades according to the local atmospheric temperature.

Recommended operating temperature range:

Fuel designation	5#	0#	-10#	-20#	-35#	-50#
Applicable ambient temperature (atmospheric temperature)	≥ 8°C	≥ 4°C	≥ -5°C	≥ -14°C	≥ -29°C	≥ -44°C

Oil of cab lifting device

The oil pump use No. 10 aviation hydraulic oil.

(Middle) rear axle lubricating oil

User can select gear oil different viscosity grades based on the local atmospheric temperature.

Designated products **Genuine Dongfeng spare parts** **Dongfeng Commercial Vehicle Co., Ltd. (Special oil for Dongfeng vehicles)**

Grease

It is recommended to use lithium base grease for hubs and points to be lubricated. NLGI gc-lb grease of consistency 2 or 3

Designated products **Genuine Dongfeng spare parts** **Dongfeng Commercial Vehicle Co., Ltd. (Special oil for Dongfeng vehicles)**

Clutch brake fluid

Brake fluid conforming to DOT 3 and above

Designated products **Genuine Dongfeng spare parts** **Dongfeng Commercial Vehicle Co., Ltd. (Special oil for Dongfeng vehicles)**

WARNING:



1. Mixing of brake fluids produced by different manufacturers is prohibited strictly.
2. Mixing of brake fluids of different types from the same manufacturer is also prohibited strictly.

Retarder oil (Shaanchi)

The recommended selection of retarder oil is as follows:

Environment temperature / °C	Oil type
> -25	10W40
< -25	0W40 or 5W40

Engine coolant (Cummins)

Always apply the DF-4 (D+) organic acid type heavy duty coolant. Change the fluid every 2 years or 200,000 km (running time or mileage, whichever comes first). The engine cylinder liner will be cavitated seriously and thereafter the engine will be damaged if specified coolant is not used or the coolant used is blended with other coolants.

Specification of antifreeze and antirust fluid	-20#	-40#
Min. applicable ambient temperature	-20°C	-40°C

WARNING:



The freezing point of anti-freeze liquid used in extremely cold regions shall be 10°C lower than the local minimum ambient temperature.
Do not mix anti-freeze or anti-rust liquid of different grades.

Technical Parameters

Mass Parameters

Mass parameters (kg)		DFH4180
No load	Curb weight	8270
	Axle load	5200/3070
Full load	Total mass	18000
	Axle load	6500/1150
Saddle loading mass		9600
Allowable trailer towing mass		33600

Dimension Parameters

Dimension parameters (mm)		DFH4180
Total length		6360
Total width		2524
Total height		3960
Wheelbase		3800
Tread	Front wheel	2010
	Rear wheel	1880
Overhang	Front overhang	1480
	Rear overhang	1080

Performance Parameters

Performance Parameters	DFH4180
Drive mode	4 × 2
Max. vehicle speed (km/h)	89
Max. gradability (%)	≥ 30
Parking slope (%)	≥ 18
Approach angle (°)	13
Departure angle (°)	15
Min. ground clearance (mm)	168
Min. turning diameter (m)	16
Vehicle start pressure (kPa)	590 ± 30
Rated working pressure of air storage cylinder (kPa)	Front air storage cylinder: 1250 Rear air storage cylinder: 1250 Parking air storage cylinder: 850
Step on the brake pedal to the most unfavorable brake air chamber response time A (s)	0.5
Response time B (s) at the end of the air pressure control pipe joint between the brake pedal and the main hanger	0.4

**CAUTION:**

1. Curb weight of a vehicle includes the weights of lubricating oil, coolant, fuel, spare wheel and driver's tools.
2. Total weight of full-loaded truck includes the mass of 3 persons in the cab (195 kg).
3. The minimum turning diameter of vehicle is measured from the center of front external wheel track.
4. The front wheel tread is measured from the front wheel ground contact centers and the rear wheel tread is measured from the twin tires centers.
5. The minimum ground clearance refers to the ground clearance of rear axle under full load.
6. The total height is measured, under no load, from the compartment front bumper for complete vehicle and from the highest point of cab roof for chassis.
7. Maximum climbing slope refers to the climbing ability of a bicycle or a full load.
8. The vehicle can be equipped with a speed limit function. When this function is in effect, the maximum speed of the vehicle will be limited to no more than the preset speed.

Parts not included in the vehicle's overall dimensions

Name	Location
External rearview mirror and lower view mirror	Two sides of cab



H-QYC-001

1. External rearview mirror and lower view mirror

Assembly Structure

Please refer to the specific configuration of your vehicle.

Engine

Manufacturer	Dongfeng Cummins Engine Co., Ltd.
Type	Liquid-cooled, in-line, six-cylinder, supercharged medium - cooled diesel engines
Type of fuel injection	High pressure common rail
Model	Z14EVID520
Maximum net power/speed(kW/r/min)	381/1800
Max. torque/speed(N·m/r/min)	2470/1100
Cylinder bore × stroke(mm × mm)	135× 157
Displacement (L)	13. 48
Compression ratio	(18.4 ± 0.5) : 1
Ignition sequence	1-5-3-6-2-4
Fuel (In accordance with EN590:2013 + A1:2017 (E) standard): Summer: 0# automobile diesel fuel; winter: acceptable automobile diesel fuel according to ambient temperature	

Clutch

Φ430 mm pull-type diaphragm spring clutch, hydraulic control with air booster.

Transmission

Assemble ZF12 manual automatic AMT transmission;

Propeller Shaft

Open-type, cardan universal joint propeller shaft.

Front Axle

Forged steel part, I-shaped section.

Front wheel alignment angle	Front wheel camber	1°
	Kingpin inclination angle	7°
	Kingpin caster angle	3°
Max. turning angle of front wheel	Internal wheel	42°
	External wheel	34°

Rear axle

Dongfeng 485 axle, stamping welding axle housing, single level reduction. Final drive ratio is 2.69.

Rated load of rear axle is 13T.

Wheels and Tires

11 tires for each vehicle, including 1 spare tire.

Rim: 9.00X22.5;

Tire model: 315/70R22.5.

Frame

Stamping riveting structure, the maximum longitudinal beam section size is 280mm×80mm×8+4mm.

The front width of the frame is 1080mm and the rear width is 850mm.

Suspension

Front suspension: few leaf spring, leaf spring suspension, 3 or 2 PCS of front spring in total.

Rear suspension: complete air suspension or balanced suspension, 4 PCS in total.

Steering System

Power steering system, integral power steering gear, vane steering hydraulic pump.

Brake System

- Main components: air compressor, air reservoir. Valves: foot brake valve, manual brake valve, trailer control valve, APU, air dryer, differential valve set, quick release valve, exhaust brake valve, pipe connector set (including one-way valve), trailer valve, ABS solenoid valve and fast connection-plug, etc.
- Driving brake: adopt four-circuit, pendant brake valve and disc wheel brake.
- Parking brake: the manual valve controlled spring brake air chamber and acts on the driving wheel.
- Auxiliary brake: butterfly valve electric-pneumatic operated engine braking.
- Trailer braking: the trailer manual brake valve controls the trailer brake separately.

Electrical System

24 V circuit system is applied. Negative ground.

Main electric equipment and instrument parameters

Battery	12V 180A·h (2 pcs) 12V 200A·h (2 pcs)
Alternator	28 V,80 A
Starter	24V,8.5kW

Instruments: Speedometer, tachometer, water temperature gauge, fuel gauge, urea gauge and air pressure gauges.

Lamps: front combination lamp, front fog lamp, rear combination lamp, side turn signal lamp, front end-outline marker lamp, etc.

Indoor lamps: roof lamp, front reading lamp, side reading lamp, sleeper reading lamp, etc.

Indicator and warning lamp: Refer to the specific configuration of cab.

Switches: Refer to the specific configuration of cab.

Cab

The high roof cab is of tiltable cab-over-engine type, adopting hydraulic tilting mechanism. It has a three-stage boarding step. In the front row inside the cab are the driver's seat, central storage box and passenger's seat. The driver's seat is a airbag sh°Ck-absorbing seat, backrest angle of which allows front and back adjustment. The passenger's seat also allows front and back adjustment of backrest angle. The rear row is provided with double berth: the dimension of lower berth is 2140mm × 730mm, the dimension of upper berth is 1950mm × 690mm. The cab is also equipped with heat insulation carpet, storage box, tray table, cup holder, cigar lighter, radio & CD

player, sun visor, coat hook and curtain rail. Both doors are equipped with lock and window regulator while window door glass can be lifted or lowered. It is equipped with tiltable face shield, side spoiler, roof deflector and bumper. The front windshield is equipped with electric wiper and washer; there are exterior rear-view mirror, front lower-view mirror, close-proximity exterior rearview mirror and wide-angle lens outside the door.

Heater and A/C

The cab is equipped with heater and A/C. An environment-friendly fluoride-free A/C system is used as the cab cooling system, which applies R134a as refrigerant.

Traction pin

Standard size 50, select 90 towing pin.

Driver's Tool

Each vehicle is equipped with one set of driver's tools.

Electrical Schematic Diagram

The electrical schematic diagram attached in this manual is a general electrical schematic diagram. Refer to the specific configuration when using it.