



中国重汽  
SINOTRUK

Training Document





# Content



**HOWO-A7 Vehicle brief introduction**



**HOWO-A7 Function introduction**



**HOWO-A7 Operation specification**



**HOWO-A7 Maintenance and Safety**



## 1. HOWO-A7 Vehicle brief introduction

A7 product positioning in domestic top end target heavy truck market and international market, establish a high-end brand image, guide the domestic heavy truck consumption upgrading, meet the needs of the domestic market to upgrade, partly replace imported products, and effectively expand the export quotas.

A7 products with international heavy truck technology development trend, development adhere to the combination of independent innovation and joint development, aims to build a new platform, set up the new standard in domestic high-end heavy truck .





## Cab

- Full range new development
- Cooperation with international famous company
- Comply with the international trend of heavy truck.



## Cab style

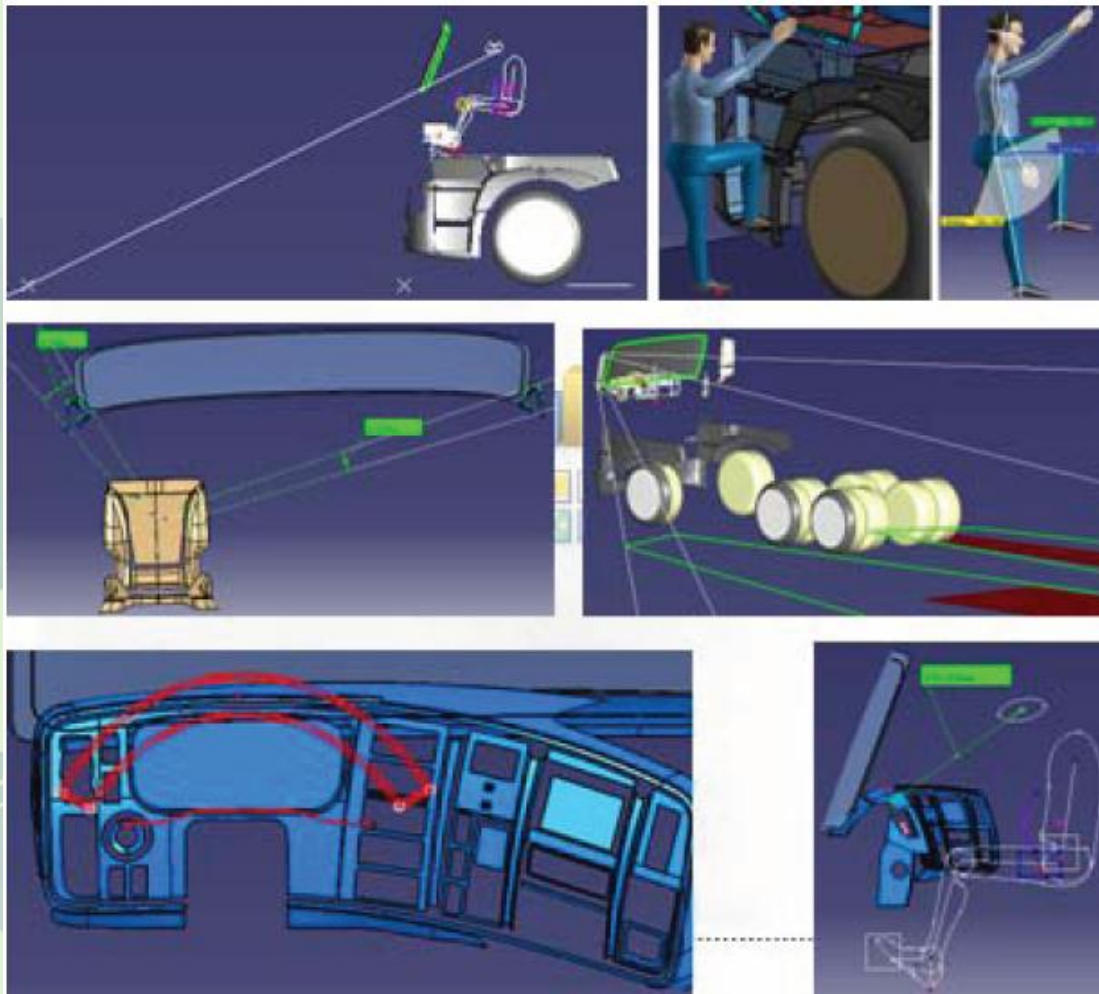
The Italian design style, with heavy line of modern, dynamic, concise design concept, overall model unique, have good aerodynamic performance, low wind resistance coefficient ; Interior luxury, comfortable, and practical.





## Ergonomic design

Using advanced man-machine engineering analysis software, optimize the man-machine engineering analysis, the indicators have reached a higher level.





## Nameplate

### Vehicle Nameplate

The vehicle equipped with high-floor cab , vehicle nameplate is located at front wall of the cab; The vehicle equipped with low-floor cab, The vehicle nameplate is located on the co-driver's side door frame (visible by opening the door), which contains the vehicle model, main mass parameters, engine model, etc.



High-floor cab



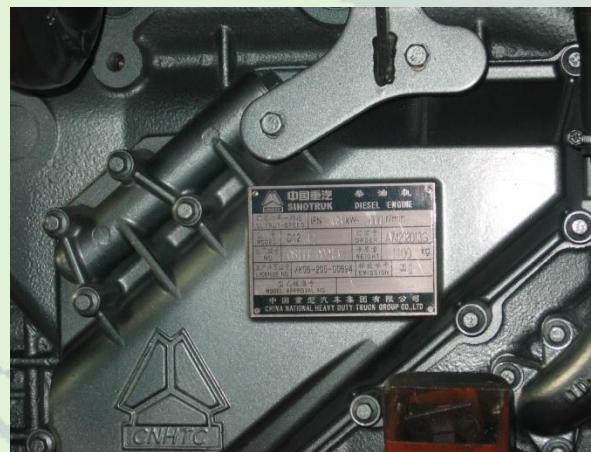
## VIN Code

The VIN is printed out of the right longitudinal member web of the frame at the front axle centerline as well as on the vehicle nameplate.



## Engine Nameplate

The Engine nameplate is sited at the left side of engine body.







# Content



**HOWO-A7 Vehicle brief introduction**



**HOWO-A7 Function introduction**



**HOWO-A7 Operation specification**



**HOWO-A7 Maintenance and Safety**



## 1. Door operation/central locking control

### 1.1 Door operation (out of the vehicle)

Open the door

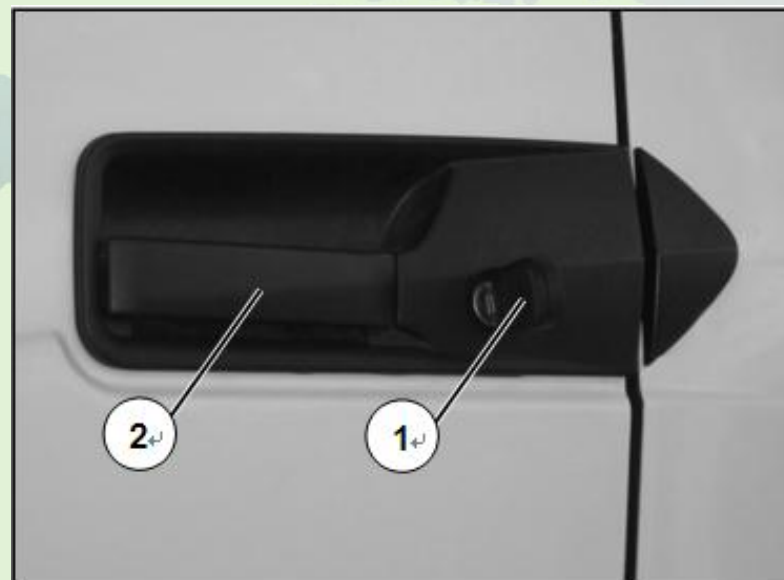
Method I : Insert the key ① into the lockhole and counterclockwise rotate the key (clockwise rotation at the co-driver side), and the door can be unlocked; after that, pull the handle ② and open the door.

Method II: Use the remote key;

Lock the door

Method I: Properly close the door; insert the key ① into the lockhole, and clockwise rotate the key (counterclockwise rotation at the co-driver side), the door can be locked.

Method II: Properly close the door; use the remote key;





## 1.2 Door operation / central locking control (in the vehicle)

Open the door (Driver's side : Door is unlock)

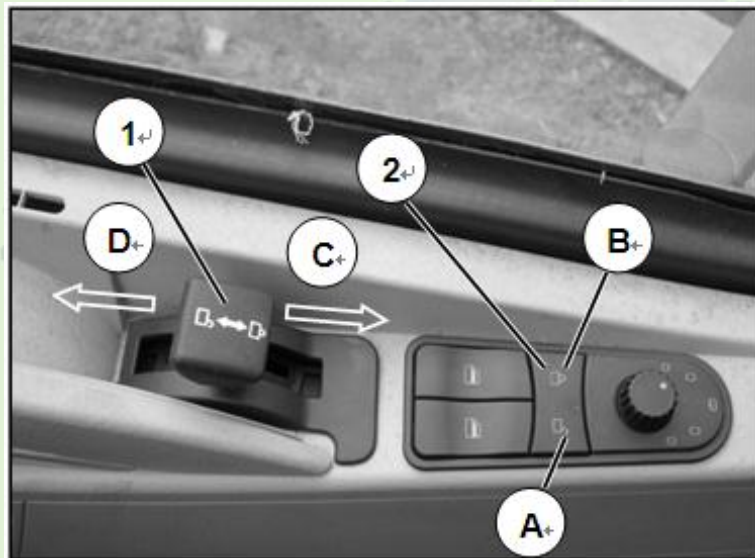
Pull the handle ① towards D direction to the end , meanwhile open the door.

Open the door (Driver's side ;Door is lock)

Method I : Pull the handle ① towards D direction to the end , meanwhile open the door.

Method II : Press button A on rocker switch ② , the handle will go to middle position , then pull the handle ① toward D direction to the end, open the door.

Method III: When the door is closed and locked, use the remote key and the unlocking key to unlock all doors; after that, open the door.





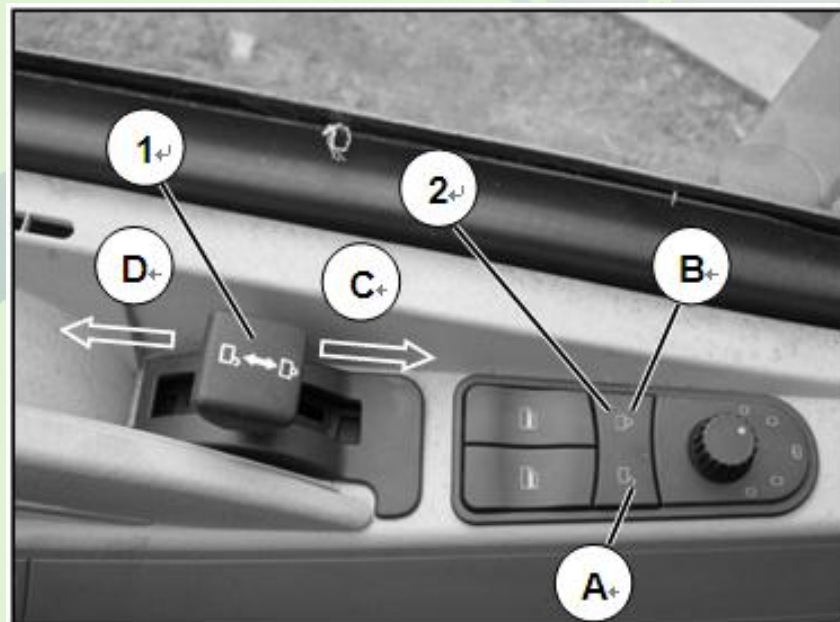
## Lock the door (Driver's side)

Method I: Properly close the door ; push the handle ① toward C direction to the end.

Method II :Properly close the door ; then press button B at left side of rocker switch ②.

Method III: Properly close the door; use the remote key to control the central locking control, and lock all doors.

Note: The rocker switch② can control both side's door; the handle ① can only control single side door.





## 2. Seat Adjustment

### 2.1 Comfort-styled seat

- (1) Angle adjustment of seat;
- (2) Forward/Rear adjustment of seat;
- (3) Height adjustment of seat;
- (4) Angle adjustment of backrest;





## 2.2 Luxury-styled seat

- 1 Seat angle adjustment
- 2 Seat F/R adjustment (Forward/Rear)
- 3 Cushion F/R adjustment (Forward/Rear)
- 4 Fast lowering device (easy for getting on/off)
- 5 Shock absorber adjustment
- 6 Seat height adjustment(pneumatic)
- 7 Seat backrest angle adjustment
- 8 Lumbar support device and side support device adjustment(pneumatic)
- 9 Armrest adjustment





### 3.Safety Belt

Fasten the safety belt

Before fastening the safety belt ①, adjust the driver and co-driver seats based on the body size

The safety belt shall pass through the middle of shoulders approximately, which shall not pass by your throat. Hold the safety belt buckle, and pull the safety belt to make it pass through your shoulders and thighs.

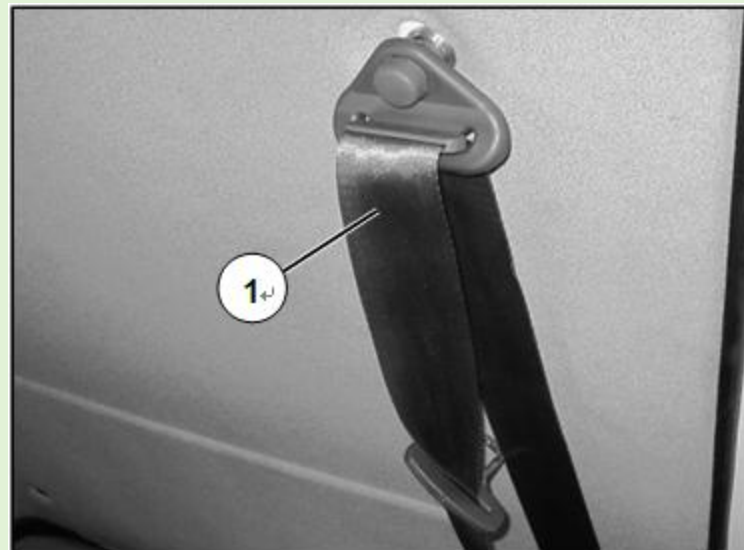
Insert the safety belt buckle into the safety belt clip till hearing the engagement sound.

The safety belt shall be properly fastened on the upper body and thighs.

Release

Press the red button on the safety belt clip towards the arrow direction.

Hold the safety belt buckle till the safety belt automatically retracts.





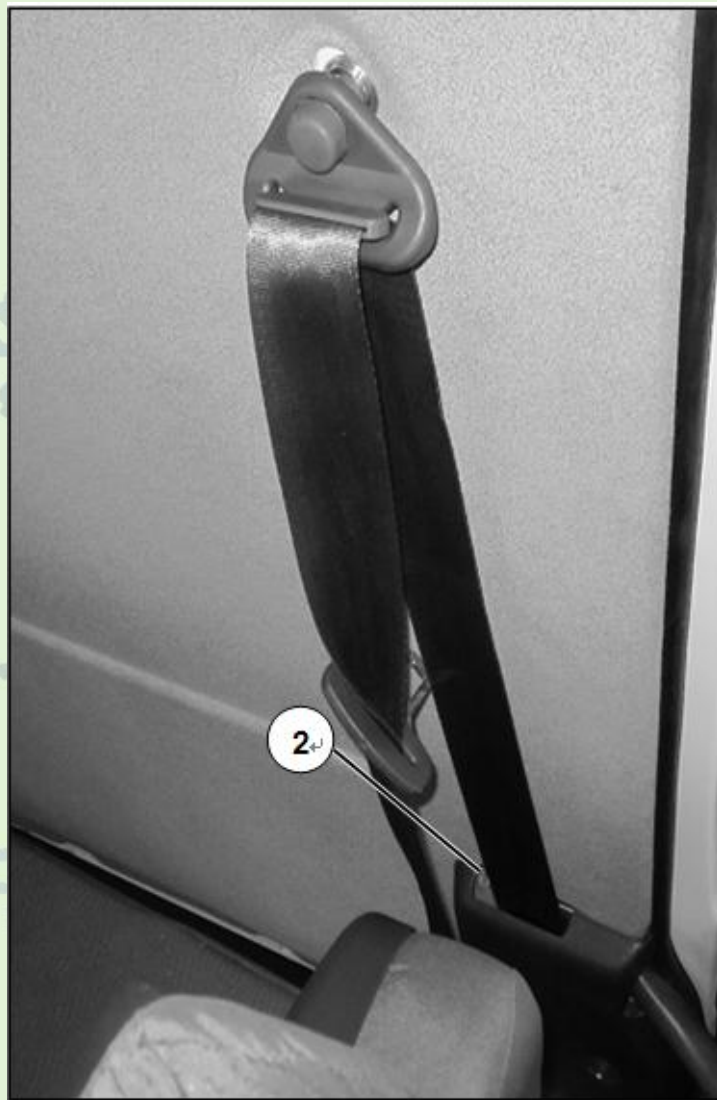
### Inertia retractor

In following conditions, the retractor ② shall lock the safety belt to avoid pulling out the safety belt.

The vehicle suddenly decelerates at any direction.

When quickly pulling out the safety belt.

Quickly pulling out the safety belt can detect the locking function of the inertia retractor.







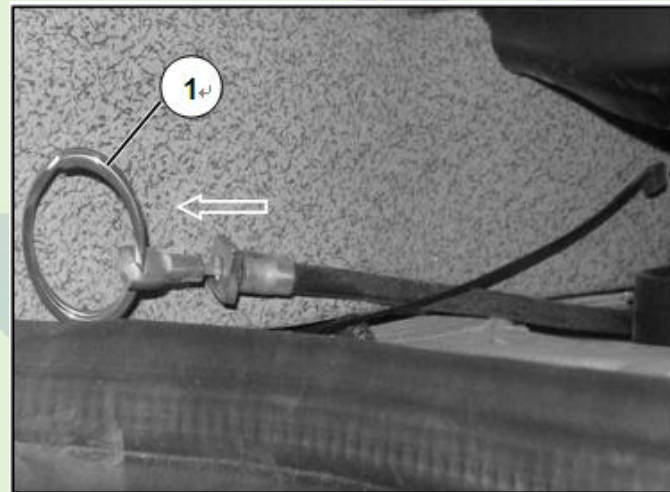
## 4. Cab inner storage bin

Cab has a toolbox② at both sides.

Open tool box door

Find the draw cord of toolbox at the outside of seat, pull the draw cord① forward/backward.

Open the toolbox. The toolbox② will automatically rise by the air spring after turned beyond the dead point





## 5. Sleeper

### Sleeper

The luxurious medium-long cab's lower berth (with turn-over table)

The using method of table ① at bottom of lower berth:

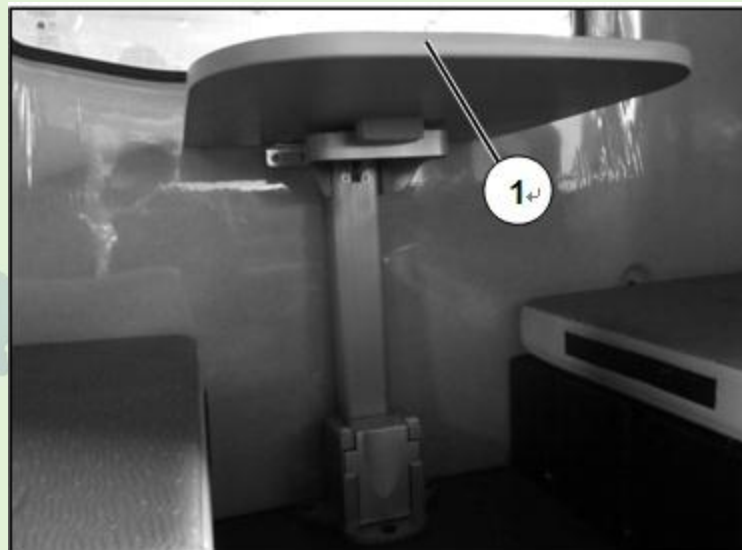
-Take out the central section of sleeper cushion.

-Raise the desk and turn over in place.





-The supporting leg of desk stand straightly, it will auto lock itself.



-When pack up the desk , one hand hold the front end of desk ①, the other hand press down the operating handle at the bottom of desk②, Put down the desk slowly after unlock the supporting leg, turn over desk to the original position.





## 6. Electric window

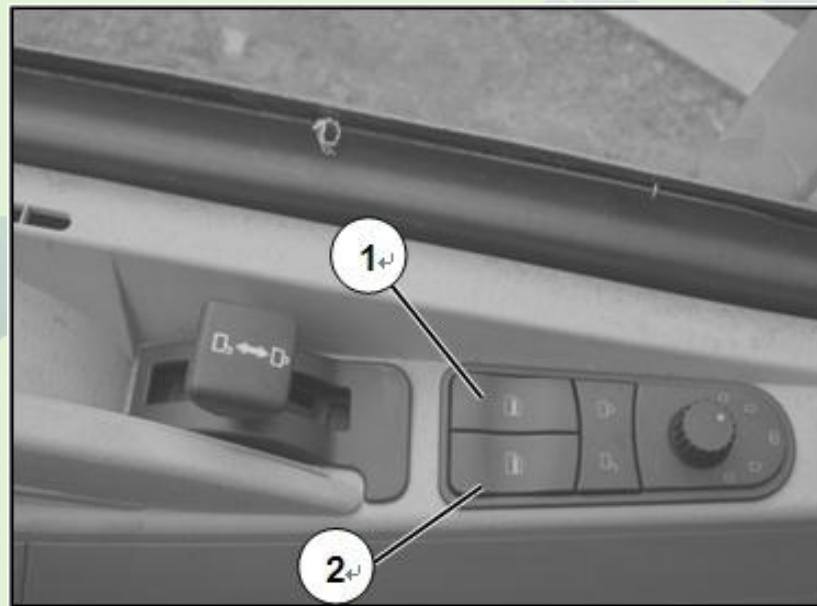
### 6.1 Driver's side

#### Partially or fully open the window

- Open the key switch and turn it to the gear ON.
- Press the rear side of rocker switch ① (at the driver side) or ② (at the co-driver side).
- When being pressed for less than 2 s, the window will automatically open and keep moving; stop pressing, and the window will stop moving.
- When being pressed for more than 2 s, the window will automatically fall to the end; during the window movement, press or lift the end of the rocker switch ① or ② again, the window will stop moving.

#### Partially or fully close the window

- Press the top side of rocker switch ① (at the driver side) or ② (at the co-driver side).
- When the lifting time is less than 2 s, the window will begin lifting, which will stop moving when releasing the switch.
- When the lifting time is more than 2 s, the window will automatically lift to the top; during the window movement, lift or press the end "C" of the rocker switch ① or ② again, the window will stop moving.

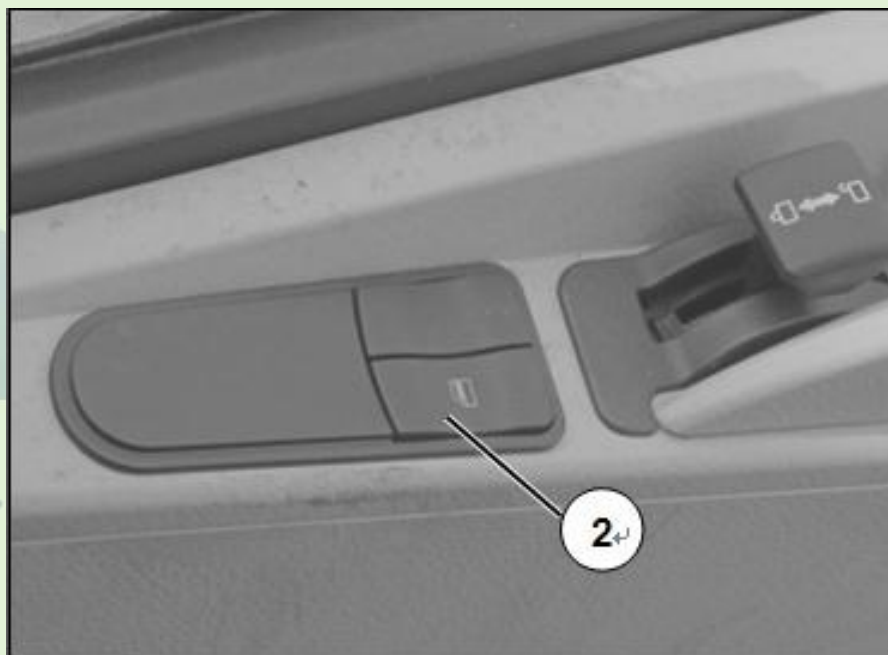




## 6.2 Co-driver's side

The same method with driver's side operation.

**Note:** The switch at driver's side can control both side window lift or fall ,the switch at co-driver's side can only control single side window.





## 7. Rearview mirror adjustment

The rearview mirror control button 1 is on the switch panel, which may be turned up to 5 gear positions:

- A** Wide-angle mirror position LH;
- B** Rearview mirrors position LH;
- C** Rearview mirror defrosting position,
- D** Rearview mirrors position RH;
- E** Wide-angle mirror position RH;

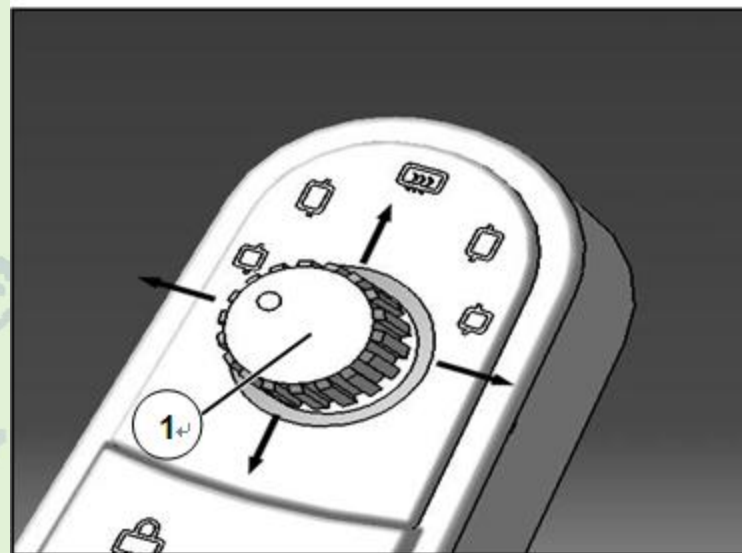
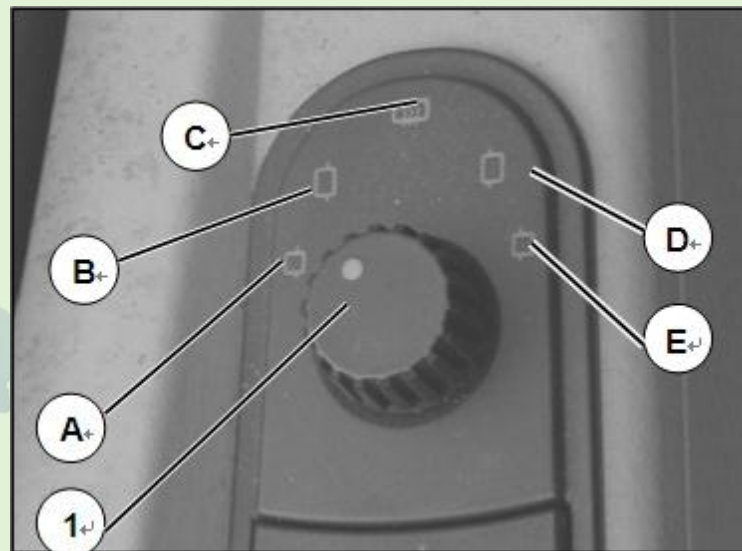
Select the outside mirrors (wide-angle lens) or outside mirror defroster to be controlled through the above 5 positions.

In case of adjustment, the marker F on the knob ① should aim at the regulated position.

The rearview mirror control button 1 can be poked on the switch panel in the following methods:

- Upward (front)
- Downward (rear)
- Left
- Right

When the operation of rearview mirrors control lever revoked, the knob lever will return to the middle position



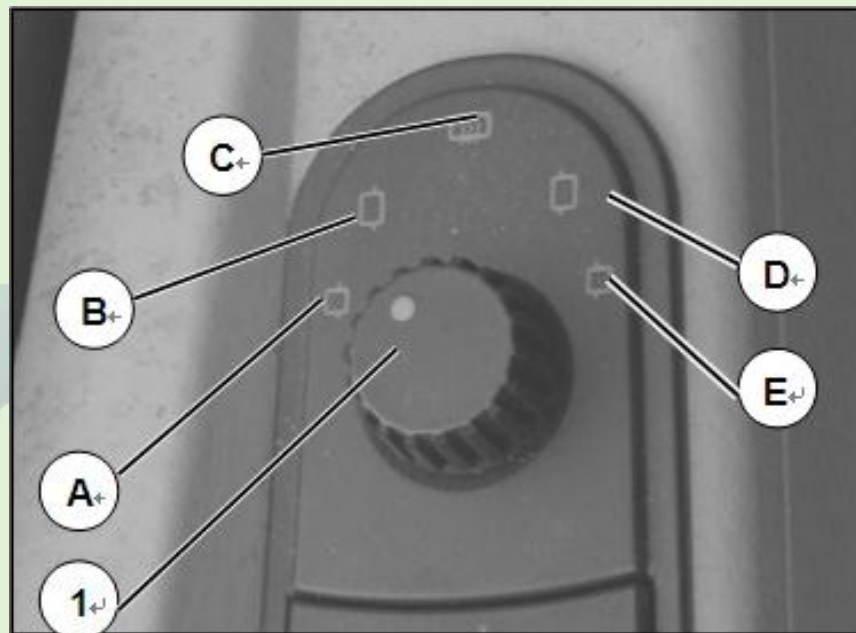


**Turn on the outside mirror heating device:**

- Communicate with the key starter switch
- When the the gear position selected by the knob switch 1 is poked on C, pull up (front) the outside mirrors knob lever, to turn on the heating devices of all outside mirrors.

**Turn off the outside mirror heating device:**

- When the outside mirror defroster operates, poke up the outside mirror control knob 1 for adjustment.
- In 15minutes after the outside mirrors defrosting function activated.
- The key starter switch not on the gear II .





## 8. Steering wheel adjustment

To realize the driving habit of different people , the steering wheel ① can adjust up and down, front and back , the range of height adjustment is about 125mm, the range of angle adjustment is about  $34^{\circ}$  ,it means the range of front and back is 210mm.

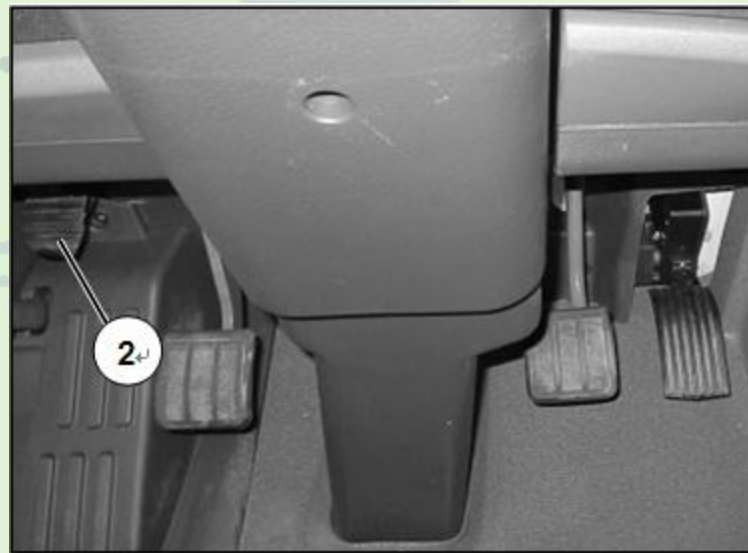
(1) Firstly, adjust the driver seat, refer to “Seat adjustment”, then adjust steering wheel.

(2) Step down the pedal ② ,adjust the steering wheel height and angle to a proper position.

(3) Release the pedal ②, and the steering wheel will be locked.

### Notes:

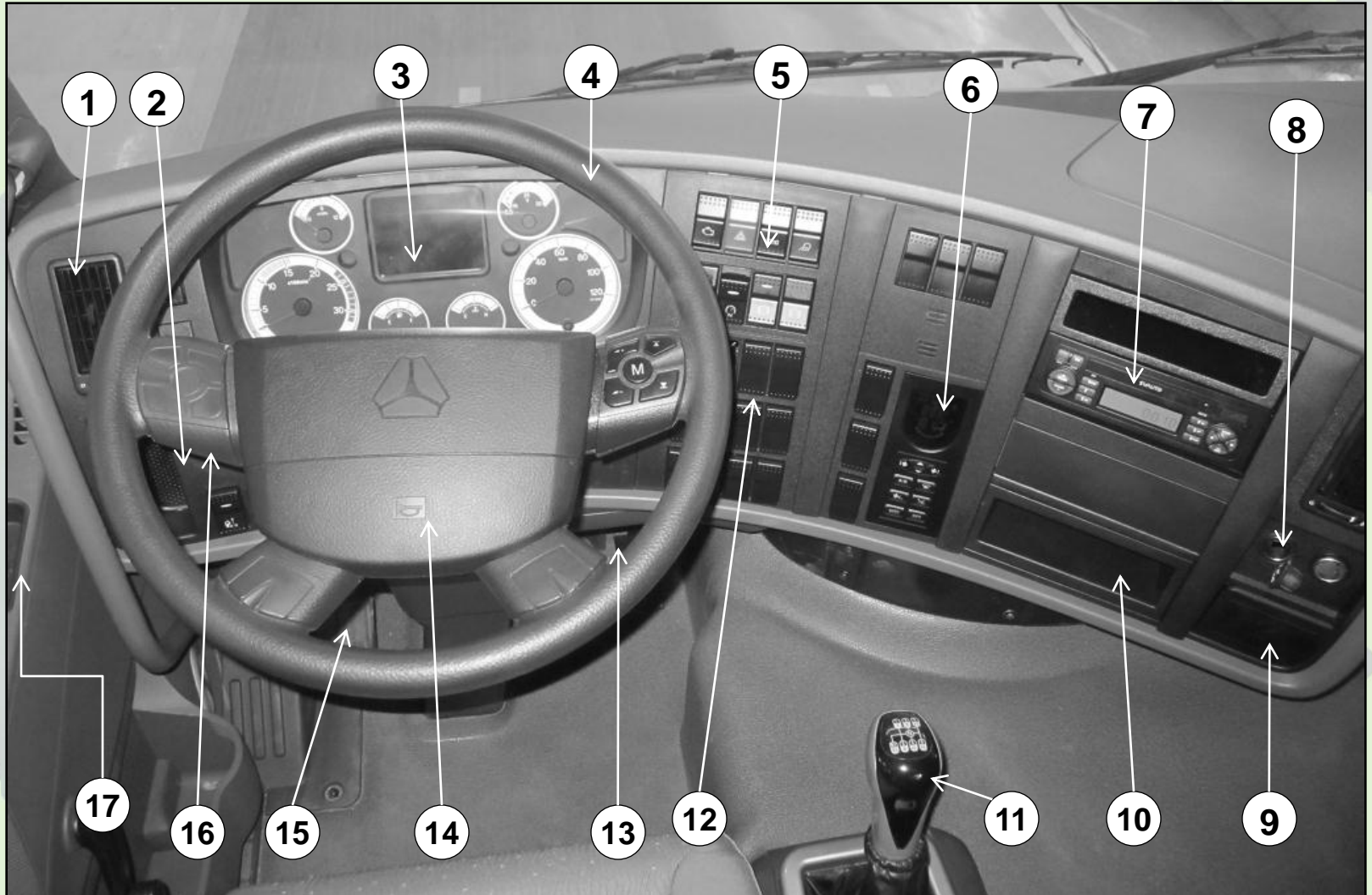
Moving the steering wheel frontwards can help conveniently enter/leave the vehicle and movement towards the co-driver side.







## 9. Cab interior view



With Mini Instrument



## Cab interior overview (with Mini Instrument)

- |   |                                   |
|---|-----------------------------------|
| 1 Ventilation port                          | 2 Rotate lamp switch              |
| 3 Dashboard                                 | 4 Steering wheel                  |
| 5 Rocker switch                             | 6 Air condition controlling panel |
| 7 MP3 radio                                 | 8 24V Cigar lighter               |
| 9 Ashtray                                   | 10 Jockey box                     |
| 11 Gear shift handle                        | 12 Diagnostic interface           |
| 13 Accelerator pedal                        | 14 Horn switch                    |
| 15 Pedal of steering wheel angle adjustment |                                   |
| 16 Combination switch                       |                                   |
| 17 Controlling board of door                |                                   |

Note: The vehicle equipped manual transmission do not have CBCU in its electrical system; The vehicle equipped auto transmission have CBCU in its electrical system



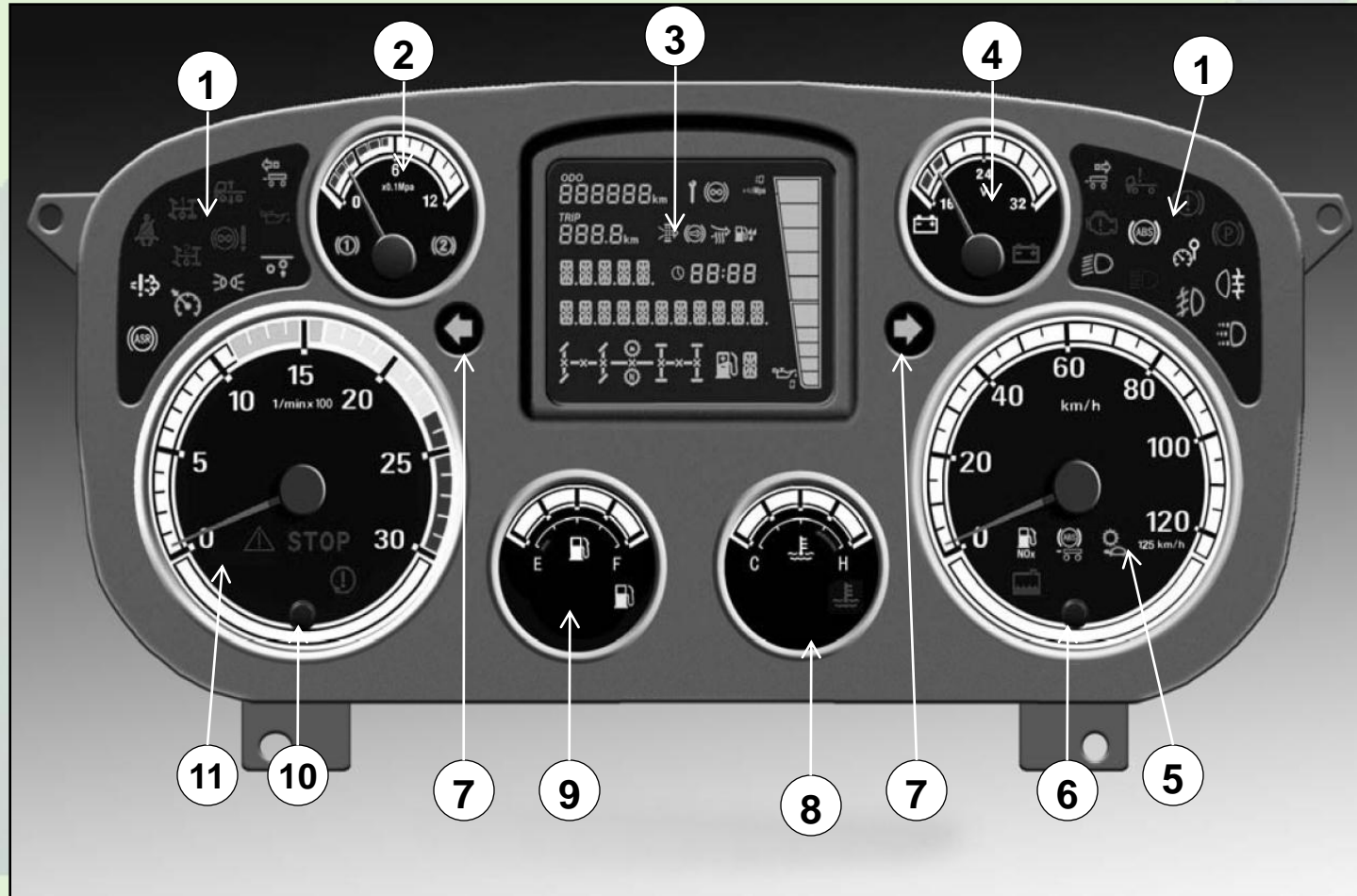
With CBCU



## Cab interior overview (With CBCU)

- 1 Ventilation port
- 2 Rotate lamp switch
- 3 Dashboard
- 4 Steering wheel
- 5 Rocker switch
- 6 Air condition controlling panel
- 7 MP5 player
- 8 24V Cigar lighter
- 9 Ashtray
- 10 Tachographs
- 11 Jockey box
- 12 Gear shift handle
- 13 Diagnostic interface
- 14 Accelerator pedal
- 15 Air horn
- 16 Pedal of steering wheel angle adjustment
- 17 Combination switch
- 18 MCS rotate knob of displaying screen
- 19 Controlling board of door

## 10. Dashboard

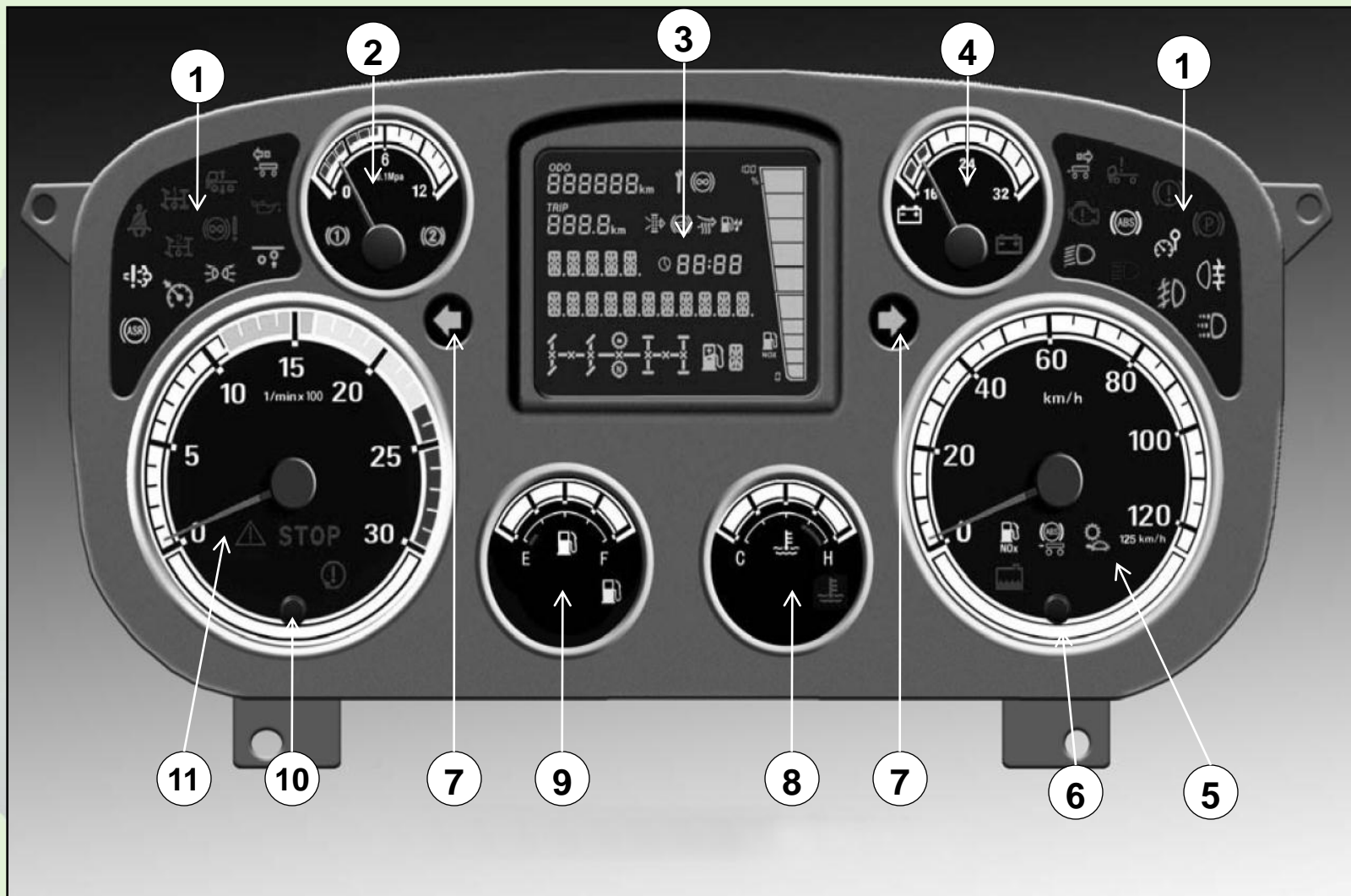


With Mini Instrument / Euro 3



### Dashboard Euro 3

- 1 Inspection lamp and alarm lamp panel
- 2 Air pressure gauge
- 3 Driver's display screen
- 4 Voltage gauge
- 5 Speedometer
- 6 Button 1: Short press switchover air circuit 1 and circuit 2; long press clear subtotal mileage
- 7 Steering indicating lamp
- 8 Coolant thermometer
- 9 Fuel gauge
- 10 Button 2: Switchover the fuel consumption of each condition
- 11 Engine tachometer



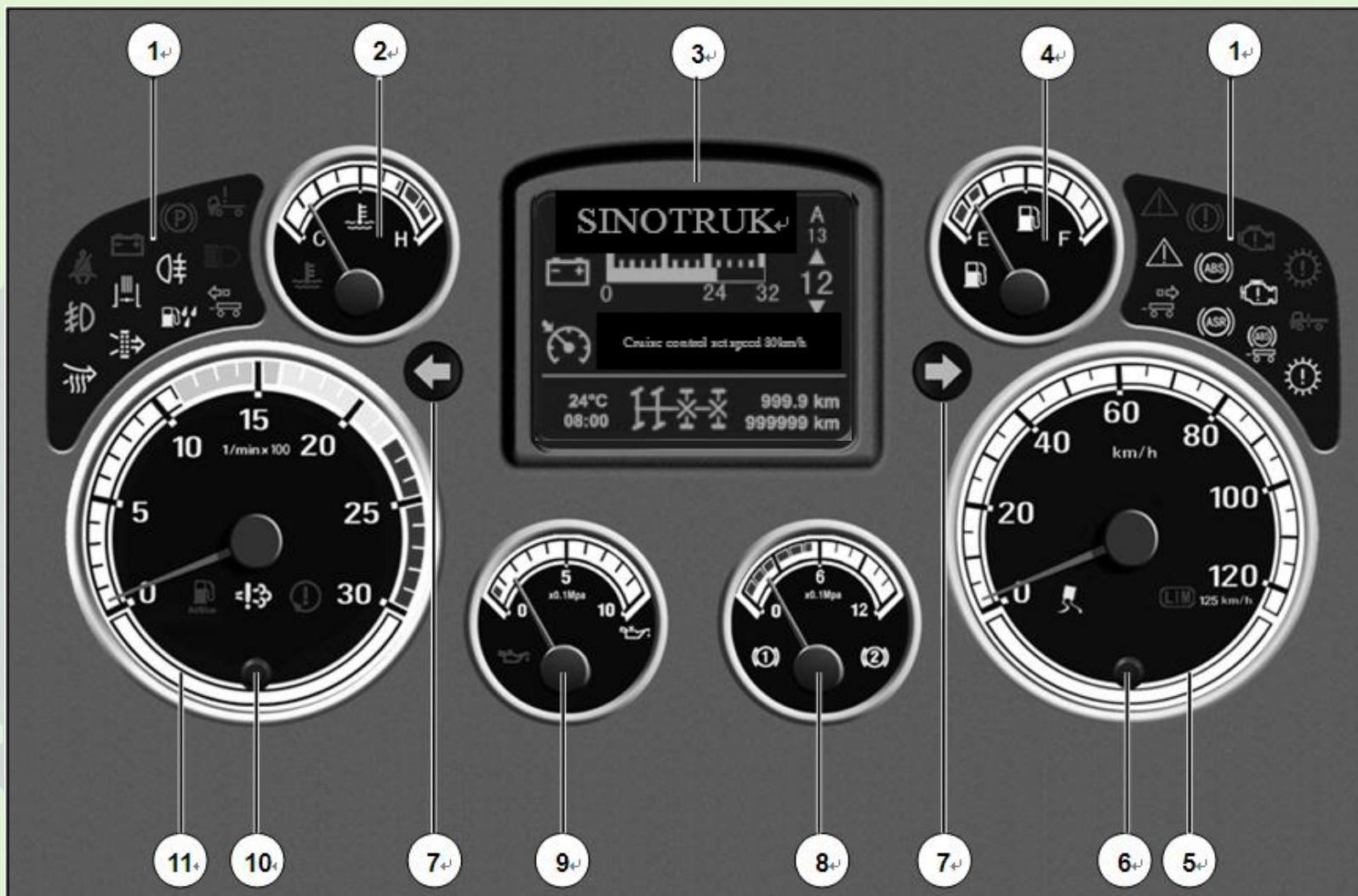
With Mini Instrument / Euro 4



## Dashboard Euro 4 (With Mini Instrument)

- 1 Inspection lamp and alarm lamp panel
- 2 Air pressure gauge
- 3 Driver's display screen
- 4 Voltage gauge
- 5 Speedometer
- 6 Button 1: Short press switchover air circuit 1 and circuit 2; long press clear subtotal mileage
- 7 Steering indicating lamp
- 8 Coolant thermometer
- 9 Fuel gauge
- 10 Button 2: Switchover the fuel consumption of each condition
- 11 Engine tachometer





With CBCU

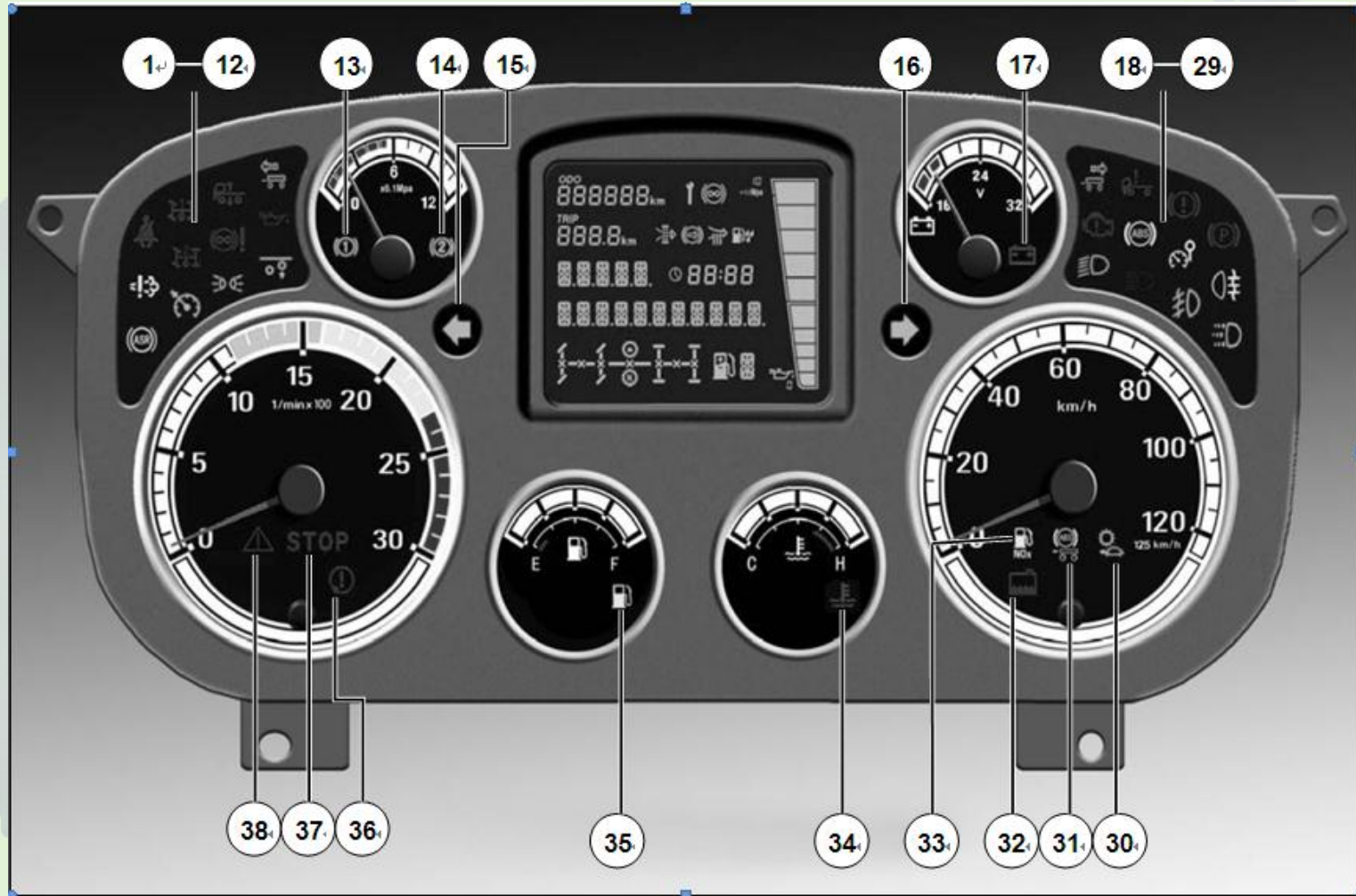


## Dashboard (with CBCU)

- 1 Inspection lamp and alarm lamp panel
- 2 Coolant thermometer
- 3 Driver's display screen
- 4 Fuel gauge
- 5 Speedometer
- 6 Button1:Change over knob of dual circuit air pressure indicating
- 7 Steering indicating lamp
- 8 Air pressure gauge
- 9 Engine oil pressure gauge
- 10 Button2:Clear knob of subtotal mileage
- 11 Engine speedometer



## 11. Inspect Lamp and Alarm Lamp



With Mini Instrument



1. Safety belt



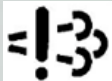
2. PTO 1



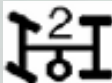
3. Air suspension indicating lamp



4. Trailer left turning indicating lamp



5. Emission exceed alarm lamp



6. PTO 2



7. Retarder alarming



8. Engine oil pressure too low



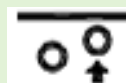
9. ASR indication lamp



10. Cruise system



11. Small lamp



12. Lift axle



13. Air brake circuit 1 indication



14. Air brake circuit 2 indication



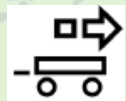
15. Main truck left turning indication



16. Main truck right turning indication



17. Charging low (high) voltage alarming



18. Trailer right turning indicating lamp



19.Cab lock indication



29.Daytime driving lights



20.Fault of brake system



30.Low gear



21.Parking brake



31.Trailer ABS indication



22.Engine common fault



32.Low coolant level



23.ABS fault indication



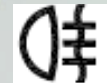
33.Low Adblue level



24.Vehicle exceed speed



34.Temp. of coolant too high



25.Rear fog lamp



35.Low fuel level



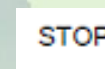
26.Low beam



36.Over-speed of engine



27.High beam



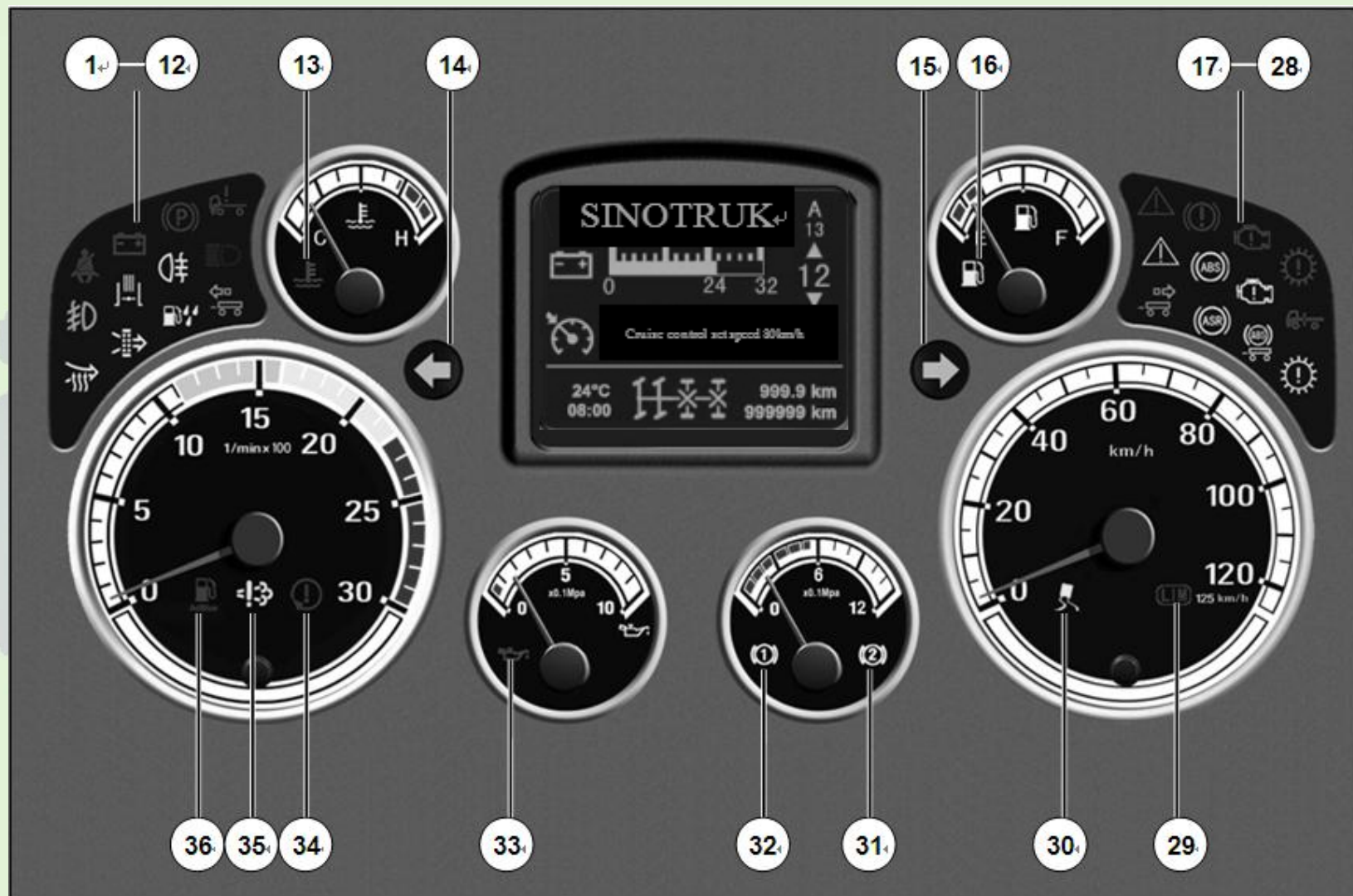
37. Emergency stopping vehicle


















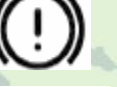




28.Front fog lamp



38.Fault indication signal



With CBCU

- |  |  |
|--|--|
|  1. Safety belt            |  11. Oil-water separation indication                      |
|  2. Battery charging       |  12. Trailer left turning indication                      |
|  3. Parking brake          |  13. High coolant temperature alarming                    |
|  4. Cab lock indication    |  14. Main truck left turning indication                   |
|  5. Front fog lamp         |  15. Main truck right turning indication                  |
|  6. Exhaust brake          |  16. Too low fuel level alarming                          |
|  7. Rear fog lamp          |  17. Alarm symbol for stopping due to serious fault (Red) |
|  8. High beam             |  18. Brake system fault                                  |
|  9. Engine pre-heating   |  19. Alarm lamp for serious fault of engine (Red)       |
|  10. Air filter blockage |  20. Alarm lamp for serious fault of AMT                |



21. Alarm symbol for common fault (Yellow)



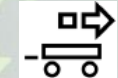
22. ABS fault indication



23. Alarm indication of common fault (Yellow)



24. Air suspension alarm indication



25. Trailer right turning indication



26. ASR working indication



27. Trailer ABS indication



28. Alarm symbol for common fault of AMT



29. Truck speed limiting



30. ESP alarm indication



31. Indication of air pressure circuit 2



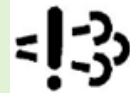
32. Indication of air pressure circuit 1



33. Engine oil pressure too low



34. Engine overspeed



35. Emission exceed alarm











36. Level of Adblue too low






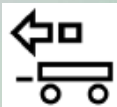



## 12. Indication information on driver's display screen and inspection lamp panel

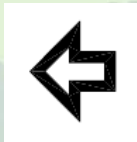
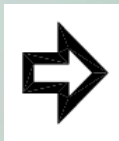


Information description	Inspection lamp panel	Meaning	Comments/Further measures
Safety belt fault		Red	<p><b>Function</b> – Safety belt control: The driver does not fasten his safety belt.</p> <p>The driver must fasten safety belt.</p>
Fault of charging system		Red	<p><b>Service station</b> – Charging control</p> <p>Immediately request SINOTRUK service station for help if necessary.</p>
Fault of parking brake		Red	<p><b>Safety</b> – Parking brake circuit air pressure is too low.</p> <p><b>The truck is still not ready for running!</b></p> <ol style="list-style-type: none"> <li>1. Stop truck immediately, and notice traffic condition!</li> <li>2. Allow the engine rotate at comparatively high idle speed until air pressure is reached (indication information disappeared).</li> <li>3. If brake circuit air pressure can not reach the rated value, please do not move the truck, and please request CNHTC service station for help.</li> </ol>

Information description	Inspection lamp panel		Meaning	Comments/Further measures
Non-locking of cab		Red	<b>Safety</b> – Cab lock: The cab is not fully locked. At least one of the contact sensors of cab locking system is at open circuit condition.	Lock the cab correctly.
Front fog lamp indication		Green	<b>Information</b> - Lighting Front fog lamp has fault.	<ol style="list-style-type: none"> <li>1. Replace bulb immediately!</li> <li>2. Please request CNHTC service station for help if necessary.</li> </ol>
Exhaust brake fault		Yellow	<b>Service station</b> – Exhaust brake Exhaust brake has fault.	Immediately request CNHTC service station for help.
Rear fog lamp indication		Yellow	<b>Information</b> – lighting: Fault of rear fog lamp.	<ol style="list-style-type: none"> <li>1. Replace bulb immediately!</li> <li>2. Immediately request CNHTC service station for help if necessary.</li> </ol>
High beam lamp indication		Blue	<b>Information</b> – lighting: Fault of high beam lamp	<ol style="list-style-type: none"> <li>1. Replace bulb immediately!</li> <li>2. Immediately request CNHTC service station for help if necessary.</li> </ol>







Information description	Inspection lamp panel		Meaning	Comments/Further measures
Engine intake preheat		Yellow	<b>Information-</b> When coolant temperature is lower than - 20°C	When indicating lamp is off, start the engine.
Air filter blockage		Yellow	<b>Information</b> – Air filter Air filter element is blocked	Replace air filter element or request CNHTC service station for help.
Oil-water separation		Yellow	<b>Information</b> Oil-water separation is not thorough.	Replace fuel filter element or request CNHTC service station for help.
Trailer left turning fault indication		Green	<b>Information</b> –Trailer left turn signal lamp: Trailer left turn signal lamp has fault, and the load of turn signal lamp exceeds its allowable value	1.Replace bulb immediately! 2.Inspect turn signal lamp. 3.Please immediately request CNHTC service station for help if necessary.
High coolant temperature		Red	<b>Service station</b> – Engine: Coolant temperature is too high.	1.Switch to low gear to improve engine cooling. 2.Check liquid level of coolant, and add coolant if necessary.




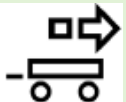


Information description	Inspection lamp panel		Meaning	Comments/Further measures
Main truck left turning indication		Green	<b>Information</b> – Main truck left turn signal lamp: Main truck left turn signal lamp has fault, and the load of turn signal lamp exceeds its allowable value	<ol style="list-style-type: none"> <li>1. Replace bulb immediately!</li> <li>2. Inspect turn signal lamp.</li> <li>3. Please immediately request CNHTC service station for help if necessary.</li> </ol>
Main truck right turning indication		Green	<b>Information</b> – Main truck right turn signal lamp: Main truck right turn signal lamp has fault, and the load of turn signal lamp exceeds its allowable value	<ol style="list-style-type: none"> <li>1. Replace bulb immediately!</li> <li>2. Inspect turn signal lamp.</li> <li>3. Please immediately request CNHTC service station for help if necessary.</li> </ol>
Low fuel		Yellow	<b>Information</b> – fuel: Notice fuel amount.	Fill fuel.
Alarm symbol for stopping due to serious fault		Red	<b>Safety</b>	<ol style="list-style-type: none"> <li>1. Stop the truck immediately, and notice the traffic condition!</li> <li>2. Immediately request CNHTC service station for help.</li> </ol>





Information description	Inspection lamp panel		Meaning	Comments/Further measures
Fault of brake system		Red	<b>Safety</b> – Brake circuit air pressure is too low.	<p><b>The truck is still not ready for running!</b></p> <ol style="list-style-type: none"> <li>1. Stop the truck immediately, and notice the traffic condition!</li> <li>2. Allow the engine rotate at comparatively high idle speed until air pressure is reached (indication information disappeared).</li> <li>3. If brake circuit air pressure is not reached: Do not move the truck, and please request CNHTC service station for help.</li> </ol>
Alarm lamp for serious fault of engine		Red	<b>Information</b>	Immediately request CNHTC service station for help
Alarm lamp for fault of AMT		Red	Information	Immediately request CNHTC service station for help.
Alarm symbol for common fault		Yellow	<b>Information</b>	








Information description	Inspection lamp panel		Meaning	Comments/Further measures
Main truck ABS alarm		Yellow	<b>Information - ABS</b>	<p><b>Please drive the truck slowly and carefully!</b></p> <ol style="list-style-type: none"> <li>1.Wheel locking trend is increasing. Please brake carefully.</li> <li>2.Immediately request CNHTC service station for help.</li> </ol>
Alarm for common fault of engine		Yellow	<b>Information</b>	
ECAS Alarming		Red	<p><b>Service station-Electrical control air suspension</b></p> <ol style="list-style-type: none"> <li>1.If frame is low, reduce the brake effect.</li> <li>2.If frame is high than moving condition, it may be dangerous for shock absorber.</li> </ol>	
Trailer right turning fault indication		Green	<p><b>Information</b> –Trailer right turn signal lamp: Trailer right turn signal lamp has fault, and the load of turn signal lamp exceeds its allowable value</p>	<ol style="list-style-type: none"> <li>1.Replace bulb immediately!</li> <li>2.Inspect turn signal lamp.</li> <li>3.Please immediately request CNHTC service station for help if necessary.</li> </ol>






Information description	Inspection lamp panel		Meaning	Comments/Further measures
ASR indication		Yellow	<b>Information-ASR</b>	
Trailer ABS alarm		Yellow	<b>Information – ABS:</b> Only partial functions are available	<b>Please drive the truck slowly and carefully!</b> 1.Wheel locking trend is increasing. Please brake carefully. 2.Check the connection for connector of tractor – trailer, and clean this connector and plug it completely if necessary. 3.Check the connection cable of tractor – trailer, and replace with a new connection cable if necessary. 4.Immediately request CNHTC service station for help.





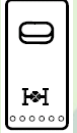

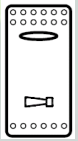













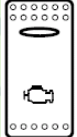



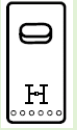

Information description	Inspection lamp panel		Meaning	Comments/Further measures
Alarm lamp for fault of AMT		Yellow	<b>Information</b>	Immediately request CNHTC service station for help.
Truck speed limiting		Red	<b>Function</b> – Truck speed is too fast.	Shift to high speed gear, or reduce driving speed!
ESP Alarming		Yellow	<b>Service station-ESP:</b> There is fault or partial function in ESP system. It no functional when vehicle turning at high speed or sliding.	Immediately request CNHTC service station for help.
Engine oil alarm		Red	<b>Safety</b> – Engine oil pressure: Engine oil pressure is too low or too high.	Check the engine oil level, and fill or discharge a portion of engine oil as required, or immediately request CNHTC service station for help.
Over-speed of engine		Red	<b>Function</b> - Engine Engine speed too high	Shift to high speed gear, or reduce driving speed!



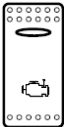
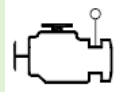
















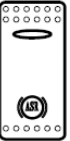



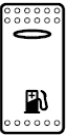

Information description	Inspection lamp panel		Meaning	Comments/Further measures
Alarm for low urea liquid level	 AdBlue	Blue	<b>Information</b> – Urea Notice urea amount.	Fill urea.
Alarm for low air pressure 2		Red	<b>Safety</b> Brake circuit air pressure is too low	<b>The truck is still not ready for running!</b> 1. Stop the truck immediately, and notice traffic condition! 2. Allow the engine rotate at comparatively high idle speed until air pressure is reached (indication information disappeared). If brake circuit air pressure can not reached: Please do not move the truck, and please request CNHTC service station for help.
Alarm for low air pressure 1		Red	<b>Safety</b> Brake circuit air pressure is too low.	













### 13.Rocker Switch and Button

Rocker switch signs		Function	Rocker switch signs		Function
		Hazard alarm switch			Axle differential switch
		Horn switch			All aheel drive switch
		Aux. high beam switch			PTO N- gear switch
		Working light switch			PTO switch
		Wheel differential switch			Engine diagnosis switch
		Heater switch			Transfer case N-gear switch



		Engine PTO switch			Transfer case off-road /road gears switch
		ABS testing switch			Lifting axle regulating switch
		Lifting axle lift switch			Truck testing switch
		Lifting axle lower switch			Warning switch
		Main/aux. fuel tank switch			ASR switch
		Trailer testing switch			Economical run switch

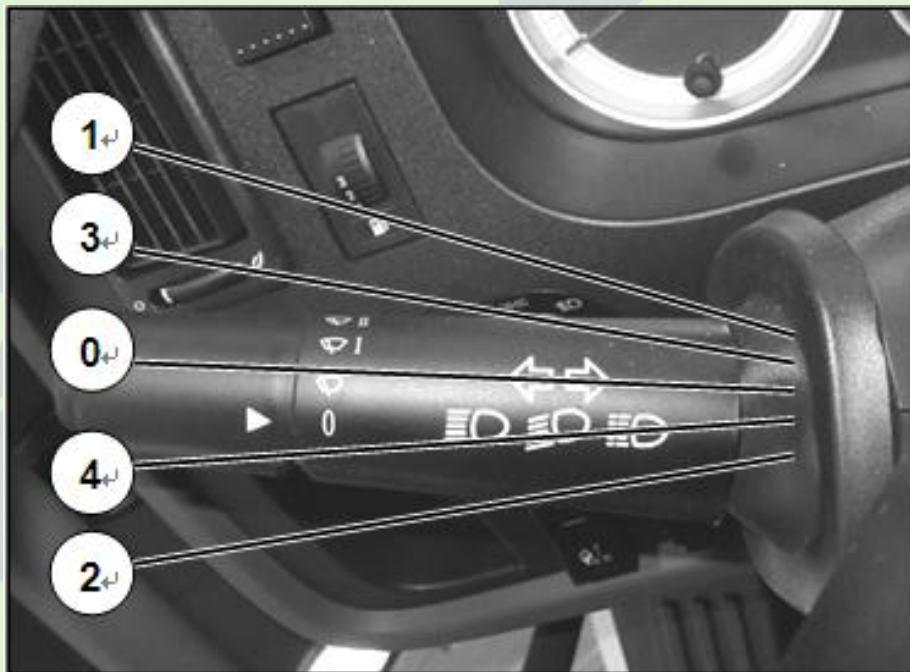


		Engine retarder switch			Centralized lubrication switch
		Cab tilting rocker Seat			Seat heating switch
		ABS off-road switch			



## 14. Combined switch



### 14.1 Left combined switch





The combined switch is located at the left side of the steering column under the steering wheel.

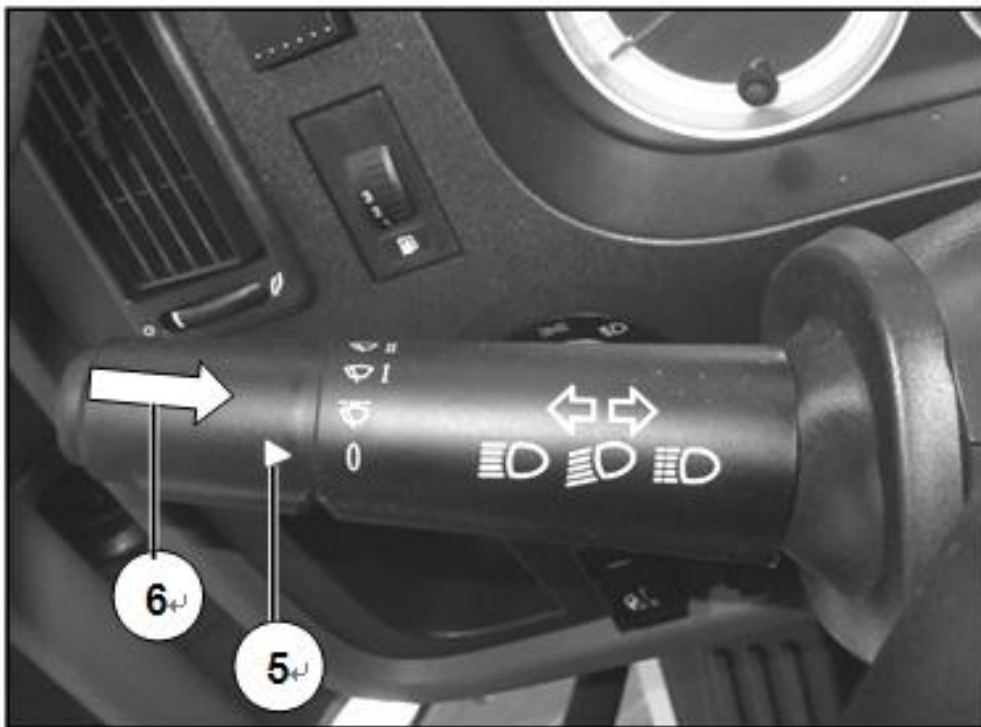
- ① Right turn indication
- ② Left turn indication
- ③ Right lane change indication
- ④ Right lane change indication

Right turn indication

Turn the combined switch to the position ①, the right turn indicator lamp  on the instrument panel will flash. If it is connected with the trailer, the right full-trailer/semi-trailer indicator lamp  will also flash. When the steering wheel returns to the straight position, the combined switch will automatically return to the position 0.

Left turn indication

Turn the combined switch to the position ②, the left turn indicator lamp  on the instrument panel will flash. If it is connected with the trailer, the left full-trailer/semi-trailer indicator lamp  will also flash. When the steering wheel returns to the straight position, the left combined switch will automatically return to the position 0.



## Windshield wiper

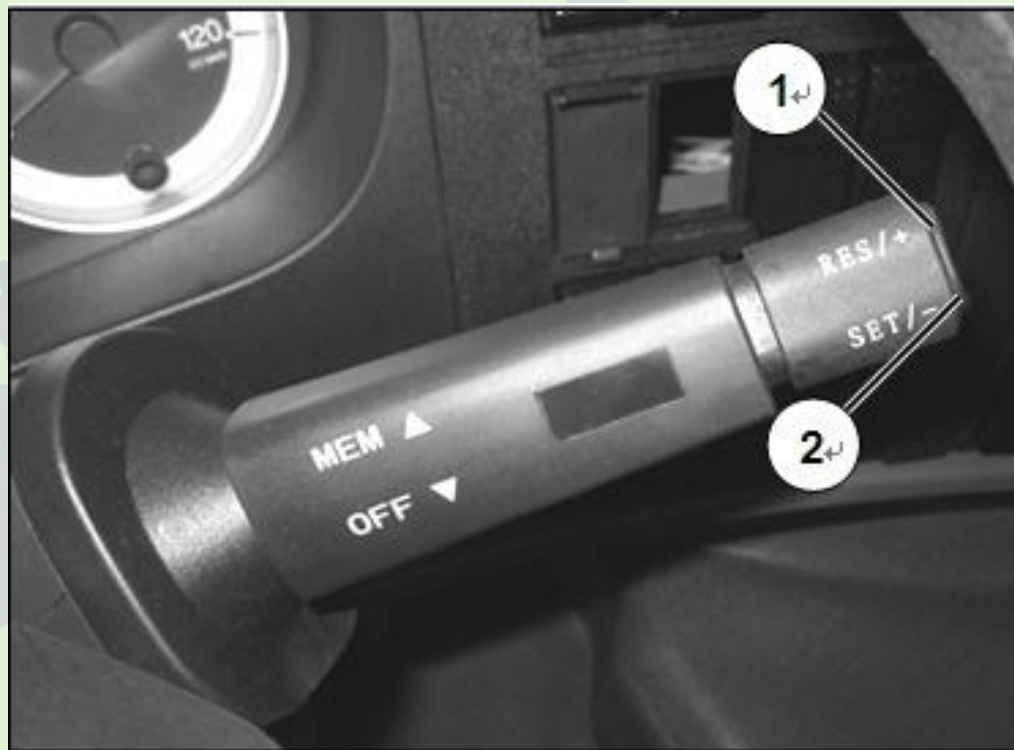
When the switch handle arrow ⑤ is as shown in the Figure, it means the “closing the windshield wiper”, namely, the “intermittent wiping”, “normal wiping”, and “quick wiping” from left to right.

## Windshield washing system

- Short press (1 s at most) the button ⑥ to the limit according to the arrow direction, the windshield washing system will spray the washing liquid to the windshield for once and perform the circulation wiping for once.
- Short press (longer than 1 s) the button ⑥ to the limit according to the arrow direction, the windshield washing system will spray the washing liquid to the windshield for three times and perform the circulation wiping for three times.
- Press the button ⑥ to the limit according to the arrow direction, the windshield washing system will continuously spray the washing liquid to the windshield and perform the circulation wiping.



## 14.2 Right combined switch



The position of right combined switch is under steering wheel and steering column's right side .  
Consist of 5 functional switch :

- 1 Setting button “+” (RES+)① :  
Increase the vehicle speed or idle speed;
- 2 Setting button “-” (SET-)②:  
Decrease the vehicle speed or idle speed
- 3 Resume gear (MEM): Move the handle switch
- 4 Cancel gear (OFF): Move the handle switch
- 5 Exhaust brake: Press the handle.

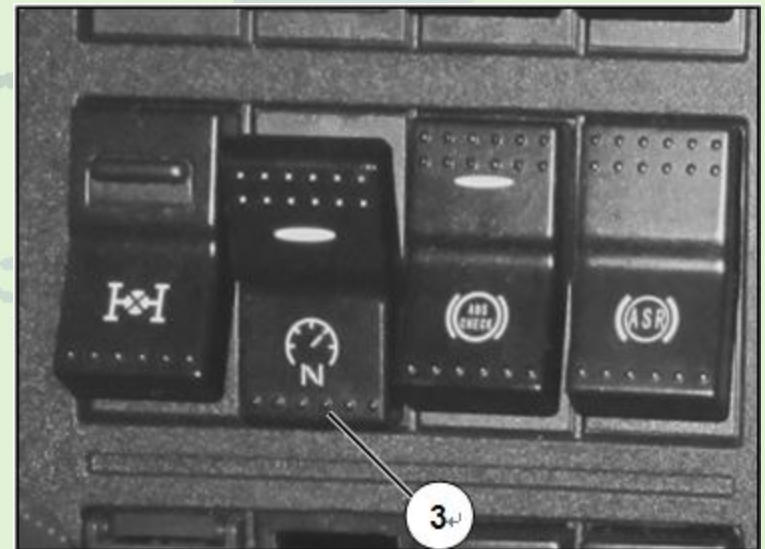
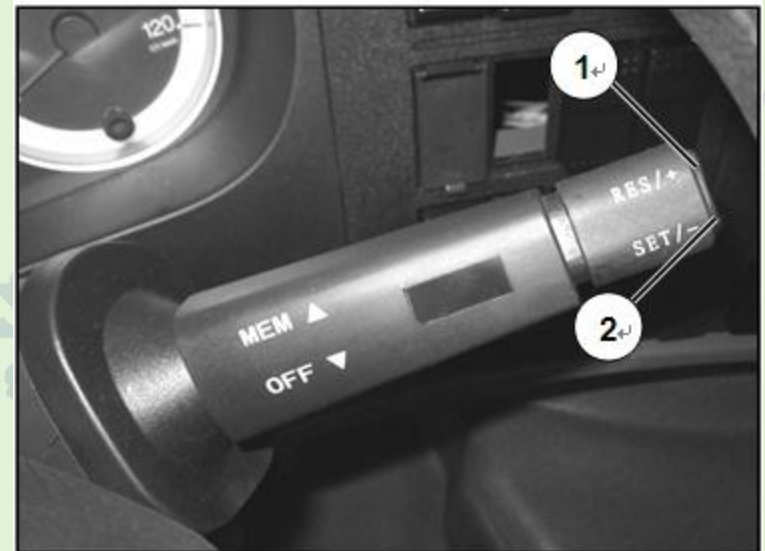
## Vehicle constant speed cruise adjustment

Vehicle cruise control function is making vehicle move in accordance with constant speed, meanwhile the driver no need press the accelerator pedal. It should content these conditions as follow:

- Vehicle speed signal is normal, and more than 30Km/h;
- RSL/RSG switchover ③ at default state;
- The engine CAN harness no fault ;
- The engine isn't at exterior torque control mode;
- The transmission isn't at neutral gear;
- The clutch pedal isn't depress ;
- The brake pedal isn't depress.

The driver can set cruise speed via press the handle end setting button “+” ① or setting button “-” ②, now the vehicle is in cruise mode, when driver release the accelerator pedal , the vehicle will travel in accordance with setting speed. In process of cruise, the driver can change target cruise speed via lift the handle setting button “+” or press it setting button “-”. When any one condition above can't content or driver operate cancel gear (OFF), the cruise mode will quit automatically.

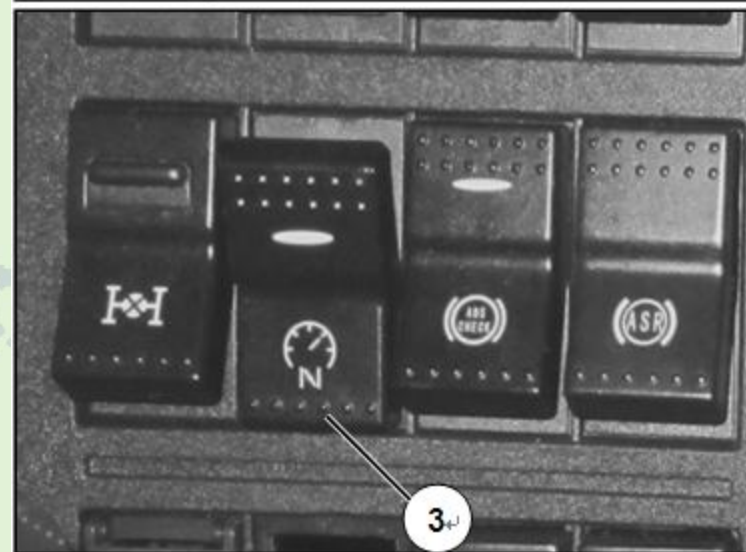
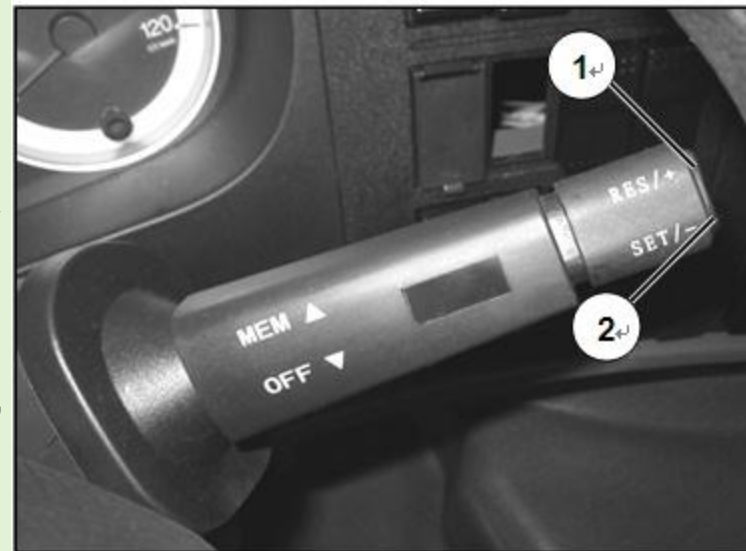
When the condition content again, vehicle will be in cruise mode also when driver turn on resume gear (MEM) switch, the target cruise speed is set speed last time.





## Vehicle variable speed limit adjustable function

After press RSL/RSG switchover switch③, the driver can achieve speed limit adjustable function via the handle. Press the handle end setting button “+” ① or setting button“-” ②,enter into variable speed limit setup mode , setting button “+” ① or setting button“-” ②can briefly press . After finish setting , the speed of vehicle can't exceed limit value normally , except the driver depress the accelerator pedal to the end.





## 15.Key Switch



### Warning !

- The key starter switch, gear III is the auto-reset position, i.e. the key starter switch will automatically return to the gear position II after the key is released at this gear position.
- If failed to start up the engine and need to restart, You can restart the engine only after the key starter switch turned on the gear I , otherwise the key starter switch will be not able to shift from the gear II to III.
- During the drive, never shift the key starter switch to the gear I or 0 position. Because this will flame out the engine and deprive the steering system from boosting and hinder the steering wheel operation.
- When leaving your truck, take out the key even if in short time, otherwise, children or unauthorized persons might possibly start up the engine and even drive the truck away.

Gear position	Use	Remark
0( LOCK )	Cut off the key starter switch and lock up the steering wheel	Pull up the key
I (ACC)	Communicate with the electric equipment while parking	
II (ON)	Drive position	
III(START)	Engine startup	Return to gear II after releasing



## 16. 24V Cigar Lighter/ Ashtray /24V Power Socket

### 16.1 24V Cigar Lighter

- The key switch is at “ I ”or“ II ” position.
- Push the cigarette lighter① button until the lock-up sound is heard . After the heating element turns red, the cigarette lighter will bound out automatically.

### 16.2 Ashtray

When in use , draw out the ashtray③ is Ok.

### 16.3 24V Power socket

24V Power socket②, it can supply power for 24V device, the rated load is 300W.







## 17. Lighting system


### 17.1 Rotary lighting switch (Light lamp switch)

 Turn off of lighting

 Position light position

 Low beam position

 Front fog lamp indicator (Green)


 Rear fog lamp indicator (Yellow)

#### 17.1.1 Turn on position lamp

Turn the rotary lighting switch to the position ② light, the clearance lamp, side marker light and switch and Instrument background light up.





17.1.2 Turn on the front fog lamp  
Turn the rotary lighting switch to the position light② or low beam position③, press, by jogging, the rotary lighting switch for one time, the front fog lamp lights up, and at the meantime, the rotary lighting switch and front fog indicator on the combination instrument  will light up ; press once again the rotary lighting switch, the front Fog lamp goes off, and the rotary lighting switch and the front fog indicator on the combination instrument will die down.





### 17.1.3 Turn on the rear fog lamp

When the rotary lighting switch is located at the position light②, pry one time the rotary lighting switch under the premise of the front fog lamp brightened, the rear fog lamp lights up, the rotary lighting switch and rear fog lamp indicators on the combination instrument



light up at the meantime; pry once again the rotary lighting switch, the rear fog lamp turns off, and the rotary lighting switch and rear fog lamp indicators on the combination instrument go off.





### 17.1.4 Headlight control

Lighting/wiper combination switch


④ High Beam position

⑤ Overtaking light position

#### Turn on the Low Beam

- Turn the key starter switch on the position II.
- Turn the rotary lighting switch to the Low Beam position ③. Set the light control part on the lighting/wiper combination switch on the position 0.

#### Turn on the High Beam

- Turn the key starter switch on the position II.
- Turn the rotary lighting switch on the low beam position ③; Set the light control part on the lighting/wiper combination switch on the High Beam position ④.
- High beam indicator light  on the combination instrument lights up.





## Turn on the Overtaking Light

- Push the light control part on the light/wiper combination switch on the overtaking position ⑤, as per the arrow direction shown as in figure, the high beam lights up
- Release the light/wiper combination switch, the combination switch will automatically bound back on the gear 0 position, and the high beam goes off at the meantime.



## 17.2 Emergency alarm

Press down the emergency alarm switch⑥, the main vehicle L/R turn lights light up, and the L/R turn indicators on the combination instrument flash and the buzzer alarms fast (the trailer does if the system judges the current truck towed with the trailer), the trailer L/R turn lights and the L/R turn indicators of trailer will flash together with the main vehicle.





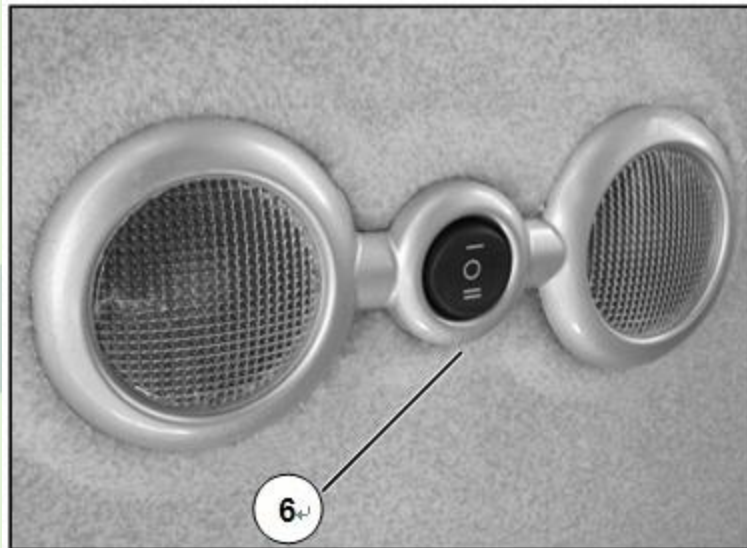


### 17.3 Interior light

When the switch⑥is set on the gear I , the interior light is communicated;

When the switch⑥is set on the gear 0, the interior light is off;

When the switch⑥is set on the gear II , the interior light is on;



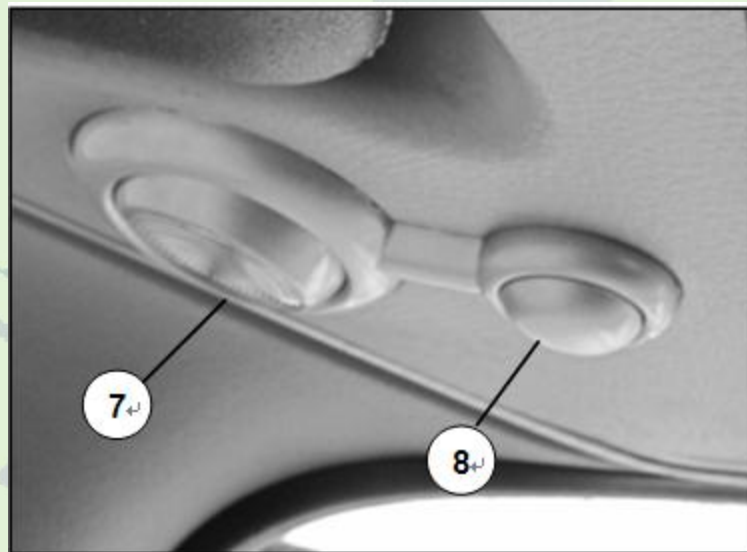
### 17.4 Reading light

Reading light (It can rotate)

Press the reading light switch⑧ to communicate with the reading light.

Repress the switch⑧ to turn off the reading light.

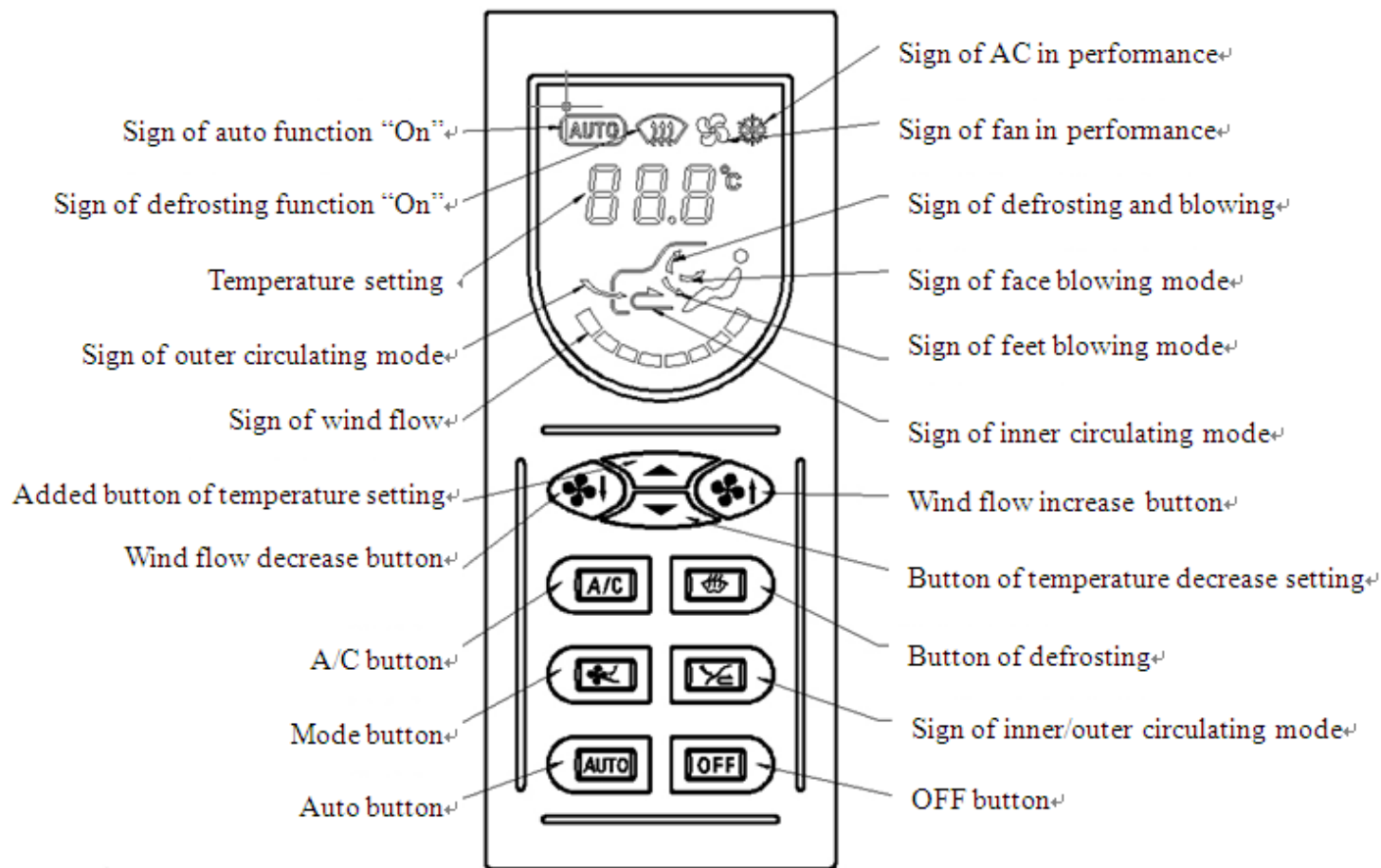
Turn the head ⑦ to the required position as needed.









## 18.A/C System

The construction of A/C control panel and meaning of every part are shown in figure:











Description panel control

SN	Buttons	Function	Description
1	 Inner/Outer circulating button	Switch over of inner/outer circulation	<ol style="list-style-type: none"> <li>1.Press the button once, the system will switch one time between the inner/outer circulating mode</li> <li>2.Press the button in AUTO MODE to switch the inner/outer air operation state, the system won't exit from the AUTO MODE.</li> <li>3.When the system is set in the inner circulating mode, the system will, in fixed interval, automatically switch to the outer circulating mode for a period of time, then return to the inner circulation.</li> </ol>
2	 Temperature increase	Press the button once for increase of temperature setting	Press this button in AUTO MODE to change the temperature setting, the system won't exit from the AUTO MODE.
3	 Temperature decrease	Press the button once for decrease of temperature setting.	
4	 AUTO button	Switch into AUTO operation mode	<ol style="list-style-type: none"> <li>1. When the A/C system is on the position OFF, press this button, the A/Csystem enters into AUTO MODE.</li> <li>2. When turning on the A/C system, press this button if the A/C system is currently in manual operation mode. The A/C system will enter into the AUTO MODE.</li> <li>3. In AUTO MODE, press this temperature increase/decrease button, to change the set temperature, but the system will not exit from the AUTO MODE.</li> <li>4. When the system is already in AUTO MODE and the setting of temperature has been manually changed, press this button, the system will recomputer and set the temperature as per the program instead of exit from AUTO MODE.</li> <li>5. Exiting from the AUTO MODE while pressing MODE button, air flow increase and decrease button.</li> </ol>



5	 OFF button	System turn off	<ol style="list-style-type: none"> <li>1. With the A/C in position ON, press the OFF button to enter into the state OFF, the monitor screen turns off while all actuating units shut down.</li> <li>2. With the A/C in state OFF, press the Defrosting button, the system starts operating and enters into Defrosting mode.</li> <li>3. With the A/C in state OFF, press the Air Flow Increase button to start operating, and enters into Manual-mode. At the meantime, the air flow is on the position I, but the temperature. The operation state of setting temperature, mode and inner/outer circulation etc. will use the state previously set by the user.</li> <li>4. With the A/C in state OFF, press the AUTO button to start the operation and enters into the AUTO MODE.</li> <li>5. Provided the A/C was previously not turned off by use of the button OFF, the A/C will automatically enter into the operation mode and interface originally set by the user when ignite again. If in Manual-mode when the reignition is made, the AC and air flow will not restore; but if in AUTO MODE, press the AUTO MODE to run.</li> </ol>
6	 MODE button	Change of blowing mode	<ol style="list-style-type: none"> <li>1. The system sets in total five blowing modes, i.e. Face Blowing, Face/Feet Blowing, Feet Blowing, Feet Blowing/Defrosting and Defrosting(Here, the Defrosting only aims to the blow direction and doesn't mean the defrosting function ON/OFF ).</li> <li>2. In AUTO MODE, press this button, the system will exit from the AUTO MODE and enters into Face Blowing Mode.</li> </ol>
7	 A/C button	A/C compressor On/OFF	<ol style="list-style-type: none"> <li>1. In Manual-Mode, the state (Breath/OFF) will switch once per press.</li> <li>2. When the AC starts up, the system will automatically set the Air Flow to the level 2, if the blower doesn't operate yet.</li> </ol>

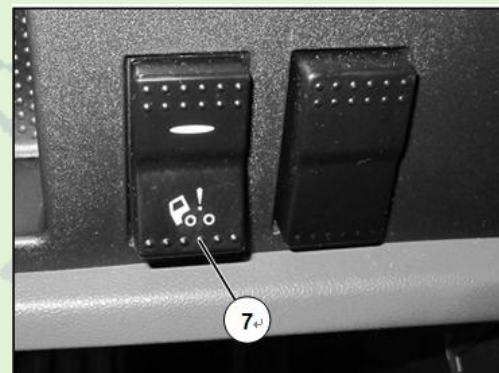
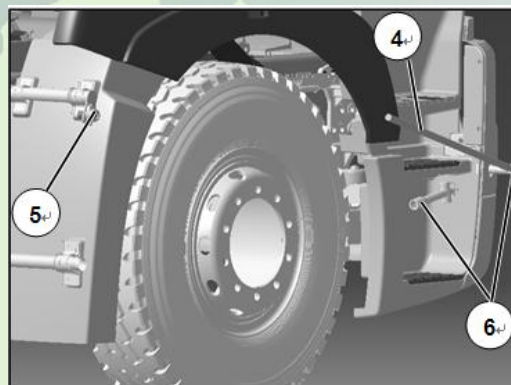
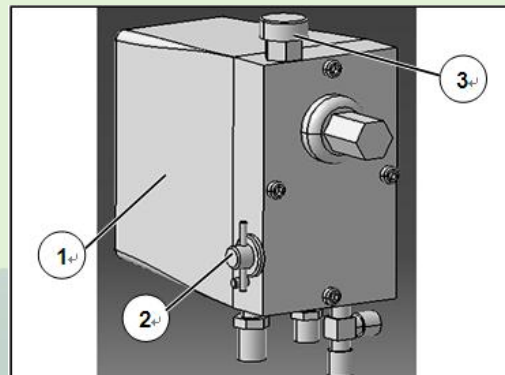


8	 Defrosting button	Switch into forced defrosting	<ol style="list-style-type: none"><li>1. press this button in non-defrosting state, the A/C will enter into the Defrosting mode, press again the defrosting button to exit from the Defrosting mode and restore the previous state before defrosting</li><li>2. The defrosting state will automatically memory and perform the operation mode and interface previously set by the user. The regulation of temperature, AC, Inner/Outer circulating and air flow will not enable the exit from the defrosting mode.</li></ol>
9	 Air flow decrease button	Air flow decrease	<ol style="list-style-type: none"><li>1. Each time you press, the air flow will reduce one level and in progress down to zero. When down to the level 0, the compressor will not work and the A/C Figure doesn't display.</li><li>2. In AUTO MODE, the air flow mode will exit from the AUTO MODE when manually modified.</li></ol>
10	 Air flow increase button	Air flow increase	<ol style="list-style-type: none"><li>1. Each time you press, the air flow will increase one level and in progress up to the level 4. When up to the max. level, the compressor will remain unchanged.</li><li>2. In AUTO MODE, the air flow mode will exit from the AUTO MODE when manually modified.</li><li>3. The fan can turn on only when the engine is running.</li></ol>



## 19. Cab tilting mechanism

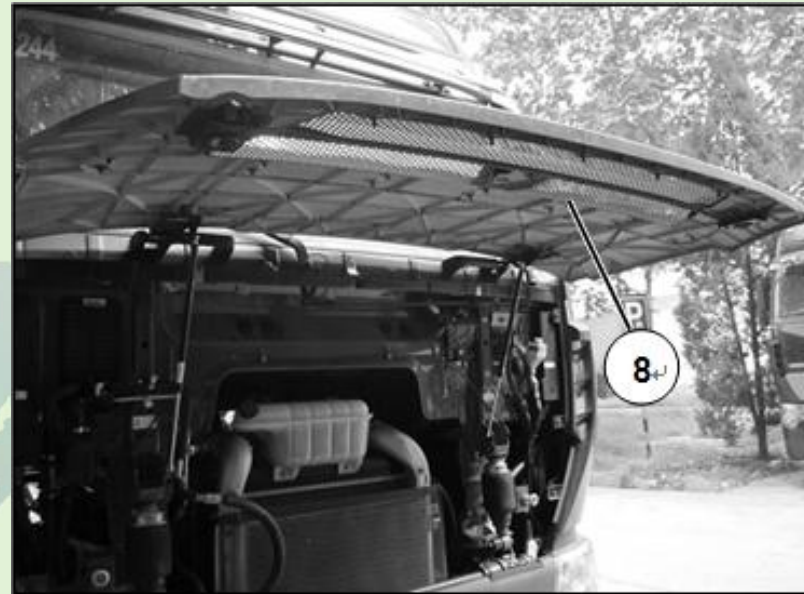
- 1 Hydraulic handle oil pump
- 2 Reversing valve
- 3 Oil plug
- 4 Crowbar
- 5 Switch
- 6 Reversing tool
- 7 Rocker switch



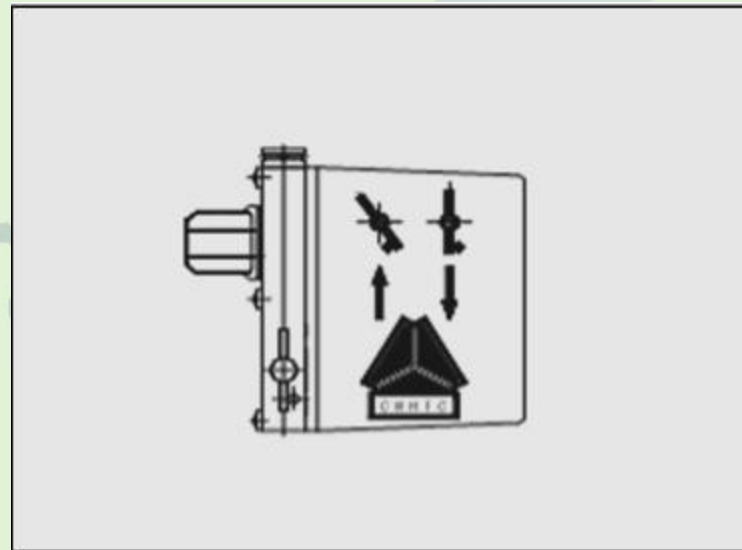
## 19.1 Cab tilting operation

Prior to tilt the cab, the face cover has to be opened⑧.

press the rocker switch⑦(only used to the electric lifting) and close the doors.



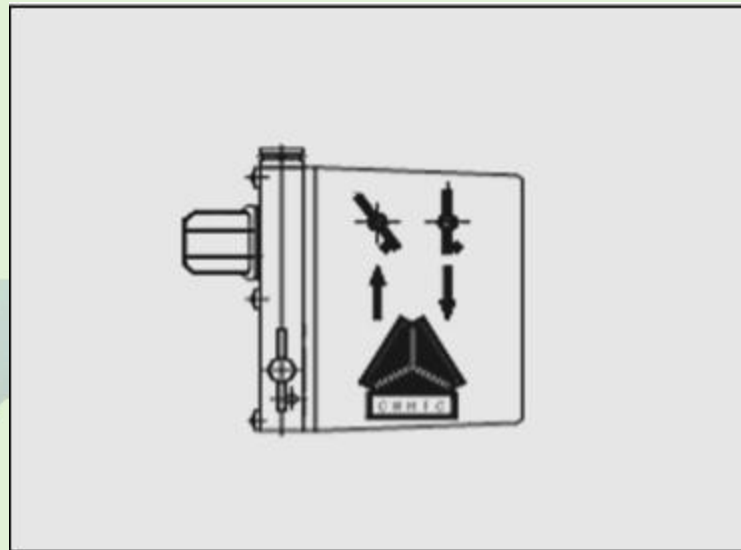
Turn the reverser of tilting oil pump on the position “↑” and carry out the tilting operation by use of the wrecking bar to rock the oil pump(or press the switch ⑤).





## Tilt back the cab

Tilt back the cab on the original position: turn the reverser of tilting oil pump on the position “↓” rock the hand pump (or press the switch ⑤ ) to tilt back the cab.



- When the cab drops, the rubber bellow⑨ connected with upper intake port has to closely contact in place with the lower intake port to prevent from dust ingress
- Finally check the lock-up signal light on the dashboard. If the cab is not locked, the lock-up signal lights up.
- Turn off the rocker switch⑦ inside the cab







## 20. MP3/MP5 Player

### 20.1 MP3 Player





1. PWR/MUTE: PWR/MUTE: ON/OFF(Long press) ; Mute (Short press);
2. SRC /SOUND: Sound source choosing : Aux In/USB(Short press); enter into or choose sound mode (Long press);
3. AUX IN: Standard audio input plug;
4. USB PLUG;
5. VOLUME+: Increase the volume;
6. VOLUME-: Decrease the volume;
7. 1/RND: Radio save P1 ; Random play mode (USB mode);
8. 2: Radio save P2;
9. 3/ RPT: Repeat play mode (USB mode);
10. 4/ D▲: Prev. track(USB mode);
11. 5/ D▼: Radio P5 ; Next track(USB mode);
12. 6/ SCAN: Radio P6 ; Scan mode(USB mode);
13. To low frequency radio search (radio); Select last tracks (USB device);
14. AST/ SET: Auto save the radio tuner (Short press) ; Enter/Exit setting surface (Long press)
15. To high-end frequency radio search (radio), select the next track (USB device);
16. BAND: Select the radio band;



## 20.2 MP5 Player





- 1.mute button;
2. FM button;
3. AM button;
4. USB;
5. SD card;
6. PWR key and VOL key; PWR function , press shortly to open , in the open state, keep press will close the machine, but press shortly will enter play set state;  
VOL key: turn clockwise will turn up the volume, otherwise will turn down.
7. Digital display;
- 8.Function switch/backward key/menu;
9. Full-frequency search and store station, and automatically sort according to the strength of signal;
- 10.Forward search /forward key;
11. Backward search/backward key;
12. MANUAL key (read inside TF card, as no IF card, so it's no use) ;
13. Enter key and manually change channel key;
- 14.TEXT and radio state selection 6;
- 15.Picture and radio state selection 5;
16. Movie and radio state selection 4;
- 17.SD card, USB interface;
18. Music and radio state selection 3;
- 19.Music sound key and radio state selection 2;
20. Pause key and radio state selection 1



# Content



**SITRAK-T7H Vehicle brief introduction**



**SITRAK-T7H Function introduction**



**SITRAK-T7H Operation specification**



**SITRAK-T7H Maintenance and Safety**



## 1.Engine Start

Before the engine start, check if the main switch of the battery is engaged.  
Avoid unnecessary engine start to protect the battery.

### **WARNING !**

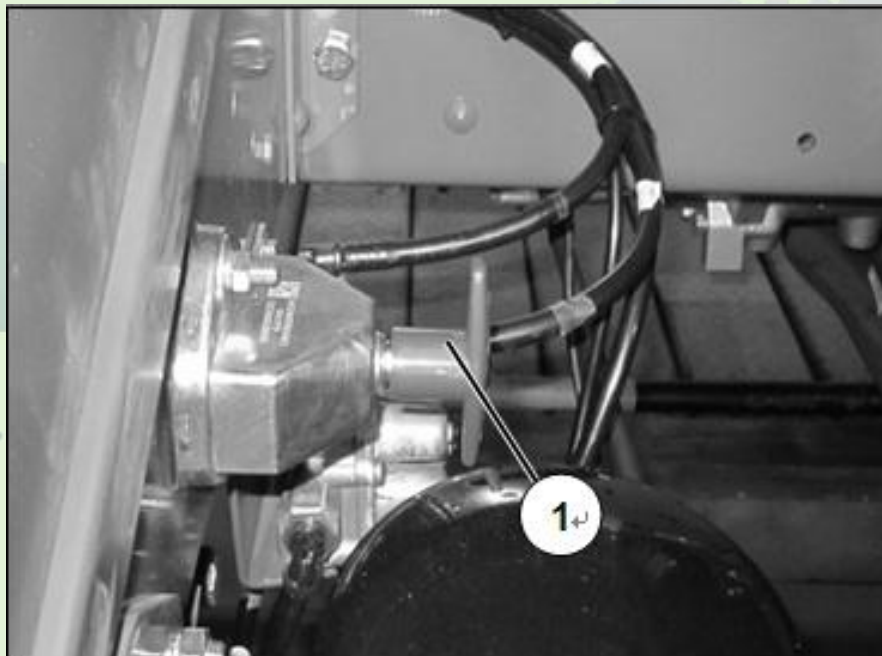
- The main switch of battery shall be off if the vehicle is parked for long or the electrical system is maintained. Do not disconnect the main switch with the engine running.
- Do not release or remove the battery terminal end with the engine running.

Engage the switch

- Power supply can be connected to the whole truck by turning the handle①, outside the battery box, anticlockwise to a horizontal position.

Disconnect the switch

- Power supply can be disconnected to the whole truck by turning the handle①, outside the battery box, clockwise to a vertical position.





## Caution for accidents!

- Do not turn off the key switch in driving and always set it to “II”.
- Remove the key before leaving, even for a short time.

## Set the key to “II”

Related lamps will be on in turn: Position lamp - brake lamp/reversing lamp on - rear fog lamp/working lamp on - front fog lamp/lower beam lamp on...the cycle goes round and round.

Meanwhile, the instrument indicator lamps will be on one by one, and the instrument pointer will oscillate from 0 to MAX repeatedly, and the information display will shift between “Drive display”, “Input information display” and “Output information display”.

If a system fault is detected, related fault will flash on the information display (recycling display for more faults).



-Apply the service brake and shift the transmission to neutral or depress the clutch pedal.

**Note: If the clutch pedal is not depressed with the transmission engaging a gear, the engine can not be started.**

- Depress the clutch pedal.
- Set the key to “III” of engine start.
- The starting time shall not exceed 15 s.
- Release the key after start.

### WARNING !

- Check the driver display immediately after the engine is started, as shown in “Driver display and detector lamp instrument panel”.

-When the vehicle is started up, the warning lamp “Oil pressure alarm” on the driver display will be on, and the central warning lamp will flash, in such case, stop the engine and identify the fault.

Other lamps will be off after the checking/warning functions are completed. Do not start the vehicle until the fault display mark “STOP” on the driver display disappears.

-For failed engine start

- Anticlockwise turn the key back to “0”.
- Wait for 30 s to restore the battery.
- Repeat the above starting steps.







Before starting the vehicle, check if the service brake and parking brake systems function properly.

When the engine is started, the hand brake handle only can be released for startup until the system pressure reaches over 0.55 MPa (5.5 bar), the warning lamp is off and alarm buzzer stops ringing. The vehicle can not achieve the state suitable for driving before the air pressure reaches 0.7 MPa (7 bar), namely, the specified braking performance is achieved only when 0.7 MPa (7 bar) is reached.





## 2.Engine Stop

Engine stop (Only when truck is in stationary state)

### **WARNING !**

If the engine is kept running with high load, the coolant temperature will rise, here, do not immediately shut off the engine, instead, make it idly run for 3-5 min and stop it until the coolant temperature drops, or else, the engine may be damaged.

- Set the transmission to neutral.
  - Apply the parking brake.
  - Anticlockwise turn the key to “0”.
- Here, the engine stops.
- Turn off the battery switch.



### Locking of steering wheel

- Turn the key to “0” and remove it.
- Rotate the steering wheel until you hear it locks.

In such case, the steering wheel can not rotate.

### **WARNING !**

**Never lock the steering mechanism during driving.**



## 3. Transmission

### 3.1 Manual Transmission(HW Series)

#### Shift

Start the truck at gear 1 or gear 2 on the basis of road condition.

#### Shift within the range of low gears/high gears

- Push the clutch down to the end at each shift.
- Engage or separate clutch slowly.
- Shift the control lever to gear position as per the gear label.

#### WARNING!

- In shifting, driver shall be familiar with the running range at each gear, without shifting to a gear inapplicable to the truck speed.
- While running downhill, truck shall be shifted to low gear to make full use of the engine brake.
- Reverse gear can be engaged to only when truck is stationary and engine at idle speed.
- Hand brake shall not be released for shift control until truck pressure reaches the rated value.
- When speed of vehicle is higher than 25Km/h, it mustn't shift to low range gear from high range gear.





### 3.1.1 Transmission - with synchronizer (HW19710T)

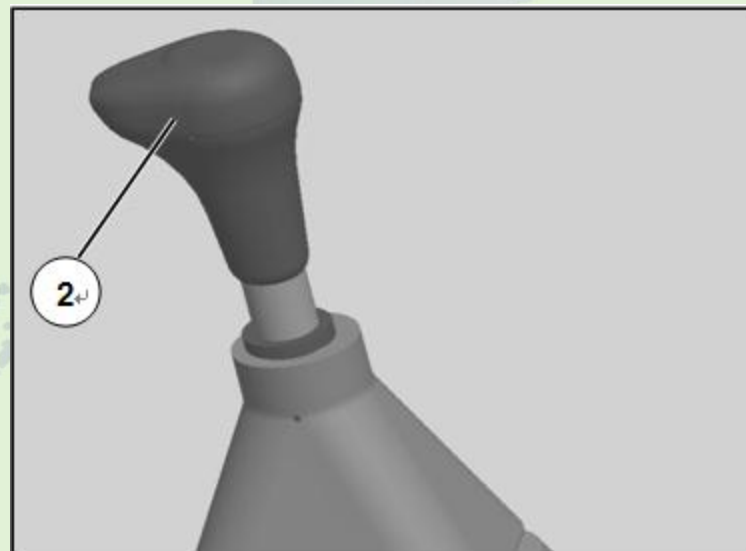
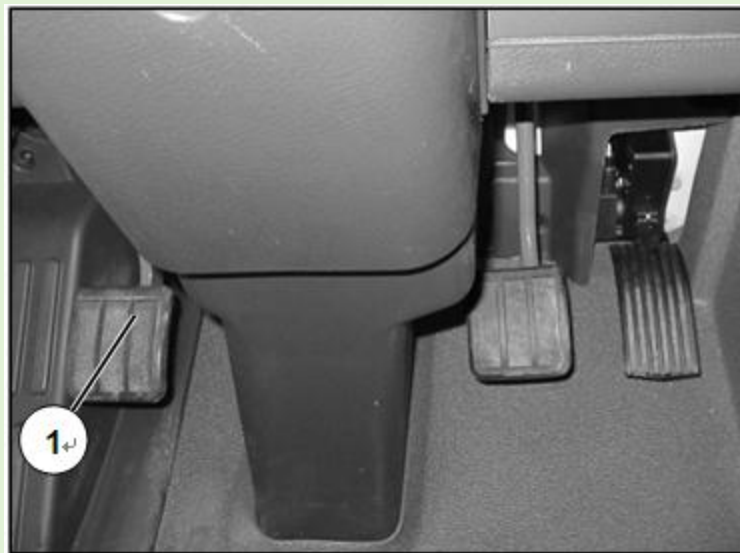
Using pneumatic booster structure for shift control is labor saving and easy to operate.

#### Shift steps of synchronizer:

- Push clutch pedal ① down to the end in shifting.
- Stably and accurately move gear shift lever ② to the wanted gear; in confronting with resistance, the wanted gear can be engaged to by moving it with gradual boosting force for a moment.
- Stably loose the clutch pedal and accelerate truck to an appropriate speed.

#### Shift steps of mesh sleeve:

- Shift of mesh sleeve requires for overcoming large shift resistance and applying a stable force for shift.
- In running the truck, the shifting from high gear to gear 1 or gear 2 shall use the “double clutch method”.
- The shifting to reverse gear must be done after the truck is stopped. Otherwise, it's easy to damage the mesh sleeve.





## 3.1.2 Transmission-without synchronizer

(HW23710/HW19710/HW19710C/HW19712/HW20716 and so on)

### **Shift steps:**

- Shift of mesh sleeve requires for overcoming large shift resistance and applying a stable force for shift
- In running the truck, the shifting from high gear to gear 1 or gear 2 shall use the “double clutch method”.
- The shifting to reverse gear must be done after the truck is stopped. Otherwise, it's easy to damage the mesh sleeve.

### **Note:**

- In shifting, clutch must be fully separated, with gear shift lever being engaged to the right gear.
- The switch valve of gear shift lever has two alternative positions: high-gear position and low-gear position. When stopping the truck, the switch valve shall be placed at the neutral-gear position within the low-gear zone
- After switching on brake valve, the truck shall not be engaged to a gear and started until air pressure is raised to the pressure for disengaging.

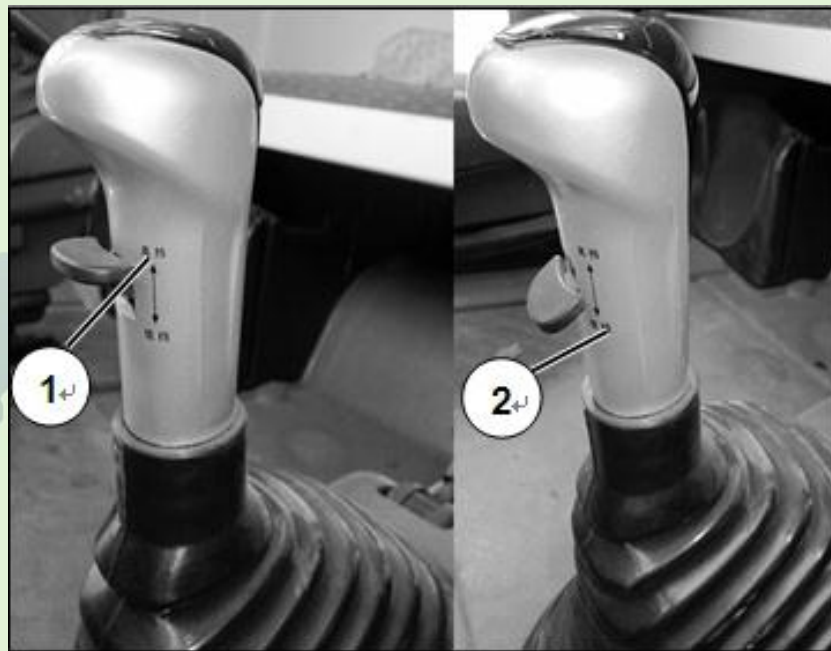


## 3.1.3 Shift between high gear and low gear

### **WARNING!**

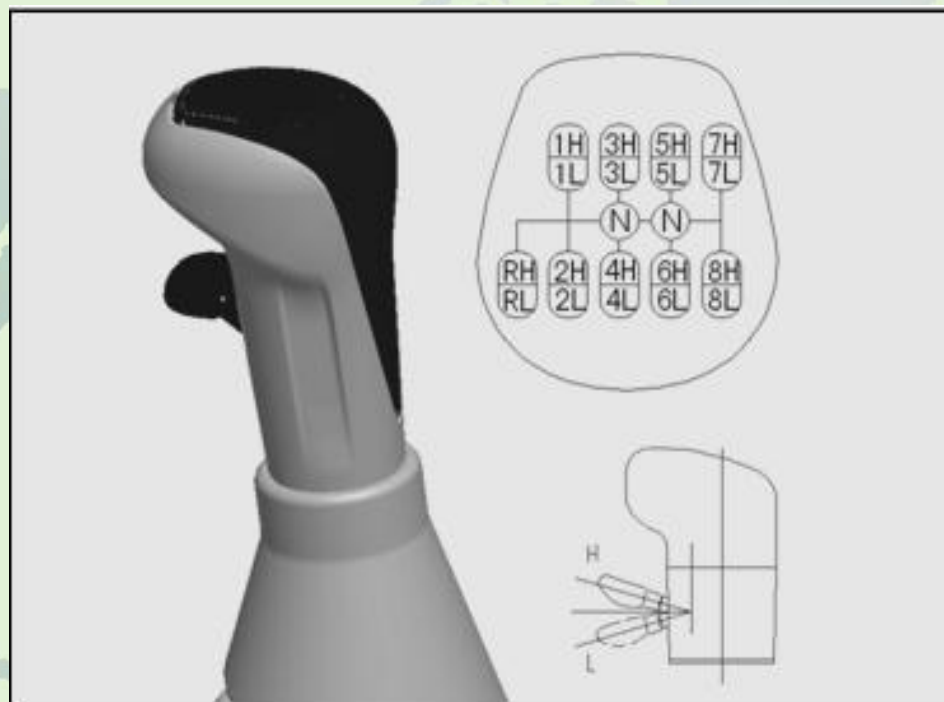
- Advance shifting to any lower gear is not allowed, except that the current truck speed is within the allowable range of the wanted gear.
- Push the clutch down to the end at each shift.
- Do not carry out gear jump while shifting transmission from low gear zone to high gear zone, and vice versa.
- Do not shift between low gear zone and high gear zone while the truck is running downhill.

The switch valve of gear shift lever has two alternative positions: high-gear position ① and low-gear position ②.

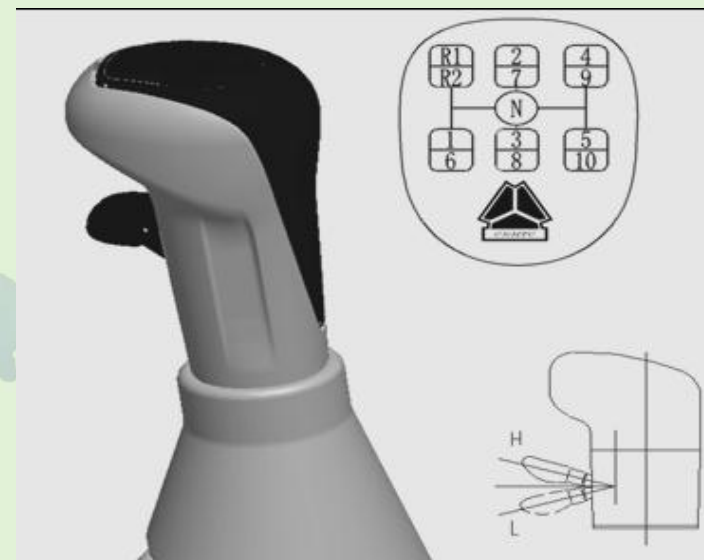




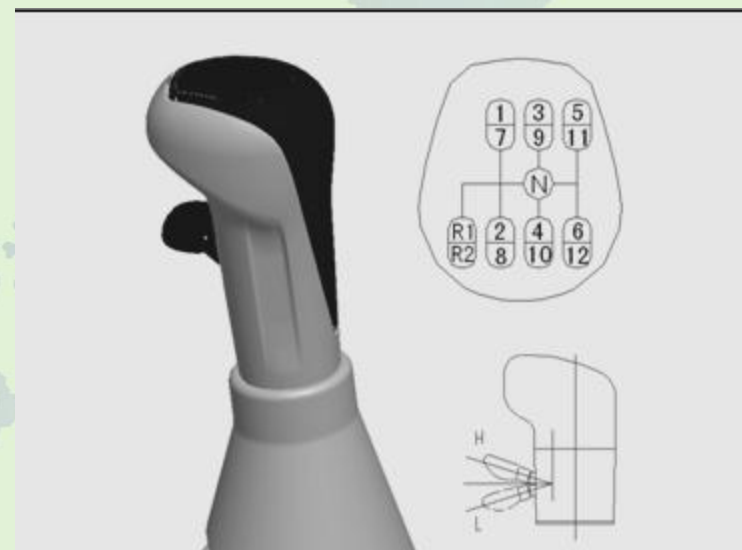
1) For the differential gear (semi-gear) gearbox-HW20716 series, shift first the switch on the shift lever(see figure), The operating procedure from the gear 1L to 1H: shift the switch valve from the position L to H, then step down the clutch(note: the clutch has to be stepped to the dead end), release the clutch. The shifting is finished (this process doesn't require the lever action); the operating procedure from the gear 1H to 2L: Firstly shift the switch valve from the position H to L, then step down the clutch, the lever will return the neutral gear. Shift on the gear 2, then release the clutch, the shifting is finished and so forth up to the gear 8H, the same procedure applicable to the gear decrease. If you step once on the clutch pedal first, and release, then shift the switch on the lever, the gear position will not shift.



2) For the HW19710(HW23710/HW19710T), which shifts from the low gear to the high gear zone (vice versa), you should firstly place the lever valve on the position H (L), then return to the neutral, wait intentionally for a while, shift up on the gear 6(5) instead of trip gear operation, otherwise it will affect the service life of auxiliary transmission synchronizer. The lever is placed on the gear position to enable the lever valve H-L switch over, instead of H/L gears. The switch over is allowed only on the N-position.



3) For the HW19712, which shifts from the low gear to the high gear zone (vice versa), you should firstly place the lever valve on the position H (L), then return to the neutral, wait intentionally for a while, shift up on the gear 7(6) instead of trip gear operation, otherwise it will affect the service life of auxiliary transmission synchronizer. The lever is placed on the gear position to enable the lever valve H-L switch over, instead of H/L gears. The switch over is allowed only on the N-position.





## 3.2 Manual Transmission (ZF Series)

Transmission - with synchronizer  
(ZF16S1670/ZF16S1950)

### Shift

Note:

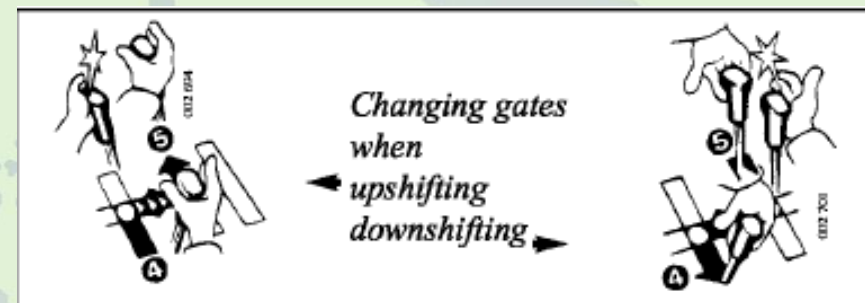
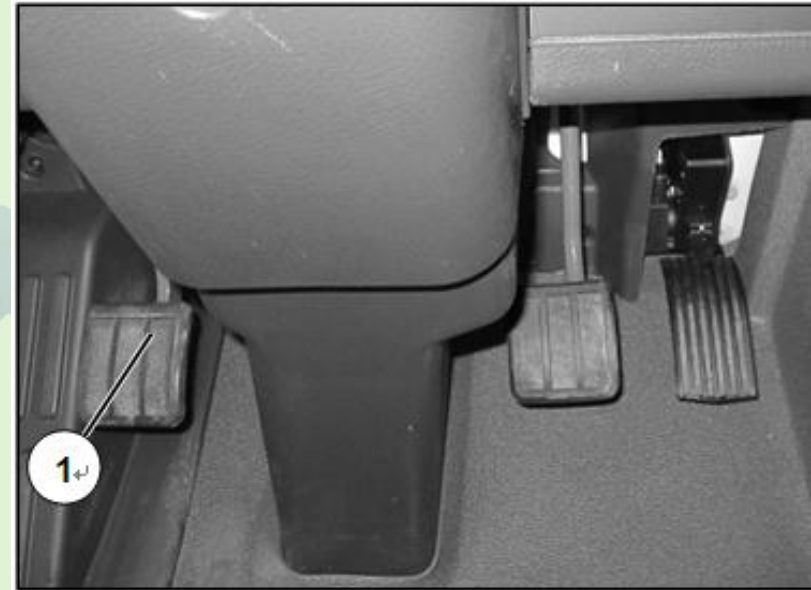
1. To protect the transmission ,always fully disengage the clutch①;
2. To avoid causing severe damage to the transmission and engine ,only change down a gear down a gear if the vehicle has been braked to below the maximum speed for the intended gear.
3. Move gear lever quickly but gently . This is particularly important when the transmission oil is cold . It is best to move the gear lever with open palm of your hand , as shown in Fig.
4. When engaging a gear ,hold the selector lever against the pressure point until the synchronization process is complete and the gear is engaged

### Double H

To move between gates 3/4 and 5/6, strike the gear lever briefly with a palm of your hand , then moved swiftly onwards into the desired gear.

### Reverse gear

Only engage reverse gear when the vehicle is at a standstill.



## 3.3 AMT Transmission

### Smart Shift device

Shifting process is controlled by TCU automatically(also driver send out shifting request),it can decrease fatigue strength and increase driving comfortable obviously.

### Smart shift system

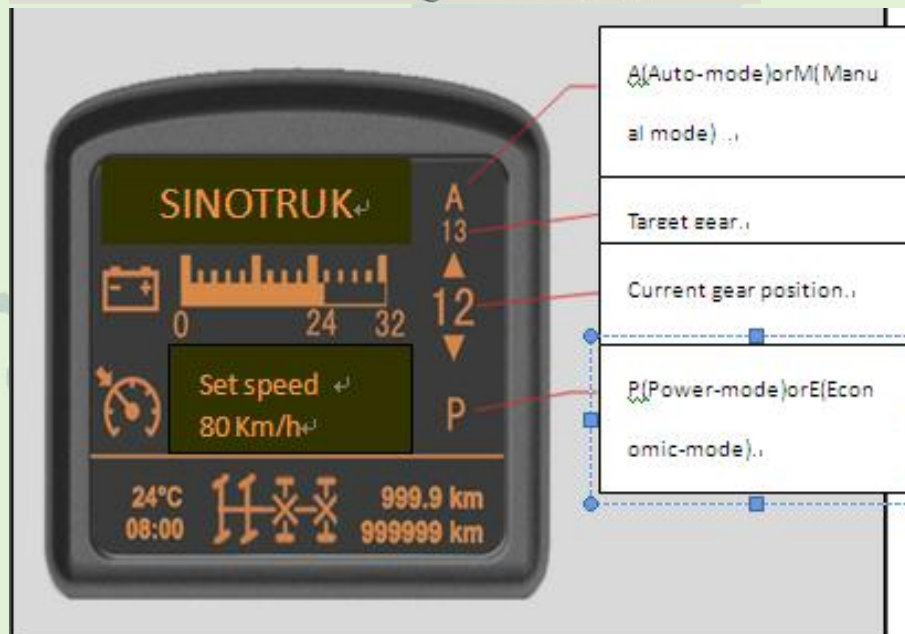
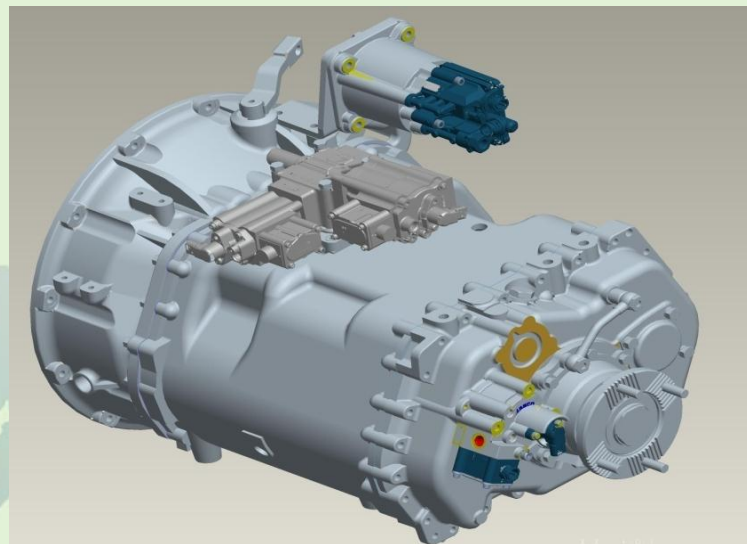
In any processes of shifting, the indication sign of gear position on the instrument panel will flash. The following information will display on the instrument:

Current gear position: Current operating position of gearbox.

Target gear position: The most suitable gear position

If ▲ flashes in the process of shifting, it means Gear-Up; ▼ flashes, it means Gear-Down.

AMT operation state (Auto/Manual operating mode; Dynamic/Economical Mode; climbing)



The HW20716A-series gearboxes provide two operation As follows:

- ▼ Auto-mode, the control is automatically completed by the control system.

- ▼ Manual-mode, directly under the driver's Control.

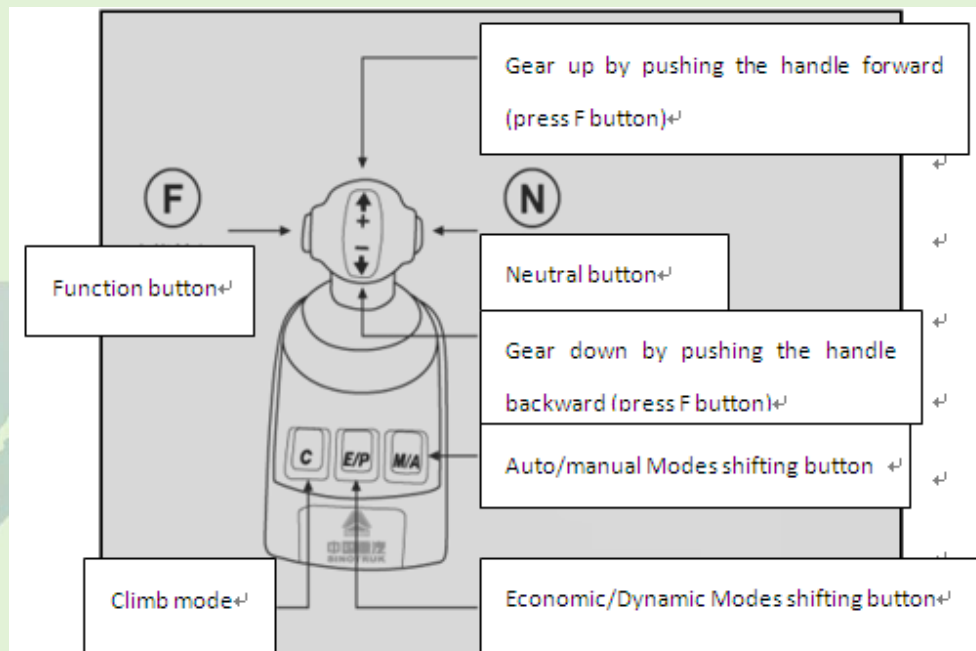
SmartShift provides the drivers with two options of operation modes:

### Auto-mode (A-mode):

The Auto-mode is the operation mode defaulted by the control system. In the auto-mode, the driver selects the startup gear only by the shift lever. The startup gear position includes the forward gear, reverse gear or neutral gear. In the process of driving, the gearbox control system will automatically select the most suitable gear position depending on the current situation. The driver may also interfere with the shifting operation by the handle in the Auto-mode.

### Manual-mode (M-mode):

In manual-mode, any of shifting actions has to be delivered by the driver, who decides the shifting moment and gear selection, but the clutch will complete the relevant actions under the system control, i.e. during the startup, shifting and stop, the clutch coupling and disengagement are performed automatically.





## A/M Function selecting

The driver is able to achieve the auto/manual-mode shifting through the handle button<M/A>. The screen on the instrument panel will display in realtime, the current operation mode of gearbox. The operation mode defaulted by the system is the auto-mode.

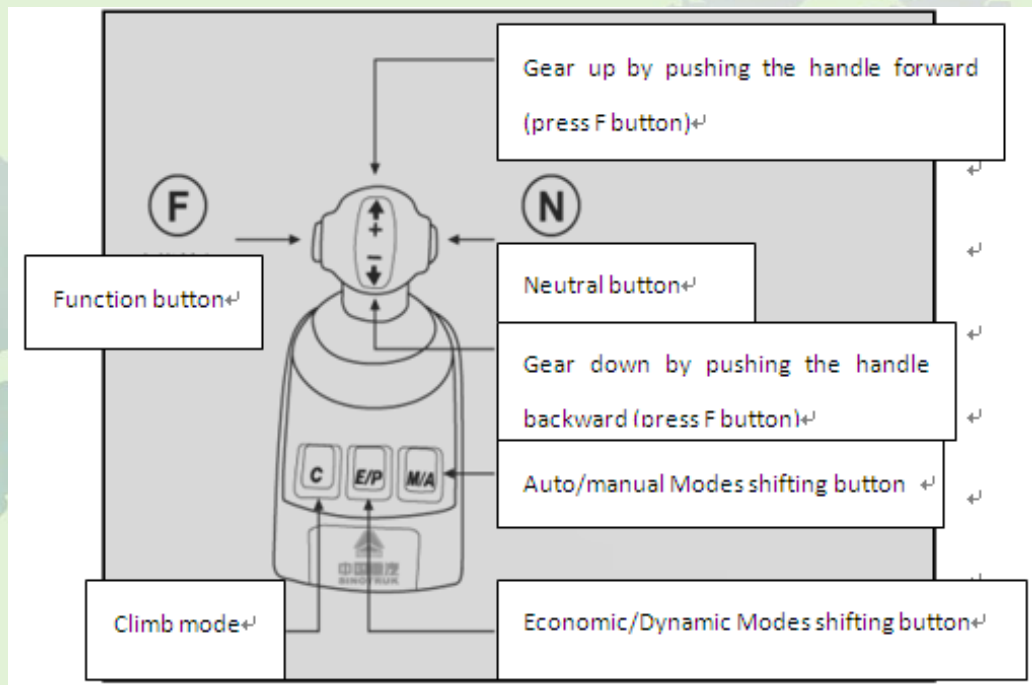
The driver may switch over the gearbox operating mode anytime during the course of startup and drive.

In the auto-mode, the operation method of manual-mode shifting is given as below:

Press the button<M/A> on the shift lever. When the operation mode displayed on screen is M, it indicates a successful shifting.

In the manual -mode, the operation method of auto-mode shifting is given as below:

Press the button<M/A> on the shift lever. When the operation mode displayed on screen is A, it indicate a successful shifting.





## Hand shifting in auto-mode:

When the truck runs in auto-mode, the driver may interfere with the auto-mode via the handle operation. In auto-mode push forward the handle to gear up, and backward to gear down.

The shifting can be realized by the handle action in auto-mode only when the running environment meets the shifting requirements. In auto-mode, the handle action may effect on the auto-mode operation, but neither release the auto-mode, nor shift the gearbox from the operation mode to the manual-mode.

## Hand shifting in auto-mode

Operation in manual-mode during the driving  
In manual-mode, any of shifting actions has to be delivered by the driver, but the clutch will complete the relevant actions under the system control.

The shifting can be realized by the handle action in auto-mode only when the running environment meets the shifting requirements. If the current engine speed fails to reach that required by the target gear position, the control system will shift rapidly to a suitable gear position depending on the actual speed instead of the target gear position; Provided the control system in the current running environment doesn't allow for shifting, it will produce alarm, which indicate that the shifting request of driver has been refused.

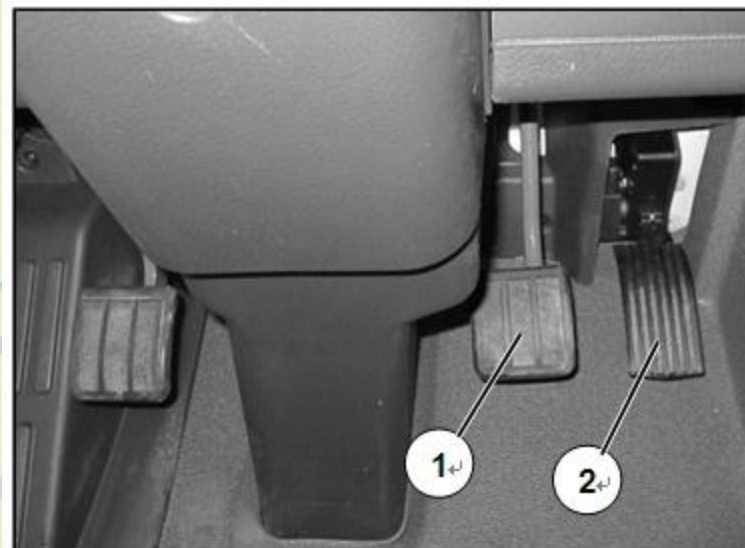


## Gear in reverse


The truck allows the shifting from the N-gear to the reverse only in the parking condition. In case of reversing, please perform as per the following procedure:

1. Shift the gearbox on the N gear first.
2. Press down the function key (Round button at the left side of handle) and push backward the handle. When the target gear position on the screen position stops flashing, it means the successful shifting. Push backward the handle for one time, the reverse gear II is achieved. If other reverse gears required, the shifting operation is same as the hand shifting.
3. Release the brake pedal and handbrake and slightly step on the throttle for reversing.

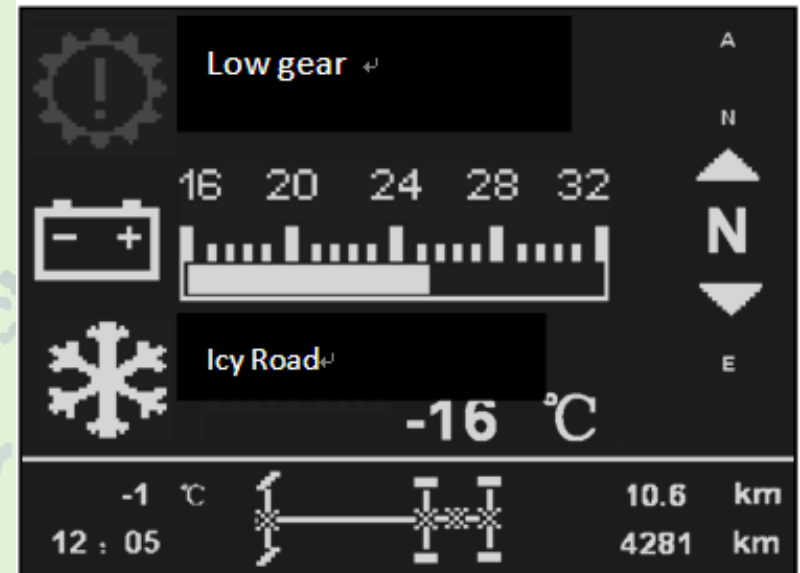
Method for the reverse gear operation: Press and push backward the button F from the N gear position



## Creeping mode

In certain conditions, the low speed driving is required for the truck. The SmartShift provides the Creeping mode to improve the AMT system performance. The Creeping mode sets the startup gear position (gear up from the N- gear while parking) as the gear 1. The startup gear position may be switched over between the gears 1~4 via the handle operation. Whatever in Manual-mode or Auto-mode during the drive, the truck allows only the shifting between the gears 1~4, i.e. in Creeping mode, the max. gear position is defined up to 4. If the gear position is higher than 4 during the drive, the control system allows no entry into the Creeping mode. Press the Start button C on the handle to activate the Creeping mode, the information system of driver will display  to indicate the successful shifting. Repress the button C on the handle, to cancel the Creeping mode, on the driver display screen will go off.

While the truck is in parking or drives on the gears 1~4, you may choose the Creeping mode. When selecting the Creeping mode in parking condition, the control system will automatically shift the gear position on the gear 1. Press the button C to turn on and off the Creeping mode.



## Economical / Power mode

Economical/Power mode is effective only when the gearbox is on the Auto-mode and ineffective on the Manual-mode. Press the E/P button to shift between the Economical/Power modes;

**Economical (E) Mode:** The control system selects the suitable gear position to enable the engine for operating within the most economical zone in best economical efficiency.

**Power (P) Mode:** The control system selects the suitable gear position to enable the engine for the max. power output.

The driver implements the shifting between the economical/power modes by pressing the button (E/P) on the handle. The current operation mode of truck will display in realtime on the instrument. The Economical (E) Mode is taken as the default mode. Press once the button (E/P) to shift to the Power(P) Mode, and once more to return in the Economical Mode.

The driver may shift between the Economical/power modes anytime.








### 3.4 PTO

#### WARNING!


Power take-off can only be used when truck is at low gear.

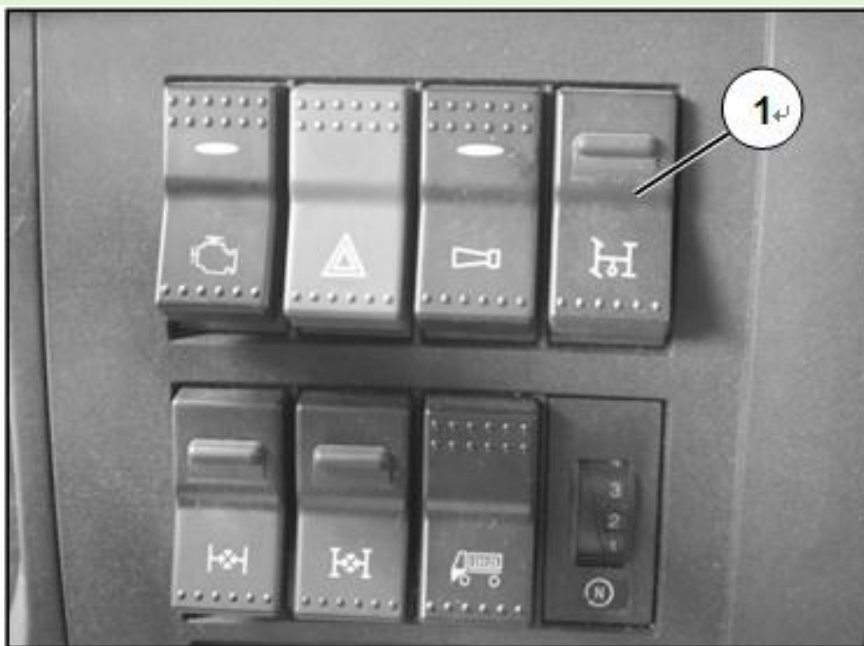
#### Engagement of power take-off

Push down the clutch pedal, press down the power take-off switch ①, engage the power take-off (at this time, indicator lamp  on the dashboard

will light up); Then shift to low gear and loose the clutch.

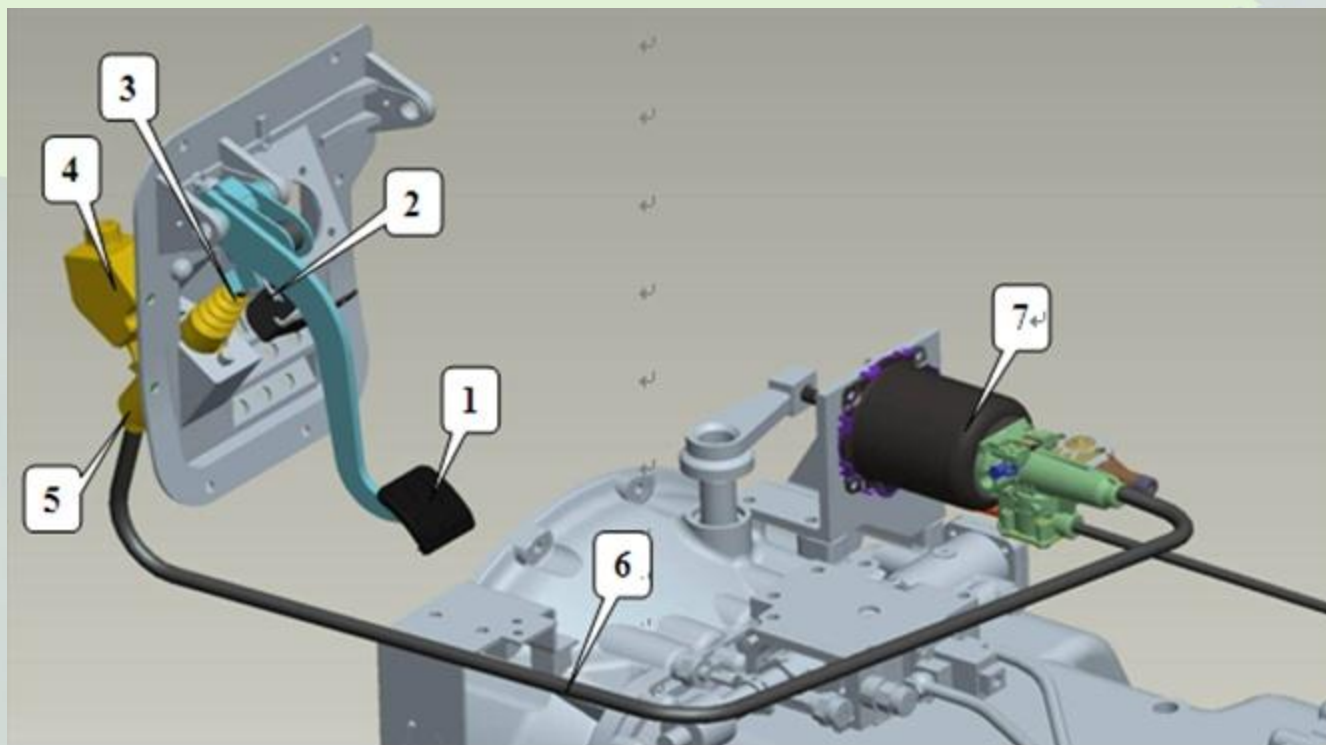
#### Disengagement of power take-off

The power take-off can be disengaged by pushing down the clutch pedal, then resetting the power take-off switch ① and, after about 3 s, loosening the clutch pedal. At the same time indicator lamp  on the dashboard will light off.





## 4.Clutch Operating

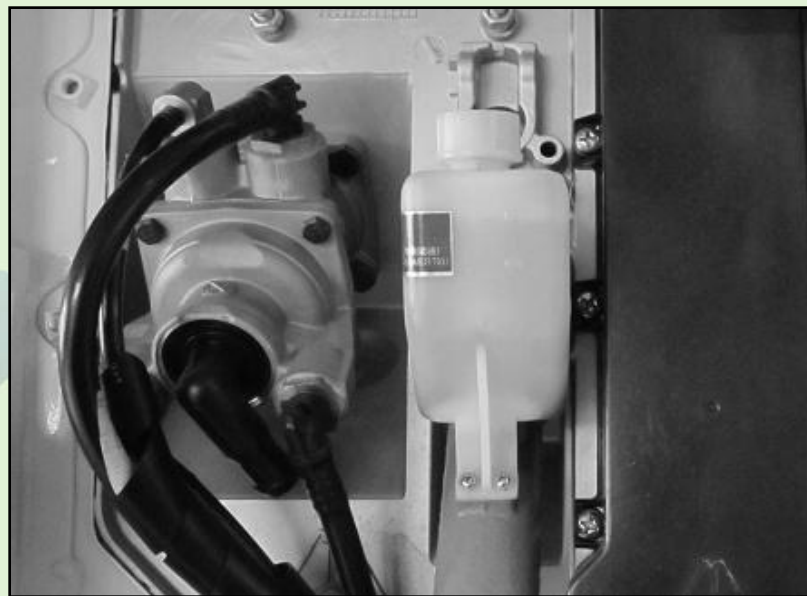


- 1.Clutch Pedal Assembly. 2. Return Spring. 3. Push Rod of Clutch Driven Cylinder.  
4. Clutch Oil Reservoir Tank. 5. Clutch Master Cylinder. 6. High Pressure Oil Pipe.  
7. Clutch Booster Cylinder.



The clutch operating system is applied with hydraulic control and air-assistant structure. When depressing the clutch pedal, the push rod of master cylinder drives the piston to move forward and the brake fluid to flow into the liquid chamber of booster cylinder along the oil pipe, here, the piston drives the booster cylinder to move forward hydraulically and pneumatically, and the release rocker arm and release shift fork push the release bearing backward to release the clutch.

The master cylinder and oil tank are located on the front wall of the cab, the drive cylinder is connected to the booster cylinder on the chassis via high-pressure hose, and the clutch and brake operating part share an aluminum alloy support; the oil tank is directly mounted to the master cylinder to facilitate the fitting and the filling of brake fluid. When operating the clutch, the operator may have his heel not leaving the floor and have his left foot on the boss at the left side of the clutch pedal after operation.





## 5. Differential lock

### 5.1 Inter-wheel differential lock

Inter-wheel differential lock -  $6\times 4$ ,  $6\times 6$  and  $8\times 4$  vehicles

Operating principle for engagement of differential lock:

Engage the inter-axle differential lock and then the inter-wheel differential lock.

- Engage the inter-axle differential lock (as detailed in the engagement of inter-axle differential lock)
- Release the throttle pedal (deceleration)
- Push the upper part of inter-wheel differential lock switch ①

The rear axle inter-wheel differential lock engages.

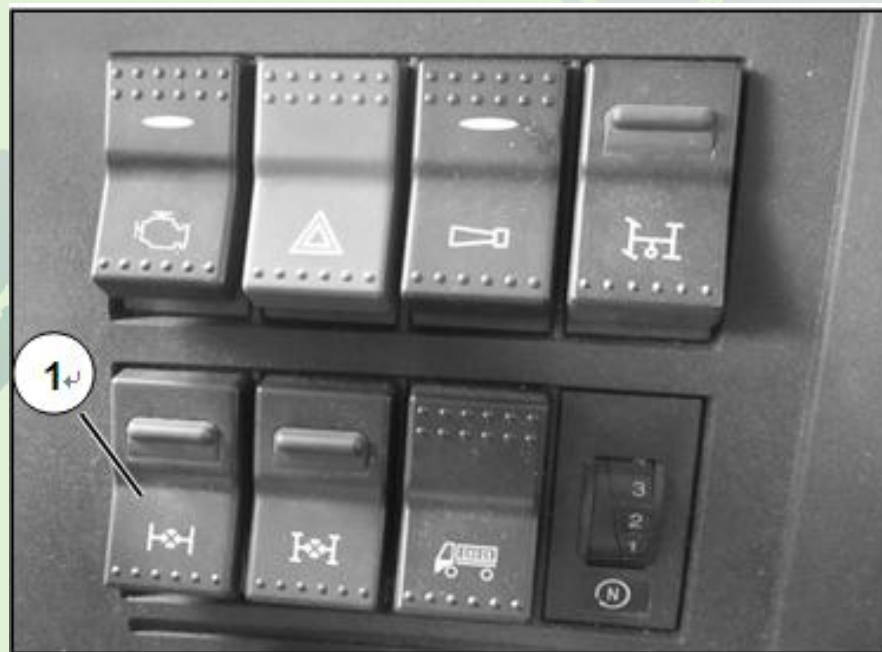
The inter-wheel differential lock indicator lamp is on.

- Carefully depress the throttle pedal and then speed up slowly.

#### Disengage the differential lock

- Release the throttle pedal and depress the clutch pedal.
- Push the lower part of inter-wheel differential lock switch ①

When the inter-wheel differential lock disengages, the inter-wheel differential lock indicator lamp of instrument panel will be off.



## 5.2 Inter-axle differential lock

Inter-axle differential lock

Inter-axle differential lock: Used for locking the first and second drive axles.

### Engage the inter-axle differential lock

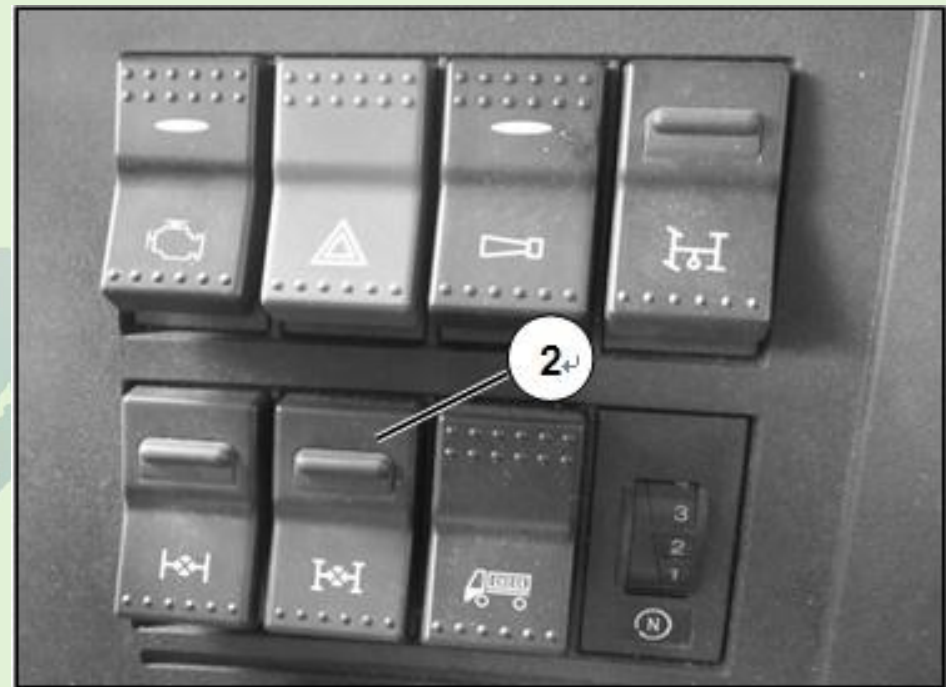
- Release the throttle pedal (deceleration).
- Push the upper part of inter-axle differential lock switch ②.

When the inter-axle differential lock engages, the inter-axle differential lock indicator lamp of instrument panel will be on.

### Disengage the differential lock

- Release the throttle pedal and depress the clutch pedal.
- Push the lower part of inter-axle differential lock switch ②.

When the inter-axle differential lock disengages, the inter-axle differential lock indicator lamp of instrument panel will be off.





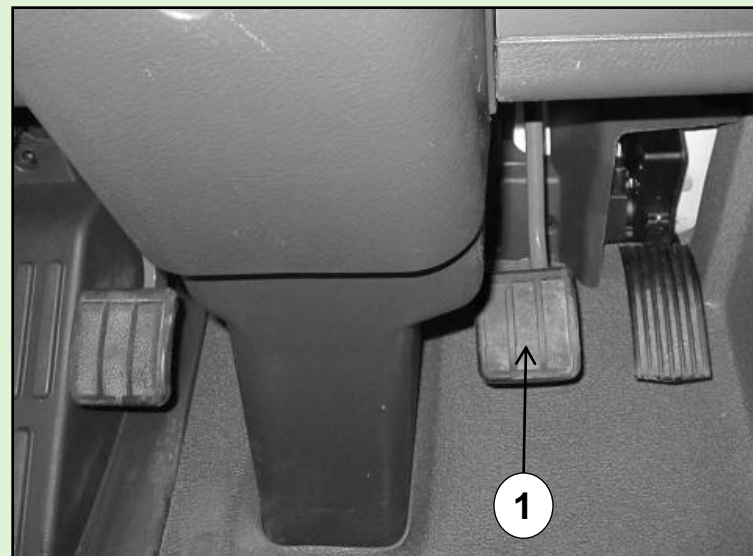
## 6. Braking System

### 6.1 Service Brake

The brake pedal ① will act on all vehicle wheels through two independent circuits.

It has the working pressure of 0.75 MPa, with the cutoff pressure of the built-in pressure regulating valve of the dryer of 0.81 MPa (8.1 bar). As the circuit I acts on the rear axle (or double rear axle) wheel and the circuit II acts on the front axle wheel; when one air reservoir pressure of two circuits drops to below 0.55 MPa, the air reservoir pressure indicator lamp will be on; in such case, please immediately stop the vehicle and find out the pressure drop cause.

Continuous full stroke brake operations in a short time will also make the pressure drop to below 0.55 MPa.





## 6.2 Parking Brake

### Apply the parking brake (hand brake):

Pull the handle ① backwards till it is locked and the parking brake indicator lamp ② on the instrument panel will be on. In such case, the hand brake will be completely locked.

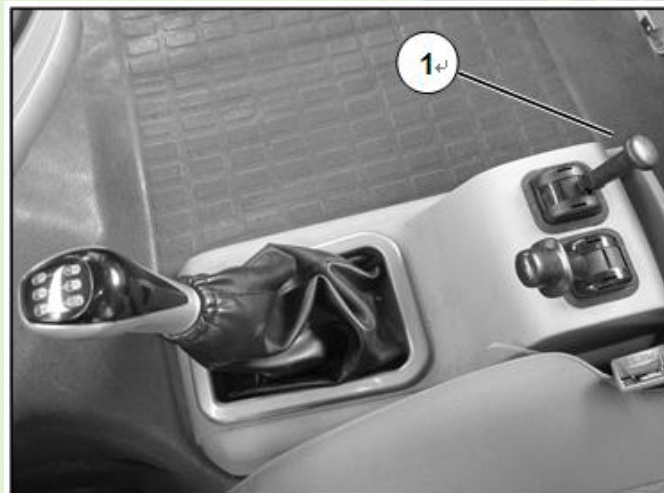
### Partial brake

Gradually pull the handle backwards and hold it; or else, it will automatically return to the release position. In such case, the parking brake indicator lamp ② on the instrument panel will be on. If the parking brake control handle is not turned to the complete brake position, it will automatically return to the release position; in such case, the vehicle will not be braked and will slide.

### Release the parking brake handle

After releasing the handle latch, the handle will automatically return to the release position. In such case, the parking brake indicator lamp ② on the instrument panel will be off.

The lowest pressure of the air reservoir pressure shall be more than 5.5bar to ensure that the parking brake can be normally released. If the actual pressure is lower than 5.5bar, the malfunction display lamp "STOP" on the instrument panel will be on.





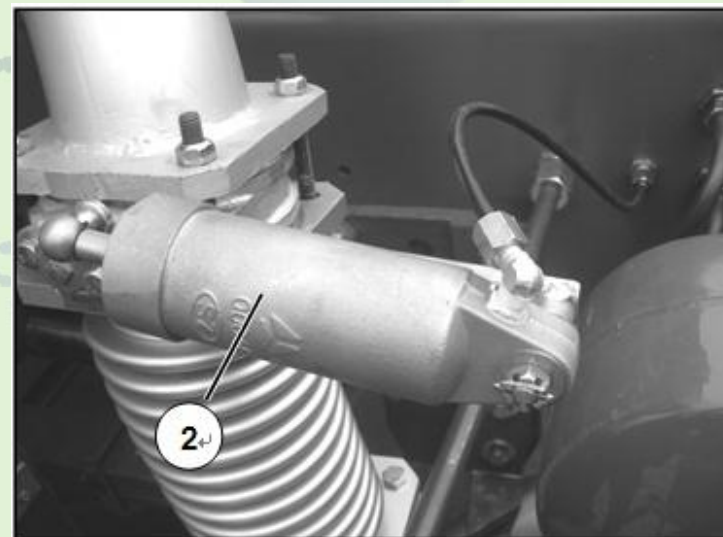
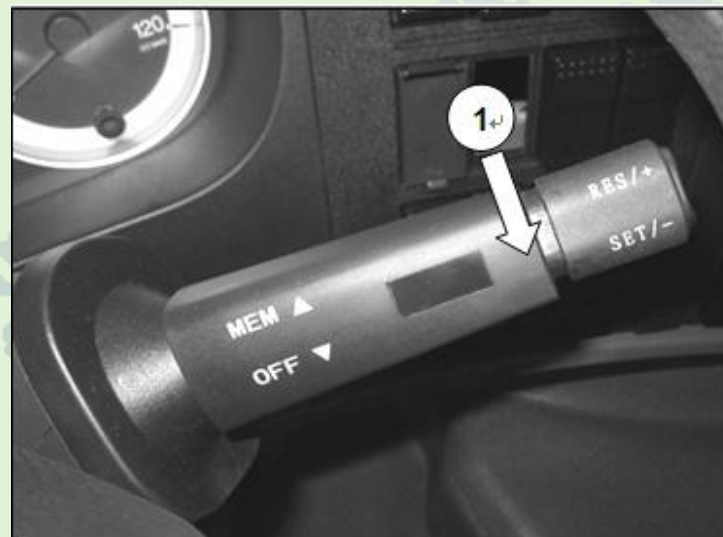
## 6.3 Exhaust Brake

**When all of followings are met, the vehicle exhaust brake will be hit:**

- The clutch is not stepped down;
- The vehicle is not at the neutral gear;
- The engine rotation speed is higher than 800 rpm;
- The driver presses the rocker switch (exhaust brake switch) ①.

In case of meeting and passing poor roads, the exhaust brake can be applied for deceleration in advance. The exhaust brake can be used to reduce the service brake application frequency; reduce the tyre and wheel brake wear and heating; extend the service life; reduce the oil consumption, and improve the driving safety.

The exhaust brake applies the traditional exhaust brake butterfly valve ② as the base, the engine brake efficiency can be further improved. By rationally applying the exhaust brake, the brake torque from the diesel engine will be increased; the vehicle will continuously decelerate or keep at a constant speed; the service brake application frequency will be reduced; the brake wear and wheel losses due to brake will be decreased; the brake shoe replacement cycle will be extended, and the operation costs will be saved.







## 6.4 Energy storage spring brake chamber – mechanical emergency release

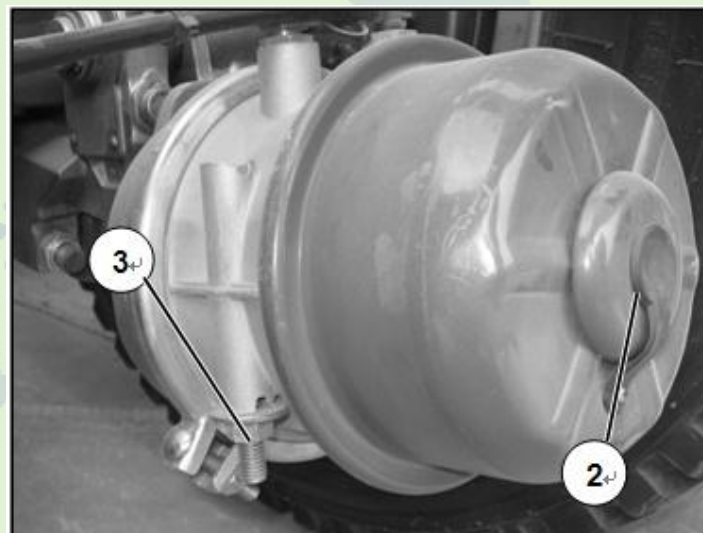
### Diaphragm spring brake chamber

In case that the pipe connecting to the spring brake chamber is leaked and subsequently causing automatic brake, the brake could be released only by screwing the bolt ① from the rear end of spring brake chamber to the release position.



### Dual-diaphragm spring brake chamber

Open the rear cover ② of dual-diaphragm spring brake chamber, and screw out the bolt ③ by hands after inserting into rear cover, and then the parking brake will be released.





## 7. Tachographs

### 7.1 Operation and Displaying

•Contents on the panel includes:

Communication interface: located at left and upper of panel, and used to connect standardization device.

In use of the Tachographs of

LCD: displays date, time, mileage, driver's information, initial configuration, fault code, and so on.

•Button 1, 2: press them to select driver.

•Button M: used to select information displayed and set.

•Button +, -: used to adjust time, date, page up and page down.

•Button ^ : to open paper tray.

•Paper tray is under panel and includes two layers: the upper layer is used to place recorder paper for first driver, the lower layer is for the second driver.



In use of the Tachographs of CONTINENTAL—  
Type VDO MTCO-1324



•The nameplate is pasted in paper tray.

User mode or servicing mode can be performed by operating the buttons on panel: press the button M shortly to enter user mode; press the button M while switching on the ignition key to enter servicing mode.

Press 'menu' button, the screen will show the average speed within 15 mins before parking, press upward and downward, you can check successively:

1. Real Time and Speed
2. Average Speed Within 15 Mins Before Parking
3. Fatigue Driving Record
4. Driver'S Code
5. Driving License Number
6. Excessive Alarm Speed
7. Vehicle Character Coefficient
8. Total Mileage And Trip Mileage
9. Record Index and Parking Index
10. Serial No. Of Tachograph and Software Version.

Paper Recorder: record and print the information as vehicle speed, mileage, etc.



## 7.2 Maintenance

Do not need additional maintenance except for daily cleaning. When faults occur, it is suggested to change the complete device or relevant parts. Use clean and soft cloth while cleaning the tachograph, at the same time, make sure no corrosive chemical can be used, and no water enter the interior of it.

## 7.3 Printing

Park the vehicle, then press 'print' button to print data according to operation instruction shown on screen.

Notice:

1. No printing when driving.
2. It always prints data of current driver and no recognition of drivers.

### Specification Settings

IC card is for recognizing drivers and position of tachograph.

Notes: when inserting the IC card, make the CMOS chip upward and quickly insert or remove.



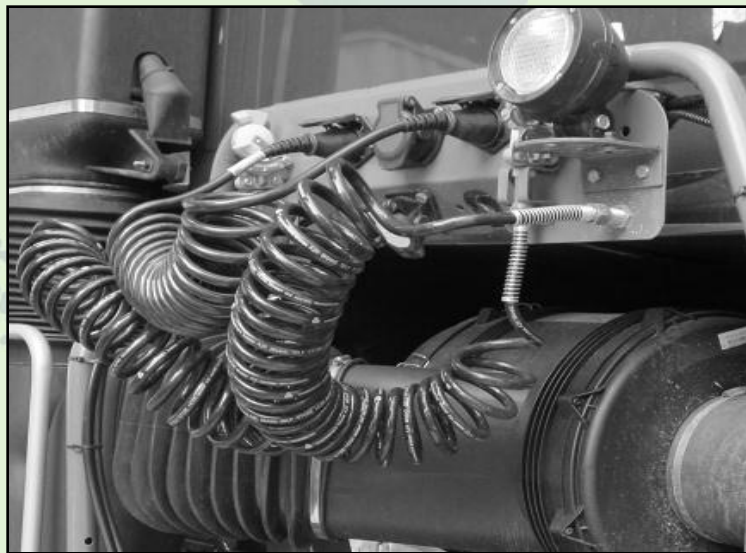
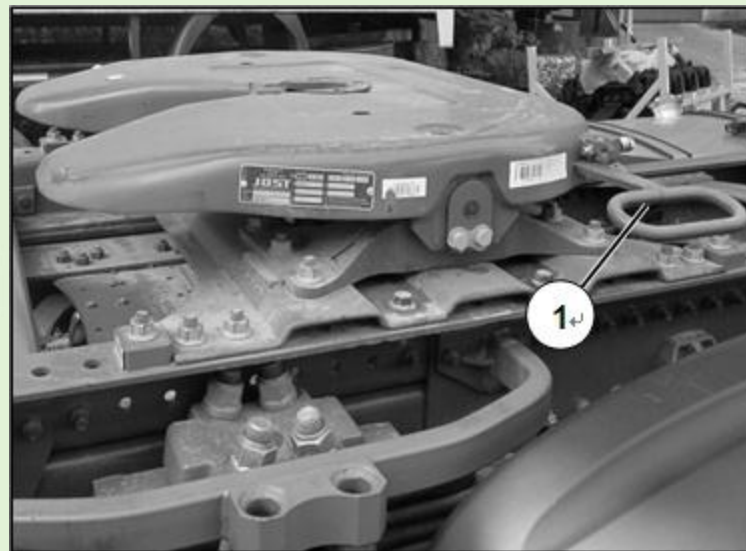
## 8.Operation of semitrailer

### Semitrailer connecting

- Fasten the semitrailer to prevent it from sliding.
- Lift the fifth wheel handle① up, get the handle entered into the upper long hole and then pull it out, till it arrives at the locating slot on the handle rod and clamps the fifth wheel shell. At this time, the fifth wheel is opened and is ready for coupling.
- Run the truck astern for opposite joint; when the traction pin enters into the fifth wheel interface, the hook and cheese block will automatically lock up the traction pin to finish the opposite joint. At this time, the handle will also automatically return back to the original position, which shows that it is correctly jointed.

Connect the brake pipe and electrical joint between semitrailer and tractor.

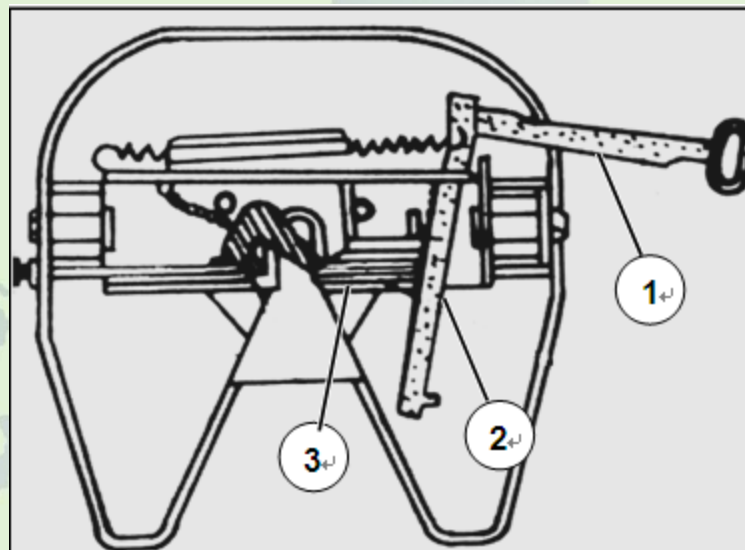
- Connect the compressed air pipe, where the pipeline shall not be start up, rubbed and twisted in the running process.
- Firstly connect the brake control pipe joint (yellow).
- Then connect the pipe joint (red).
- Check its functions.





## Disengaging of semitrailer

- Inspect the road condition and protect the semitrailer against sliding.
- Fasten the semitrailer, making the wheel immovable.
- Before the semitrailer or full trailer (equipped with dual-circuit brake system) is disengaged from the tractor, following sequences are required to strictly abide by: firstly disengage the charging pipe joint (red), and then disengage the brake control pipe (yellow), otherwise the trailer brake will be loosened.
- Pull out the fifth wheel handle ①, until it arrives at the locating slot and clamp the fifth wheel shell, so that the cheese block ② will disengage from the hook ③, keep the tractor moving forward, and then rotate the hook ③, loosen the traction pin, the disengaging action will be finished.





## 9.Fifth Wheel

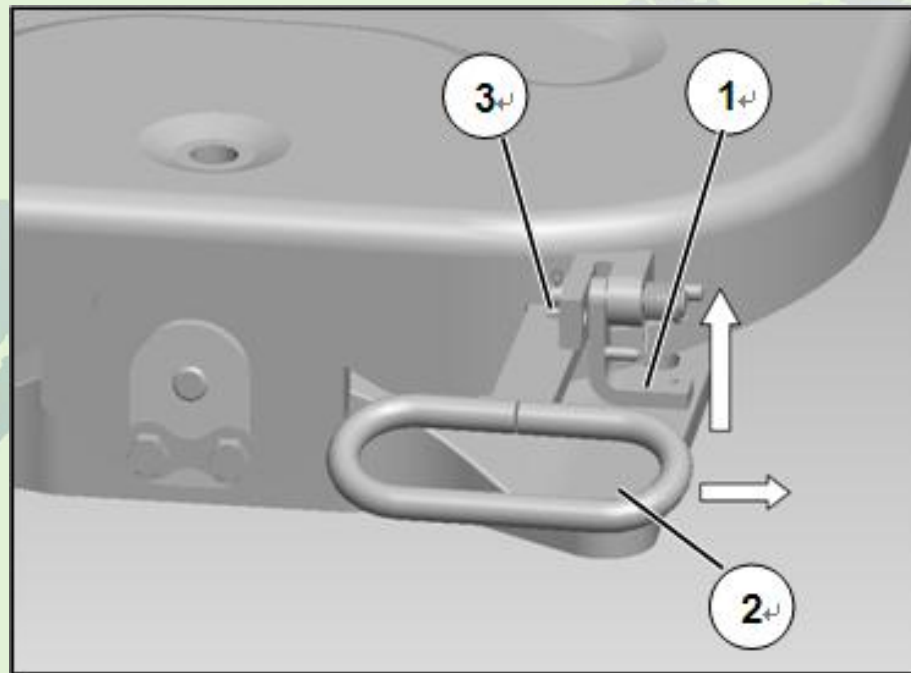
Open:

As shown in the Figure: rotate the stop block ① of pulling plug upward to the horizontal position, at the same time, rotate the handle ② forward, and make the quadrangular slot stuck at the front side of rectangular slot of fifth wheel plate.

Inspection after the coupling of trailer:

Make sure that the stop block ① of pulling plug returns to the state as shown in the Figure, and the warning hole ③ locates at the exterior of fifth wheel plate, at this time the fifth wheel is locked securely.

If the stop block ① of pulling plug fails to drop onto the locking position, or the warning hole ③ locates far away from the exterior of fifth wheel plate, please inspect whether the fifth wheel is locked.





## 10. Air Suspension

### 10.1 ECAS System (Pneumatic Suspension)

For the vehicles where the rear axle is fitted with the pneumatic suspension, you may increase or decrease the height of rear frame through the remote controller; for the vehicles with full pneumatic suspension system, you may increase or decrease the front/rear height of chassis frame.

Prior to load the removable body or tank, you should at first lower the chassis down to the lowest position, otherwise, the chassis will suddenly bound out after the interchangeable body replaced, which will damage the airbag damper.

If the air compressure system is short of pressure, it is necessary to run the engine for a period of time so as to enable the compressed air system for establishing sufficient pressure; while coupling with a semi-trailer or load a removable body or container, keep the engine run in operating state, which will ensure the air compressed system maintains sufficient pressure.

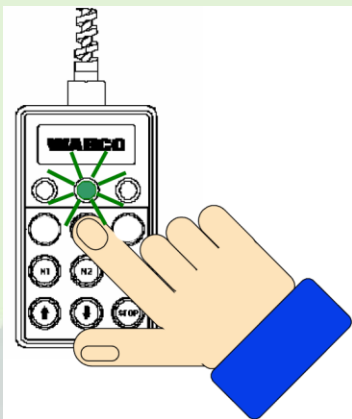




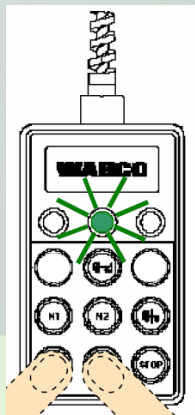


**Brief instruction of the remote controller operation:**

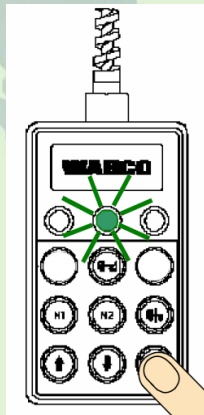
1. Press down the axle control button and the corresponding axle operation indicator lights up;



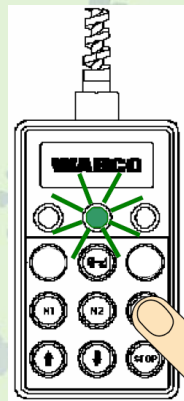
2. If required, press the UP or DOWN button to adjust the vehicle to the required height (Figure a);



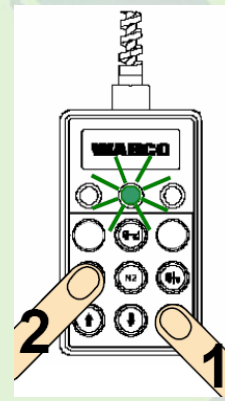
a



b



c



d



3. Press the Stop button to stop the height regulation control (Figure b);
4. Press the normal height button, the vehicle will automatically reset to the normal height (Figure c);
5. Height in memory storage (Figure d)

Activate the “rear axle”, the rear axle indicator lights up; adjust the vehicle to the required height (UP/DOWN) while pressing the Stop button (1)M1 and (2)M2; Reactivate the “rear axle” button, the rear axle indicator goes off, and the height of chassis has been saved.

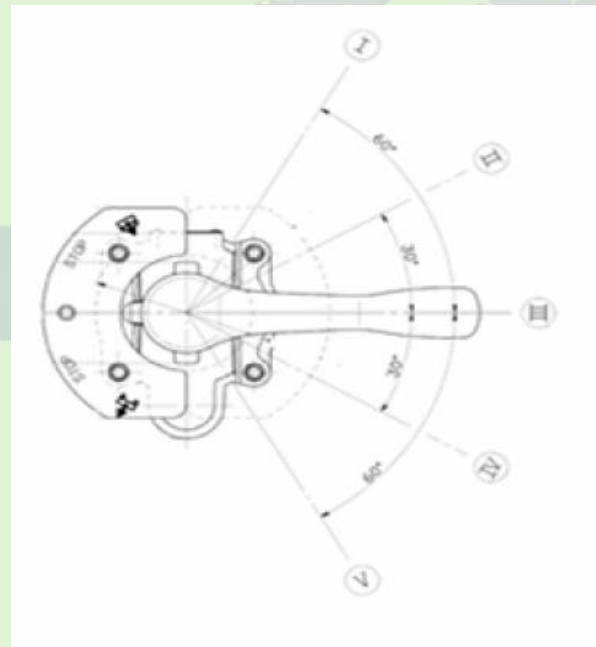


## 10.2 The use of the rotating pilot valve

The rotating pilot valve can have three different position with the valve body under the drive of the oscillating bar, which are III middle、I deflate、V inflate、II and IV for stop. While deflating, push the hand shank first, and turn it right to I .

**Note:**

While inflating, turn the shank to IV.



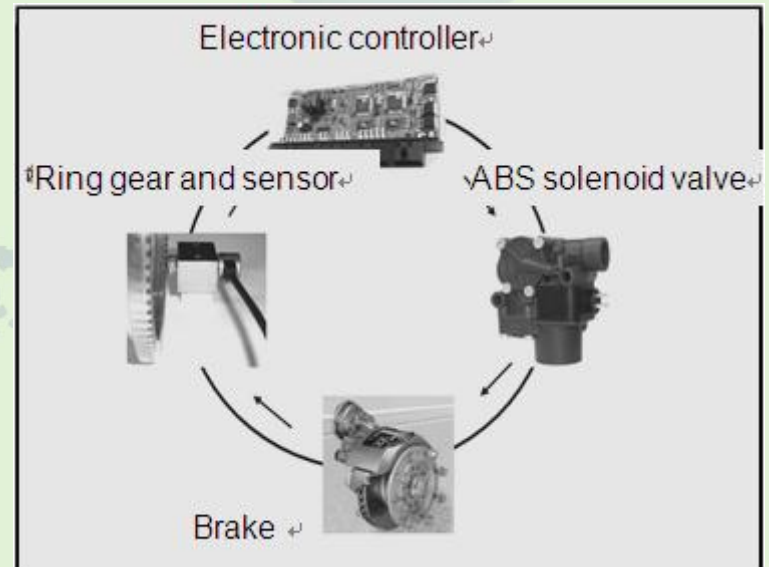
## 11.ABS+ASR+EBL+TPM

### 11.1 Check ABS functions

When turning on the key switch, ABS will automatically start. When the ABS detection indicator lamp ① is constantly on, it means ABS has malfunction. For the ABS checking, repair and maintenance, please refer to the accompanied technical data and information furnished by the ABS supplier.

### 11.2 When towing the semi-trailer with ABS

When turning on the key switch, ABS will automatically start. The ECU of the trailer ABS is independent; thus, the power shall be supplied, and the instrument display screen shall be used to warn the trailer ABS malfunction state. When the trailer ABS has malfunction, the trailer ABS alarm mark will be displayed on the driver display screen. Refer to the “Information Displayed on the Driver Display Screen and the Detection Lamp Panel” for details.





### 11.3 Acceleration Slip Regulation (ASR,optional)

The effect of ASR is intended to prevent the drive wheels from spinning when driving on the muddy and snowy/icy roads, especially at the time of startup or acceleration, to increase the orientation stability of startup and acceleration.

If the drive wheels of one or both sides are spinning, the ASR will automatically activate.

The drive wheels at one side spinning, then the ASR will automatically brake the spinning wheels.

If the drive wheels at both sides spinning, the ASR will automatically reduce the engine output.

### 11.4 Electronic Brake Limit /Distribution System (EBL/EBD,optional)

EBL/EBD is an ABS auxiliary function and the full name is “Electronic Brake Limit/Distribution System”. It has two performances: the one is to guarantee the balanced brake forces on four tires of vehicle on the different road, the other is to ensure the increased stability of vehicle when braking in emergency at high speed. When the driver releases the brake pedal or the vehicle has stopped, EBL also ceases.

Based on the ABS system, EBL function can be realized by replacing two ABS solenoid valves on the rear axle and adding one pressure sensor.



### 11.5 Tire pressure monitoring system (TPM, optional)

TPM and ABS based tire pressure testing system, which is mainly to perceive the inner pressure change in each change in each tire in diagonal line during the during the driving process. In consideration of the effect due to the changes in turning, temperature and load. The system will give some compensation to the result of calculation. If the tire pressure difference tested is higher than the preset value, the system will alarm in form of flashing code through the ABS indicator light. As other failures in the ABS system will also light up the ABS indicator light, thus when the ABS indicator lights up you need to operate the ABS diagnosis switch to read out the flash code and check fault code table for identifying whether the failure is caused by the decrease tire pressure.

In addition, TPM function is only able to monitor the wheels fitted with ABS sensor instead of other types of tires.

Activation of TPM function:

- 1) The vehicle placed in parking state and the startup switch turned on the position 0 or I ;
- 2) Hold pressing the ASR rocker switch;
- 3) Turn the startup switch on position II ;
- 4) Wait for 3s (until the ABS indicator light goes off);
- 5) Release the ASR rocker switch;
- 6) Wait for the confirmation from the TPM function initialization (ASR indicator light flashes three times);
- 7) Successful initialization of TPM function.



## 12.Replacement the wheel

### 12.1 Replacement

-If need to replace the spare tire on the road, with the purpose of guarantying your safety, please abide by local transportation rules (e.g. place warning triangles correctly) and keep the truck away from sliding.

-Remove the fixing nuts of wheel and finally remain 3 uniformly distributed ones.

Place the lifting jack on the supporting point of truck-related side and make sure the truck will not slide.

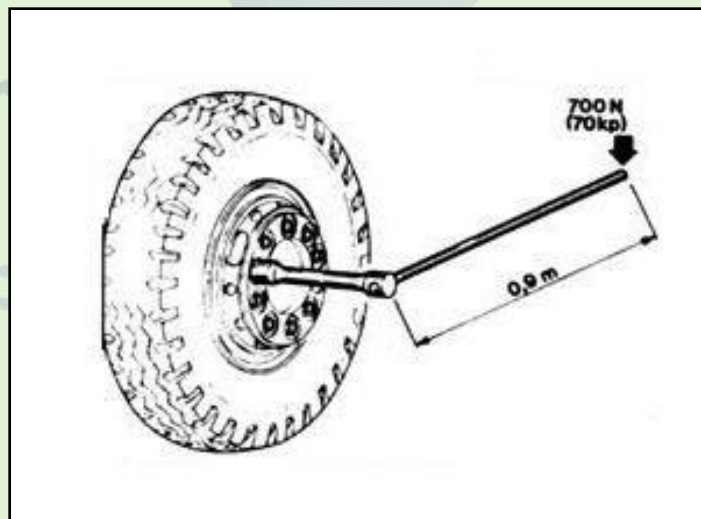
Jack up the truck and make sure the foundation is solid.

Loosen the remained 3 nuts after assuring that the altered wheel could move freely around the wheel bolt.

Remove the wheel and notice that the thread should not be damaged.

Clean up the rust and dirt from the mating faces of brake drum, rim, and nut & bolt before the assembly of spare tire, wipe the excircle face between the location hole of wheel and rim clean and apply with certain grease.

Be careful not to damage the thread during assembling the spare tire (the inflation pressure of tire must conform to relevant specifications).





Rotate and tighten up the nut by hands along the diagonal cross direction, until it cannot move anymore. Lower the lifting jack, put down the wheel and crosswise screw on the nut with the torque of 550-600Nm. Re-fasten the fixing nut with specified torque after running about 50km, inspect everyday and continue to tighten if needs, until it is tight enough.

## 12.2 Inflation of tire

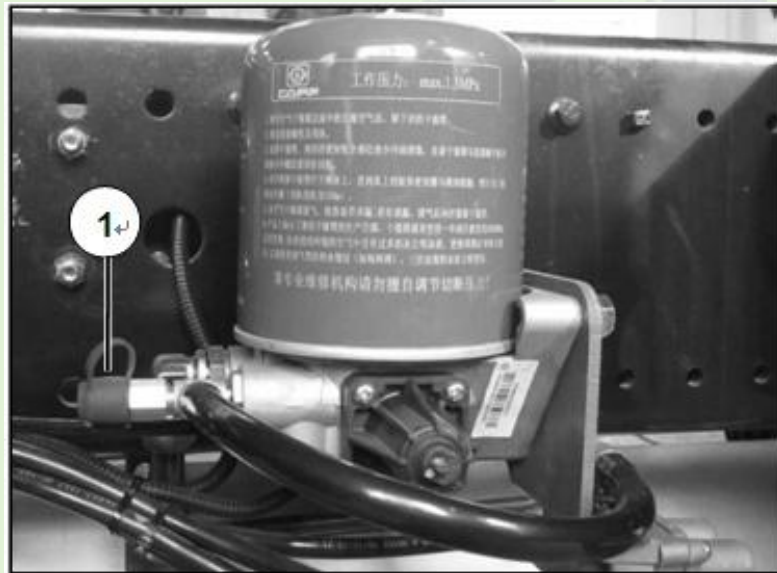
Tires could be inflated through the inflating joint installed on the air drier, following aspects are the detailed sequences: Remove the dust-resistant cap ① from the joint

Link one end of the inflating tube to the inflating valve of tire

Link the other end of inflating tube to the inflating valve of air drier

Enhance the operating speed of engine

Inspect the tire pressure and replace it if required.







## 13. Economical operating

### 13.1 Economical engine speed

The green area ② shows the economical rotation speed; when the engine rotation speed is higher than 2,300 r/min, the red engine rotation speed overlimit indicator lamp at ② will be on, and the driver display screen will display relevant malfunction information as well.





## 13.2 Optimize the operating conditions

-Regular service and maintenance in SINOTRUK service station

Only vehicles in good condition

-Avoid unnecessary driving resistance

Correctly bind the rain shed and adjust its frame to the lowest height to prolong the service life and reduce the air resistance to significantly lower the fuel consumption.

-Correct tyre pressure

The fuel consumption increases by 5% with every tyre pressure drop of 1 bar below the normal value, which results from the fact that the increase of tyre deformation transforms the driving energy into the heat and reduces the tyre service life.



### 13.3 Operation for economical driving

#### -Engine start

When the engine is started, do not depress the accelerator pedal, as in such case the electronic diesel control system ( controls the fuel injection according to such factors as the engine temperature to avoid unnecessary large injection and therefore reduce the smoke exhaust rate.

#### -Engine warming

The engine temperature rises very slowly when at idle and low load, therefore preheat the engine under moderate load instead of warming it when the vehicle is stationary, which is the most effective way to achieve the operating temperature of engine, transmission and drive axle. The time is saved since the vehicle can be started without waiting for the engine warming.

#### -Cab warming

The engine is used for driving the vehicle, therefore, it is not the best source of heat when at idle! Instead, the auxiliary heater only requires 1/4-1/3 fuel for idle running of engine, and reduces the vibration, noise and exhaust emission.

#### -Stop

If the vehicle is stationary for long, stop the engine.

#### -Engine stop

Before the engine stop, do not speed up, as this will increase the fuel consumption.



- Low speed and heavy load

The turbocharged diesel engine has its economical operating range covering 50%-70% of rated speed, and 80% of max. load. Therefore, the tachometer pointer shall be kept within the green range whenever possible in normal driving, and the engine shall run under heavy load.

- High power if necessary and low speed wherever possible

The high power can be achieved by applying rated speed when in such traffic conditions as ascent, overtaking or at the upslope entrance on expressway.



## - Shift gears

### •Duly shift

If low gear is required before ascent, shift to low gear to drive on the slope with high engine speed so as to avoid shifting again.

### •Avoid random gear shifting and rationally apply the engine torque

The towing force is interrupted during the gear shifting, resulting in the loss of time and speed. Therefore, the gear shifting increases the fuel consumption and accelerates the wear of clutch and synchronizer.

### •Skip gears if possible

Skip unnecessary gears when shifting to high or low gear.

### •Select as high gear as possible for startup

On the level road, the vehicle can be started up at high gear with full load. For instance, the driver can start the vehicle at the 3rd or 4th gear and applies no acceleration later until the clutch engages to reduce the clutch wear.

### •Apply the synchromesh transmission: It is unnecessary to release the clutch twice and shut off the throttle.

For the transmission with synchronizer, it is unnecessary to release the clutch twice and shut off the throttle, leading to quick gear shifting, shorter time for interrupting the towing force and lower fuel consumption.



# Content



**SITRAK-T7H Vehicle brief introduction**



**SITRAK-T7H Function introduction**



**SITRAK-T7H Operation specification**



**SITRAK-T7H Maintenance and Safety**



**Warning !**

- The engine can only be applied with the MC special engine oil, engine oil filter element, and fuel filter element; or else, the engine will be prematurely worn, and SINOTRUK will only provide the paid service!
- The transmission can only be applied with the SINOTRUK special transmission gear oil, or else the transmission will be damaged, and SINOTRUK will only provide the paid service!
- The drive axle can only be applied with the SINOTRUK special drive axle gear oil, or else the drive axle will be damaged, and SINOTRUK will only provide the paid service!
- When replacing the air filter element, please use the original SINOTRUK accessory; if poor filter element is used and the engine air inlet is damaged due to dust, SINOTRUK will only provide the paid service!
- Please use the SINOTRUK special coolant, or else the engine will be damaged, and SINOTRUK will only provide the paid service!



**Notice:**

**(1)To Euro 4 and Euro 5 engine , the ratio between fuel consumption and Adblue consumption is 20:1;**

**(2)When vehicle need welding, it must remove positive and negative pole ,or else , it will burn the vehicle controler . Don't forget!**

**(3)When vehicle need jumping starting, positive pole must connect positive one , negative pole connect negative one.**

**(4)It mustn't fill bad quality fuel.**

**(5)According to operating environment , making sure air filter clean ; it should drain water in oil-water seperator in time.**

**(6)If stop vehicle long time. it need turn off the main switch of battery;**

**(7)Running-in period have big affect in using in future , please follow strictly vehicle running-in rule;**

**(8)Any conditions , the rotating speed of engine cann't exceed 2200 rpm;**

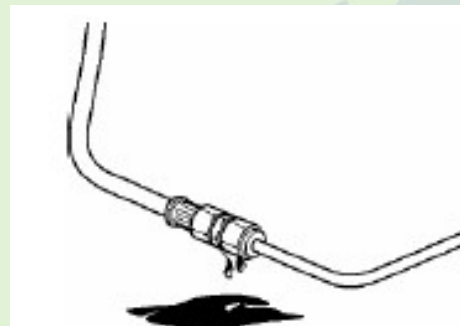
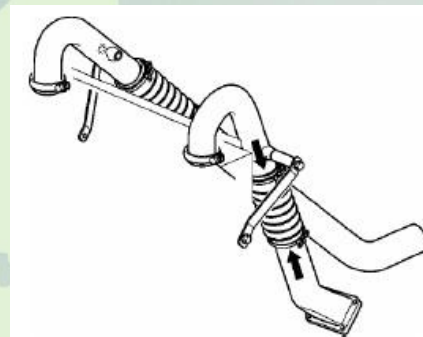
**(9)If find the coolant is insufficient , it mustn't fill other brands coolant or water, you can go to SINOTRUK service station to fill.**





## 1. Overview of check and maintenance

You should have the habit of checking engine before engine start or after engine stopping. this will help you find the oil , fuel or coolant leakage and avoid any other abnormal condition .





## 2. Check and maintenance before engine start

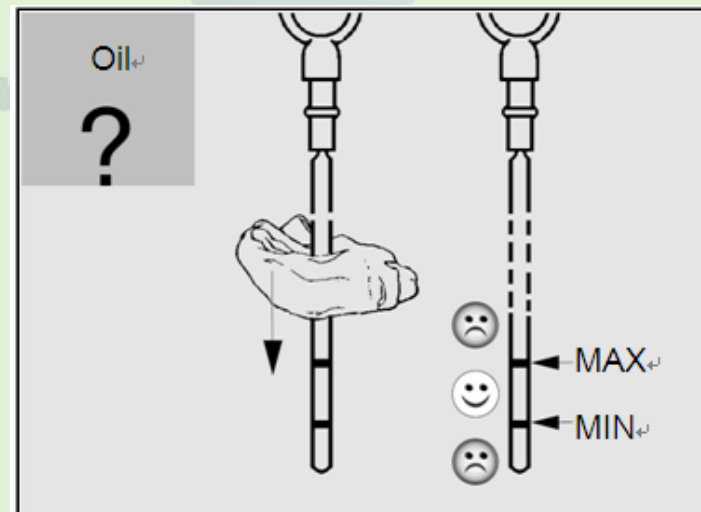
### Daily

#### 2.1 Engine oil

Park the vehicle on the level ground, shut off the diesel engine and wait at least 20 min before checking the oil level.

#### Oil

Pull out the oil dipstick ①, wipe it with clean lint free cloth and insert it back into the dipstick tube. When pulling it out again, the oil level shall be between the MAX and MIN marks and shall always not be below the lowest level. Oil filling is required if low level is confirmed after repeated checks.





## Oil filling

- Turn off the key switch.
- Tilt the cab,
- Unscrew the filler cap ①
- Add the oil
- Tighten the filler cap ①

## WARNING!

- Avoid damaging the engine!
- Only use the SINOTRUK approved engine oil.
- Excessive filling is prohibited!



Filling quantity for first time	Filling quantity for daily maintenance
42L	40L
The oil level shall be within the dipstick range.	



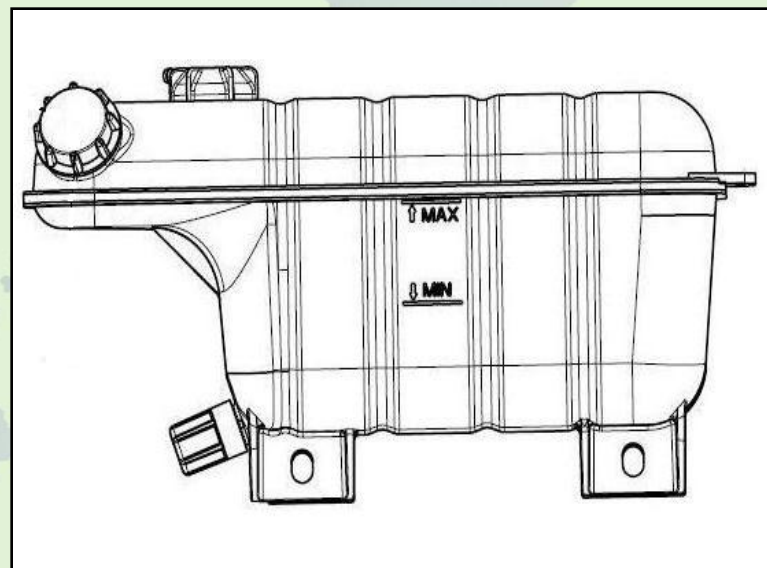
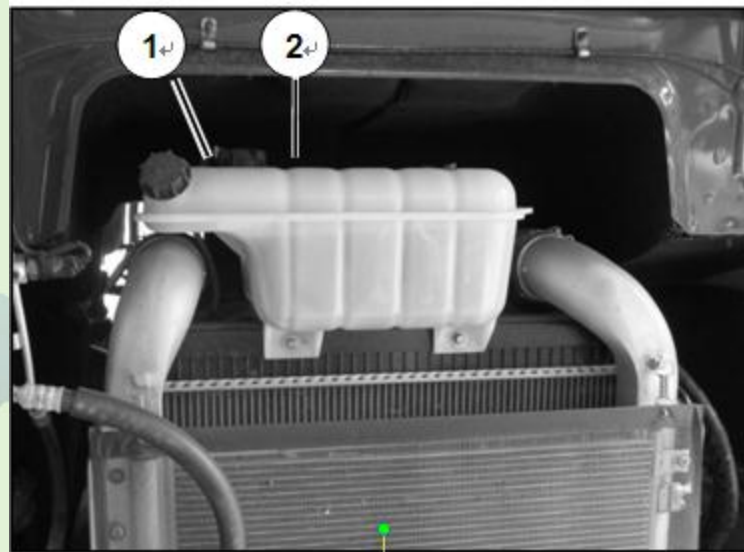
## 2.2 Cooling system

- It must to park the vehicle on the level ground and open the face cover.
- Observe the coolant level of expansion water tank which shall be between the MAX and MIN marks at the side of tank.

Add the coolant

① Coolant filler cap ② Pressure limiting valve cover

- Unscrew the expansion water tank lid ① to release the pressure from cooling system. Anticlockwise rotate the tank lid slowly by half turn to remove the tank lid.
- Set the heater temperature adjustment switch to MAX position.
- Add the coolant to MAX.
- Get the lid on and tighten it.
- Keep the engine running for a period of time.
- Check the coolant level and add some if necessary.





## 2.3 Fuel

### WARNING !

- The fuel is flammable, so take care to avoid fire and explosion!
- Shut off the engine and auxiliary heating device before refueling.
- Reserve 5% expansion space when filling the oil tank to prevent the fuel overflow when heated after expansion.
- Check the fuel quantity from the fuel gauge, and check the fuel gauge and sensor if the indication is inaccurate.

Check the fuel quantity in the fuel tank.

- Turn on the key switch.
- Check the quantity indicated on the fuel gauge ①; add some if required.

### Notice:

**Do not run out of the fuel, otherwise exhausting is required for fuel system.**

Check the fuel frost resistance before winter sets in.





## Weekly

### 2.4 Tyre pressure and condition

Check (tyre cold state)

Check all tyres including the spare tyre, to ensure the normal inflation pressure.

Check the appearance, wear and thread depth of tyres according to legal conditions.

Check if there is any foreign matter in the thread or between double tyres.

Check if the external surface of tyre is damaged.

### 2.5 Wheel nut

Check if the nut is firmly connected.

Re-tighten all wheel nuts to the specified tightening torque.

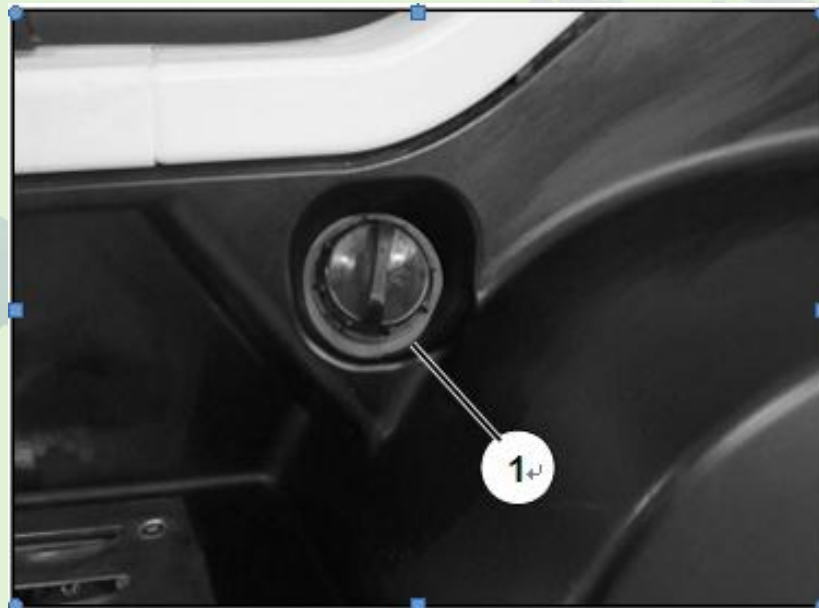


## 2.6 Windshield cleaning system/wiper system

Check the above systems weekly or more frequently based on the climate, use and driving condition.

- Open the door of driver side
- Unscrew the cover ①. Check the liquid level in the reservoir.
- Add the cleaning fluid if required.
- Get the cover ① on.
- Check if the windshield cleaning system/wiper system works properly.

Notice: Before winter sets in, add the anti-freezing windshield cleaning fluid, namely the solution whose volume ratio of methanol (or isopropyl alcohol, ethylene glycol) to water is 50%.





## 2.7 Check the transmission

### Oil level inspection (HW Series)

Stop truck on a level road. Screw off the screw plug② at the oil level viewport, if the oil level is stable, with oil temperature near to normal temperature.

If oil level is under the position of viewport , add 85W/90 (GL-5 Grade) gear oil; Screw off the screw plug① at the oil filler and add gear oil into it till oil overflows from viewport②;

Screw up the screw plug①and②

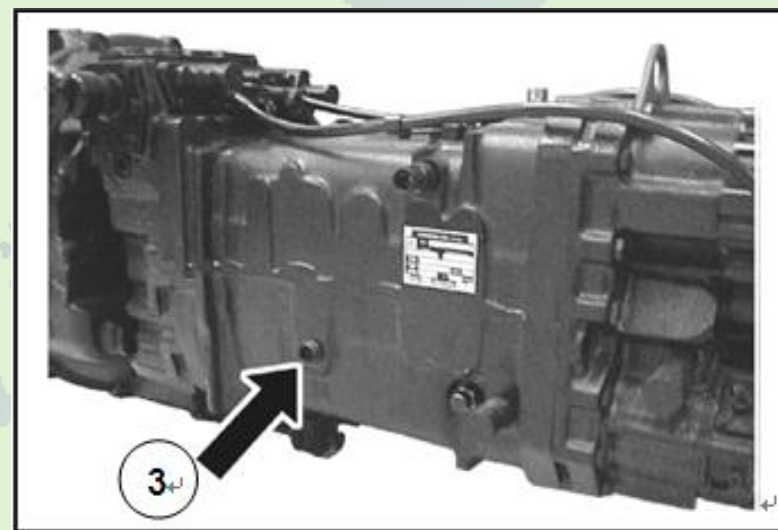
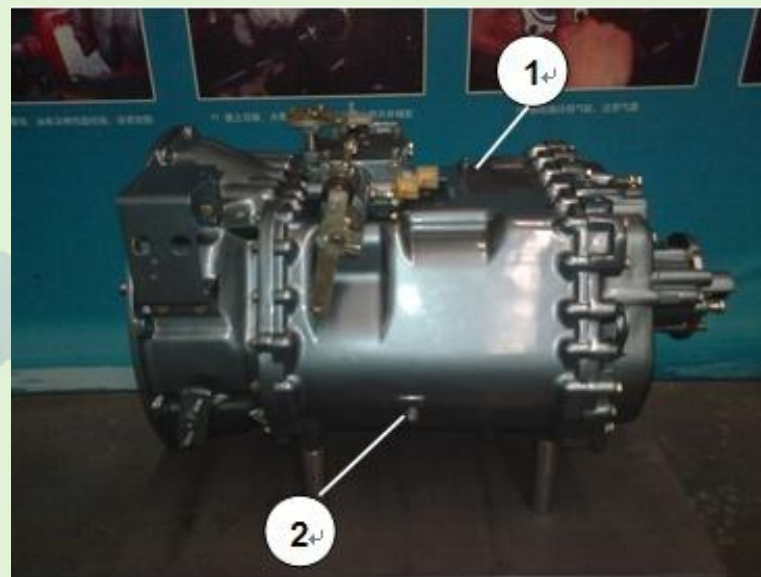
### Oil level inspection (ZF Series)

Stop truck on a level road. Screw off the screw plug③ at the oil level viewport, inspect the oil level.

If oil level is under the position of viewport,add correct gear oil at viewport;

Add gear oil into transmission till oil overflows from viewport③;

Screw up the screw plug.







## Monthly

### 2.8 Power steering system

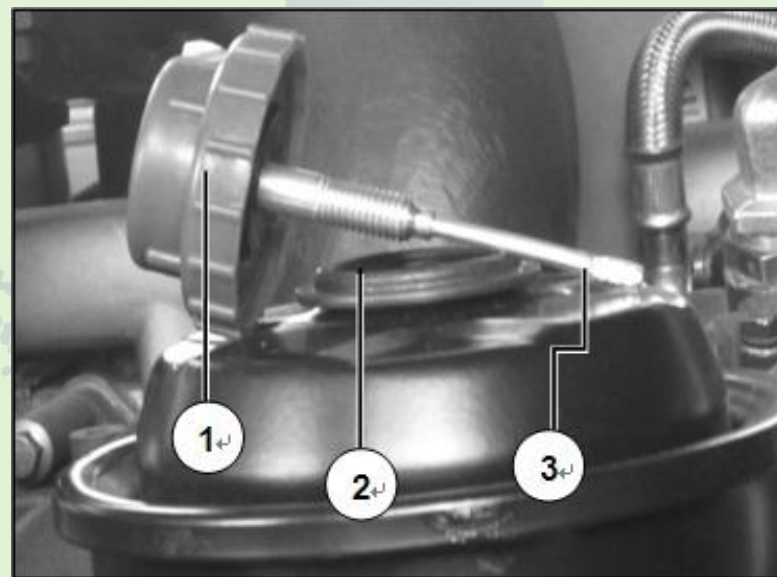
Check the oil level

Park the vehicle on the level ground and tilt the cab.

Pull out the dipstick ① and check the oil level. When the engine stops, the oil level shall be above the dipstick mark③.

If the oil level is low, add the ATF III automatic steering oil via the filler ②.

For filling, start the engine and keep it running stably at low speed, set the direction from one extreme to another repeatedly when refueling the oil tank until there is no air in the return oil. Shut off the engine and fill the oil tank to the above specified level and tighten the cap.



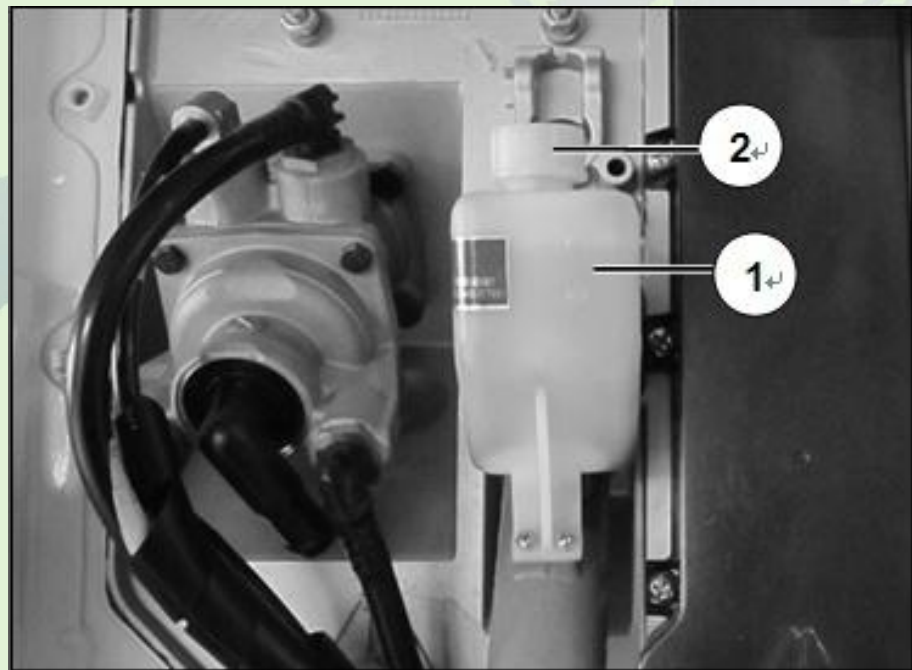


## 2.9 Hydraulic power-assistant clutch

Check the brake fluid level of the clutch oil tank.

- Park the vehicle on the level ground.
- Open the face cover.
- Check the brake fluid level of the clutch oil tank ①.
- Unscrew the cap ② if necessary to add the DOT3 brake fluid.
- Screw on the cap ②.

**Notice:** The brake fluid level in the clutch shall be between MIN and MAX marks.





## Every 6 months

### 2.10 Battery

Check the electrolyte level (not required for maintenance-free battery).

Remove the battery box cover.

Check if the battery terminal and wire connecting clamp are loose.

Check the electrolyte level.

The electrolyte level of each battery shall be 10-15 mm above the top edge of the separator, or level with MAX mark on the side plate, and distilled water shall be added if the electrolyte level is below MIN mark.





### 3. Check after engine start

#### Daily

##### 3.1 Engine oil pressure

#### **WARNING!**

- Avoid damaging the engine!
- If the driver display indicates “Oil pressure alarm”, immediately stop the vehicle and engine, identify the case and check the oil quantity, if necessary, add or drain some oil to an appropriate level.

When the engine is started, the driver display shall not indicate one of the following messages: “STOP” and “Oil pressure alarm”.

#### Troubleshooting

Check the oil level and add proper oil if necessary.





### 3.2 Braking system

Before starting the vehicle, check if the service brake and parking brake systems function properly.

#### **WARNING!**

- The vehicle startup is allowed only when the warning message (STOP) on the driver display disappear!
- Listen to the air dryer (pressure regulating valve) for exhaust sound!

When the engine is started, the hand brake handle only can be released for startup until the system pressure reaches over 0.55 MPa (5.5 bar), the warning lamp is off and alarm buzzer stops ringing. The vehicle can not achieve the state suitable for driving before the air pressure reaches 0.7 MPa (7 bar), namely, the specified braking performance is achieved only when 0.7 MPa (7 bar) is reached.

Check the brake function and efficiency

Turn on the key switch and the barometer pointer shall not be within the red area.

If required, start the engine and inflate the braking system until the air dryer reaches the unloading pressure.





### 3.3 Steering system

Check the steering clearance

Start the engine and make it idly run.

Set the front wheel to the straight running position and turn the steering wheel to the left and right alternatively, and the turn angle of the steering wheel for rotating the front wheel in both directions shall not exceed  $9^{\circ}$ . For large steering clearance, immediately check the steering system and steering lever system, and turn to SINOTRUK service station for repair if necessary.





## Monthly

### 3.4 Air dryer

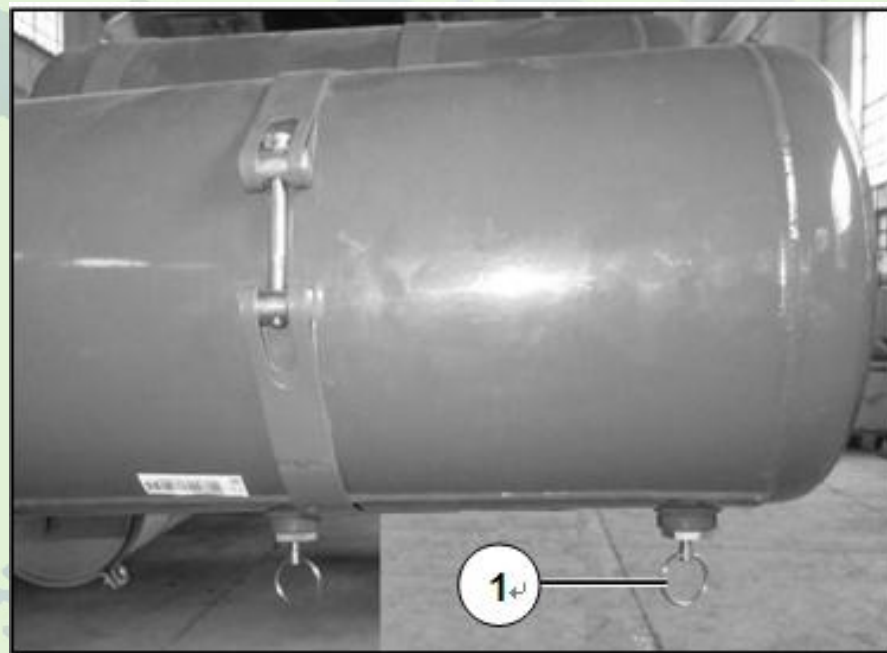
Check the air dryer monthly for normal operation and effectiveness (or more frequently based on local climate, use and driving conditions). Simply open the water drain valve of air reservoir for check.

#### **WARNING!**

- In winter, the braking system may freeze and fail due to the failed air dryer.
- Protect your eyes and hands when operating the water drain valve.

Test: The braking system must have sufficient air pressure for testing.

Pull the pull ring ① sideward.





## 4.Engine

### Maintenance of engine

#### -Scheduled maintenance

Conduct the annual (12 months later) maintenance, scheduled maintenance is independent of the change of diesel engine oil.

#### -Winter maintenance

To keep the operation and safe travel of diesel engine, conduct the winter maintenance timely when the temperature begins to fall.

Select the proper fuel according to the environmental temperature.

Discharge the water in the fuel module.

Check and add the coolant in the cooling system.

Check the electric appliances.





Oil specification and change interval

Assembly		Oil Product	Quality and Viscosity	Volume	Change Interval Mileage or Time(Reference value)	Remarks
Engine	MC11	Engine oil	ACEA E4/M 3277 10W/40	42L(first adding) 40L(filter element replaced) Filling volume not	Long-distance carrier: 60,000 km or 10 months, whichever comes first.	1.Other engine (including WD615 and D12) oils shall not be used for MC11 engine, otherwise, it will result in the serious damage of engine in short time, and SINOTRUK only provides the paid service. 2. Based on the standard CNPC and Sinopec fuels, if fuel is unqualified, the change mileage shall be reduced correspondingly
			ACEA E4/M 3277 5W/40		Municipal vehicle, urban construction engineering truck, transport dumper, mixer truck: 40,000 km or 10 months, whichever comes first	
Mine special truck: 20,000km or 6 months, whichever comes first						



Work	Circle	Remarks
<b>Cooling system</b>		
Check it	Daily check specification	
Check the function and tightness	First maintenance and scheduled maintenance	
Check the hose clamps of cooling and intake air pressurization system	First maintenance	
Check the intercooler and radiator fins for pollution	Scheduled maintenance	
Change the coolant and check the safety valve of expansion tank (if necessary, replace it with a new part)	4 years or 200,000 km	
Check the coolant specification	Winter maintenance and scheduled maintenance	
Check the status and tightness of belt	Scheduled maintenance	
<b>Injection system</b>		
Check the fuel level	Check the daily specification	
Check the fuel system status and tightness	First maintenance, and scheduled maintenance	
Fuel module; clean the filter screen of manual fuel pump, and replace the fine fuel filter element	It shall not be more than 20,000 km according to the pressure sensor of fuel	
Replace the rough fuel filter element	Replace it together with fine filter element	
<b>Intake and exhaust system</b>		
Check the air filter element for pollution	When changing the oil	
Replace the filter element	Depending on the vehicle	Replace it according to the pollution
Check the exhaust system status, function and tightness	First maintenance, at the oil change of diesel engine	
<b>Lubricating system</b>		
Check the oil level	Daily check specification	
Replace the oil and filter element	Depending on the oil change interval	
<b>Electrical system</b>		
Check the starter and generator	First maintenance and scheduled maintenance	



## 5. Transmission

### 5.1 HW Series

Assembly		Oil	Quality and Viscosity Level	Volume	First replacing mileage and time	Replacing interval mileage and time	Remark
Transmission	HW	Gear oil	GL-5 75W/90	With oil filter HW19710T/ 18L	Long-distance vehicle: 100,000 km or 10 months, whichever comes first Municipal vehicle, urban construction engineering truck, transport dumper, mobile mixer: 80,000 km or 10 months, whichever comes first Mine special truck: 25,000 km or 5 months, whichever comes first	300000 km or 24 months, whichever comes first	Only the special gear oil specified by SINOTRUK can be used, otherwise it will result in the damage of transmission, and SINOTRUK only provides the paid service.
				HW19710 12L/12.5L	2000-5000Km		
				HW19712/ HW20716/ 14L/14.5L			



## 5.2 ZF Series Transmission

-Gear oil should content MTF C-I manual transmission oil, we recommend Castrol , Shell and ZF products.

-Lubricant selecting

According to lowest temperature of local place:

If lowest ambient temp. is  $-40^{\circ}\text{C}$ ,choosing 75W/75W-80/75W-85/75W-90;

If lowest ambient temp. is  $-20^{\circ}\text{C}$ ,choosing 85W/80W-85/80W-90;

If lowest ambient temp. is  $0^{\circ}\text{C}$ ,choosing 85W-90;

-Oil volume

Transmission	16S1670	16S1950
First fill (L)	14.5	14.5
Oil changes(L)	1.5	1.5



## 6. Drive Axle

### 6.1 HW Axle

#### Axle maintenance

Axle in first maintenance and after sale maintenance:GL-5 85W/90 heavy load gear oil; Replacing gear oil when compulsory maintenance in 2000-5000 km.

Recommending gear oil replace interval at different working conditions:

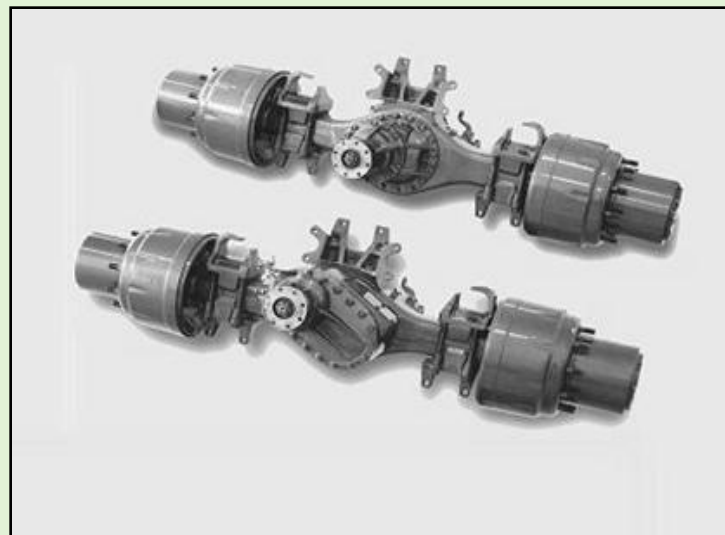
Ass emb ly	Oil	Quality and Viscosi ty Level	Volume	First replacing mileage and time	Replacing interval mileage and time	Remark	Assembly
HW	Ge ar oil	GL-5 85W/90	HW16	25L (Middle) 22L ( Rear )	2000-5000km	Long-distance vehicle: 100,000 km or 10 months, whichever comes first Municipal vehicle, urban construction engineering truck, transport dumper, mobile mixer: 80,000 km or 10 months, whichever comes first Mine special truck: 25,000 km or 5 months, whichever comes first	Only the special gear oil specified by SINOTRUK can be used



## 6.2 STR Axle

### Axle maintenance

Recommending gear oil replace interval at different working conditions:



Asse mby	Oil	Quality and Viscosity Level	Volume	First replacing mileage and time	Replacing interval mileage and time	Remark	Assembly
STR	Gear oil	GL-5 85W/90	ST16/ HC16	19L (Middle) 16.5L (Rear)	2000-5000km	Long-distance vehicle: 100,000 km or 10 months, whichever comes first Municipal vehicle, urban construction engineering truck, transport dumper, mobile mixer: 80,000 km or 10 months, whichever comes first Mine special truck: 25,000 km or 5 months, whichever comes first	Only the special gear oil specified by SINOTRUK can be used.



## 6.4 MCY13 Axle

### Axle Maintenance

Change intervals of gear oil under the different working conditions are as follows:

Ass embl y	Oil Prod uct	Quality and Viscosity	Volume		Mileage or Time of First Change	Change Interval Mileage or Time	Remarks
MCY axle	Gear oil	GL-5 85W/90	MCY1 3	18L (interme diate axle) 14.5L (rear axle)	Long-distance vehicle: 100,000 km or 10 months, whichever comes first Municipal vehicle, urban construction engineering truck, transport dumper, mobile mixer: 80,000 km or 10 months, whichever comes first Mine special truck: 25,000 km or 5 months, whichever comes first	Long-distance vehicle: 100,000 km or 10 months, whichever comes first Municipal vehicle, urban construction engineering truck, transport dumper, mobile mixer: 80,000 km or 10 months, whichever comes first Mine special truck: 25,000 km or 5 months, whichever comes first	Only the special gear oil specified by SINOTRUK can be used, otherwise it will result in the damage of drive axle, and SINOTRUK only provides the paid service.



## 7. Steering System

The hydraulic oil of steering system: ATFIII automobile automatic transmission liquid . The change intervals of hydraulic oil under different working conditions are as follows:

Assembly		Oil Product	Quality and Viscosity	Volume	Mileage or Time of First Change	Change Interval Mileage or Time	Remarks
Steering gear	Double steering axle model	Steering hydraulic oil	ATFIII automobile steering liquid	6.5 L	Long-distance vehicle: 100,000 km or 10 months, whichever comes first	Long-distance carrier: 100,000 km or 10 months, whichever comes first Municipal vehicle, urban construction engineering truck, transport dumper, mixer truck: 80,000 km or 10 months, whichever comes first. Mine special truck: 25,000 km or 5 months, whichever comes first	
	Single steering axle model			5 L	Municipal vehicle, urban construction engineering truck, transport dumper, mobile mixer: 80,000 km or 10 months, whichever comes first		
	Rear lift axle model			7 L	Mine special truck: 25,000 km or 5 months, whichever comes first		





## 8. Fuel System

Primary filter (oil-water separator, MANN-HUMMEL)

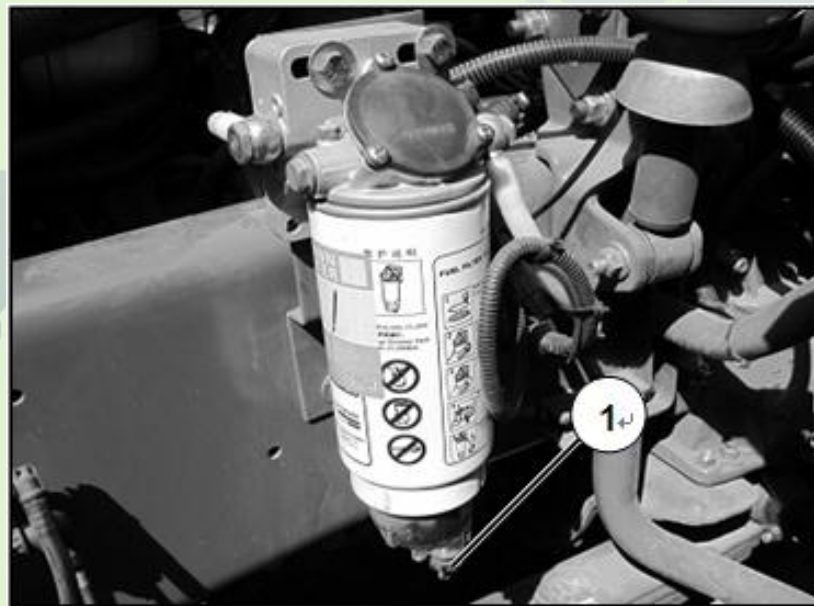
Check if there exists impurities and water and remove if necessary.

(weekly or more frequently based on climate, use and operations)

Stop the vehicle.

Screw off the nut ① at the bottom of the primary filter. Remove and properly dispose of impurities and water.

Tighten the nut.





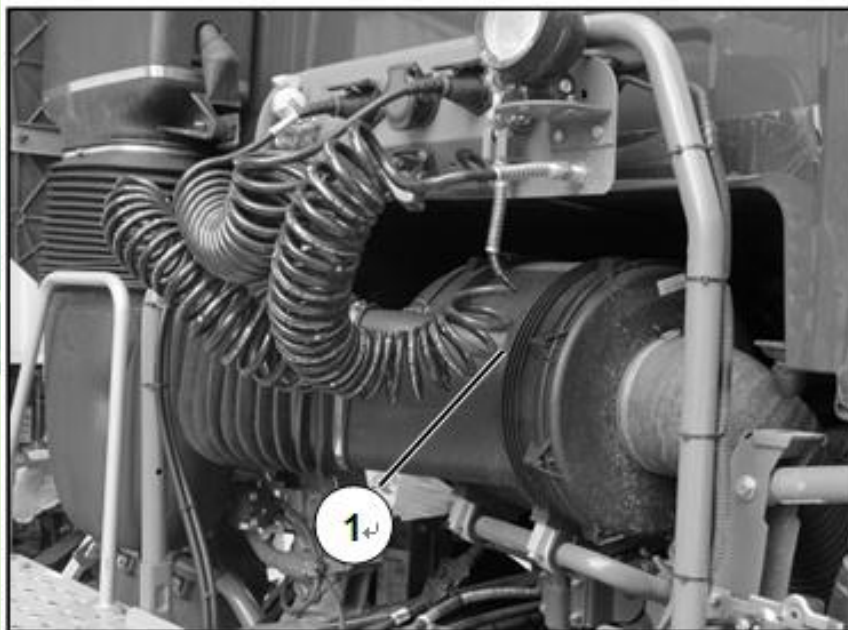
## 9. Air Cleaner

### 9.1 Dry-type air cleaner

-The filter element of dry-type air cleaner① must be maintained properly to prevent blocking of filter element, decrease of engine power and increase of oil consumption.

Maintenance period: In ordinary areas, 8,000 km – 12,000 km; in dusty areas or areas with bad conditions, the period shall be shortened as appropriate.

-If the filter element has been maintained for four times or has been used for over 1 year, it shall be replaced.

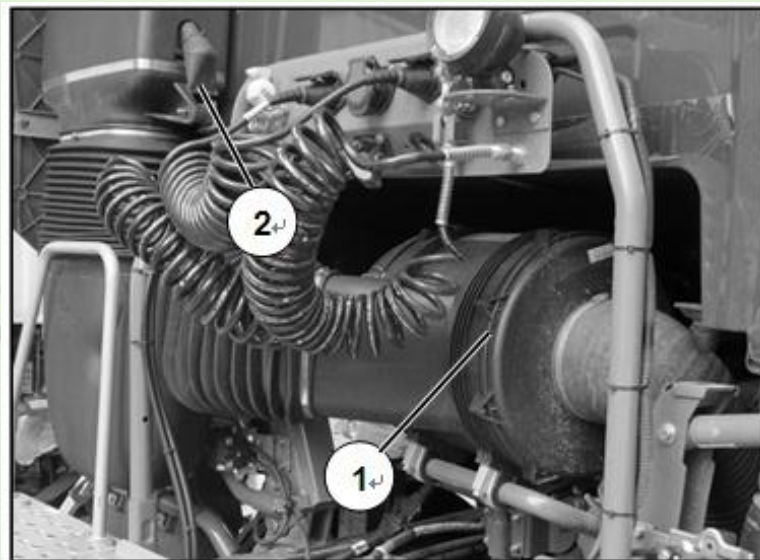




## 9.2 Cleaning method:

Firstly, loosen those fixing latches on end cover① of air cleaner and detach the end cover, remove dust in it and clean. Pull out the main filter element, purge with compressed air from inside to outside and clean rubber gaskets at both ends. Take care to make sure the compressed air pressure will not exceed 5 bar or otherwise, or else, the paper filter element may be broken. After cleaning, you shall carefully inspect the filter paper for damage and the end sealant for cracking, if any, the filter element must be replaced with a new one.

After inspected as acceptable, press the filter element into the housing in place, install the end cover and fasten the elastic buckles. Finally, inspect the seal of air intake pipeline for intactness, and particularly, check if the hose clamps are loose. Inspect the pipe wall for wear to prevent air accidentally entering the engine.



## 9.3 Cleaning dust bag

Used in winter and dusty conditions, the dust bag② shall be emptied and cleaned on a daily basis. Drop and poor tightness (caused by damage) of the dust bag will degrade the filtration effect, resulting in premature wear of engine and supercharger.



## 9.4 Oil bath air cleaner

### 9.4.1 Warning!

- The cleaner is not filled with engine oil before delivery of new vehicle.
- Before use, the cleaner shall be filled with engine oil (waste or used oil is acceptable).
- Fill the cleaner with engine oil up to 30 mm or 5 L.
- If the engine oil cannot flow easily when swinging the bottom case, the filter element shall be cleaned and the oil shall be replaced. In especially severe conditions, the cleaner shall be inspected daily. In normal conditions, the cleaner can work 80 to 150 h. The filter element can be used for a long time without replacement.
- After off-running, inspect if the connecting bolts or draw hooks between the housing and bottom case are loose and fasten them if necessary.



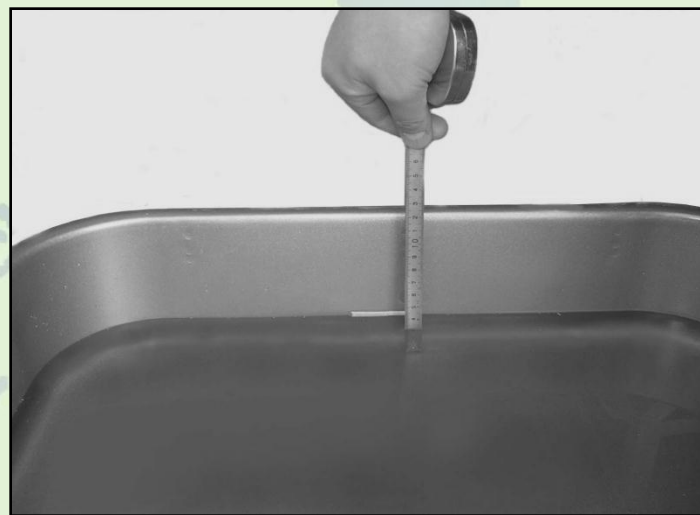


## 9.4.2 Clean the oil bath air cleaner

Steps of disassemble, check and cleaning:

-Unlock the locking devices of upper and lower housings.

-Remove the oil sump, fill with oil up to 5 L or 30 mm (with the tape immersed in oil for about 30 mm)





Clean the lower filter element assembly.

-Clean the fan blade and filter element until no visible oil sludge on the fan blade and filter element.



-Clean the upper filter element assembly according to the same method as that for lower filter element.





-Fit the filter element assembly. Install the upper filter element first, then the lower filter element and finally fix them with rubber gaskets, flat gaskets and butterfly nuts.



-Fit the bottom case. Securely fix the bottom case filled with oil using draw hooks.





The End

Thanks!