DFA1063DJ10(14)-301/303

Commercial Light Truck

Operational Manual

DONGFENG AUTOMOBILE CO., LTD.

2006, July

Foreword

Thank you for purchasing the DFA1063DJ10(14)-301/303 light commercial truck that manufactured by DONGFENG AUTOMOBILE CO., LTD.

This manual contains necessary procedures and instructions for the operation, inspection and maintenance for your DFA1063DJ10(14)-301/303 truck.

This vehicle is equipped with the EQB125-20 DONGFENG Cummins diesel engine which could reach the European II displacement standard.

To obtain the optimum performance from your new vehicle is the common goal for all of us, and it depends largely on your care and familiarity of the operation and maintenance of the vehicles. We sincerely hope that you read this manual thoroughly, and make sure that you are familiar with the operation and maintenance before you using the new truck.

The manual is a part of your vehicle. Please keep it with your truck. The information and figures in this manual are correct when publishing. Due to continuous improvement on our vehicles, maybe there are some instructions in the manual that does not accord with the actual vehicles. Please inquire when you get some problem.

The Application Section of Testing Department, Commercial product R&D Institute of DONGFENG AUTOMOBILE CO., LTD. is in charge of compiling this manual. DFAC reserve the right to make changes at any time without notice.

As for vehicle saling, maintaining or spare parts purchasing, please consult with the local agency.

The manual uses the legal unit.

DONGFENG AUTOMOBILE CO., LTD.
July. 2006.

Type	Engine	Equipment
DFA1063DJ10-301 DFA1063DJ14-301	EQB125-20 （Euro Ⅱ）	with AC, without powering steering
DFA1063DJ10-303 DFA1063DJ14-303	EQB125-20 （Euro Ⅱ）	without AC, with powering steering

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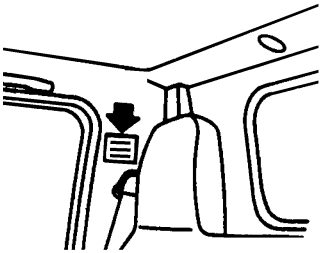
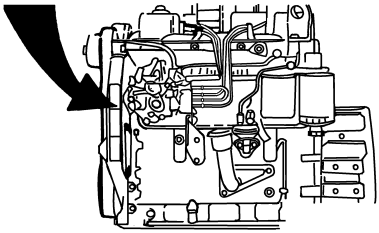
Truck Nameplate

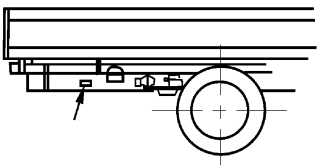
Truck Nameplate Position

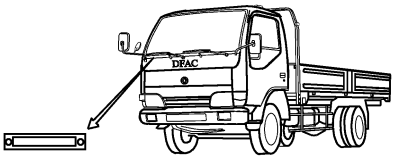


Engine Nameplate Position



VIN Position





Main Technical Specifications and Structure Features

● General Data

Vehicle Model			DFA1063DJ10-301/303	DFA1063DJ14-301/303
Rated Loading Weight (kg)			2850	2850
Curb Weight (kg)			2850	2900
Gross Weight （kg）			6495	6515
Load Distribution （kg）	Front axle	No-load	1880	1900
		Full-load	2555	2457
	Rear axle	No-load	1570	1570
		Full-load	3940	4058
Overall Dimension (mm)		Length	6815	6815
		Width	2176	2176
		Height (no-load, to cab top)	2300	2300
Wheel Base （mm）			3800	3800
Wheel tread (mm）	Front wheel		1750	1750
	Rear wheel		1586	1586
Front/Rear Suspension (mm)			1210/1960	1210/1960
Approach angle/Departure angle			24° / 12° 55'	24° / 12° 55'
Min. Ground Clearance (mm) (Full-load)			176	176
Min. turning diameters （m）			⩽ 15	⩽ 16

Vehicle Model	DFA1063DJ10-301/303	DFA1063DJ14-301/303
Structure Features	Cab over engine, single row, equipped with EQB125-20 engine	Cab over engine, single row with a slipper, equipped with EQB125-20 engine

Operational Data

Max speed （km/h）	105
Max gradability (Full-load on dry and hard road, the slope length is over 15m)	⩾ 30%
Ability of parking on the slope	⩾ 20%
100km fuel consumption （L）	⩽ 13
Max continuous running distance （km）	500
Fuel type	RC-0#(summer), RC-10#(winter) vehicle used light diesel oil

Engine Parameter

Model	EQB125-20
Type	With 4 in-line cylinders, supercharging and intercooling, direct injecting DONGFENG Cummins diesel engine, reach the European II displacement standard
Bore × Stroke （mm × mm）	102 × 120
Displacement （mL）	3922
Compression ratio	17.3:1
Rated power （kW/rpm）	92/2800

Rated torque （N.m/r/min）	410/1500
Fuel consumption under full-load (g/kW.h)	210
Injecting order	1-3-4-2

Chassis Type and Structure Parameter

1.Clutch

Ø325 mm single , dry disc, hydraulic remote control.

2.Transmission

Manual mechanical transmission, five gears forward, one reverse, controlled by flexible shaft.

Speed ratio:

Gear	Ⅰ	Ⅱ	Ⅲ	Ⅳ	Ⅴ	R
Speed ratio	4.763	2.808	1.594	1.000	0.756	4.99

3.Propeller shaft

Two knuckles, crosspin cardan joint.

4.Front axle

Forging, I-beam axle.

Front wheel aligner：kingpin inclination 8°

caster 2°

camber 1°

toe-in 0~2mm

5.Drive axle

Founding axle housing, single-stage and double-curved gear reductor, fully floating axle shaft.

Main reduction ratio: 4.875

6.Suspension system

Both front and rear suspension are non-independent, laminated leaf-spring, with an auxiliary spring on rear suspension.

Number of spring leaf: Front: 8, Rear 10+7.

7.Wheel

Single tyre on the front axle, double tyre on the rear tyre, and a spare tyre on the spare tyre carrier hang under the rear end of the frame.

Wheel rim：7.50-16

Tyre：7.50-16-12PR

8.Steering system

Steering wheel type.(DFA1063DJ10-301, DFA1063DJ14-301).

Steering wheel type with power steering.(DFA1063DJ10-303, DFA1063DJ10-303)

Max front wheel turning angle (inside/outside): 41°/33°

9.Brake system

Service brake: dual-circuit, air-operated brake system, and front and rear brake are self-adjustable, cam, air-operated, drum brake with exhaust auxiliary brake.

Parking brake：spring brake controlled by manual-operated valve through air pipes.

10.Frame

Ladder type, longitudinal is grooving section and riveted by several crossbeams, part of the frame has stiffening plate.

11.Electric equipment and instruments

Single, negative earthed line, 24V.

Main switches：

Power switch, ignition switch, front fog lamp switch, rear fog lamp switch, warning light switch, etc.

Instruments：

Speedometer and odometer, air-pressure gauge, etc.

Indicators:

Air pressure warning indicator, turning signal indicator, charge warning indicator, parking indicator, reversing warning indicator, electric horn, etc.

Lamps:

Front combined lamp, head lamp, fog lamp, turning signal lamp, tail combined lamp, etc.

12.Cab

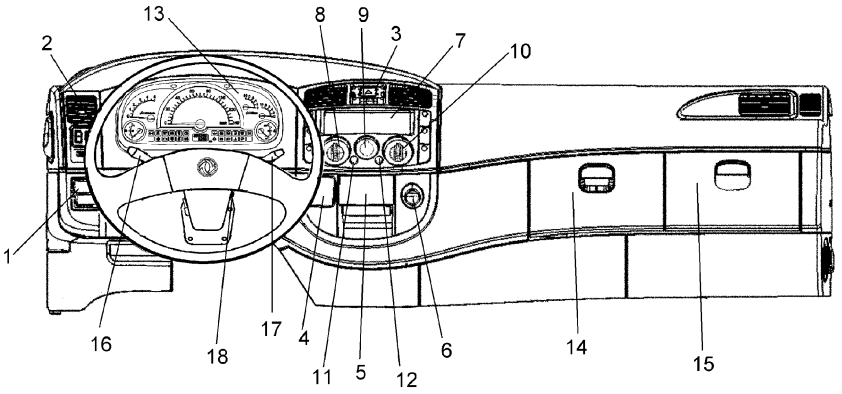
All metal structure, COE, wide cab with single row(DFA1063DJ10-301/303)/ single row with a slipper(DFA1063DJ14-301/303). The driver's seat can be adjusted for ward and backward. The driver seat and the assistant's seats are fitted with 3 point-seat belt, the middle seat is fitted with 2 point-seat belt. The cab is equipped with full-scope windshield, sun shield, inner rear view mirror, and radio cassette, etc.

13.Tools equipment

Every commercial vehicle is equipped with a set of tools.

Construction and Operation

Arrangement of the Cab



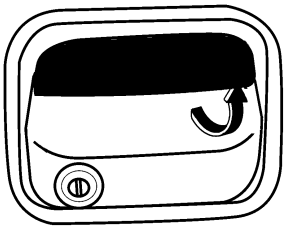
HC0011D

1. Power switch
2. Wind channel
3. Hazard warning lamp switch
4. Compartment box
5. Ashtray
6. Cigarette lighter
7. Radio cassette
8. Heater and air-conditioner transition switch
9. Fan controlling switch
10. Heater and air-conditioner controlling switch
11. Air-conditioner switch
12. Air internal circulating switch
13. Instrument
14. Glove box
15. Glove box
16. Combined light switch
17. Windshield wiper and washer controlling rod
18. Ignition lock

Doors

● Opening doors

From the outside



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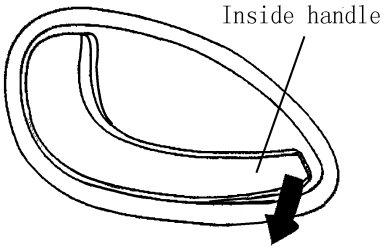
From the inside

Note:

After closing the door,please double check whether the door is really closed. Driving with the door half closed can be very dangerous.



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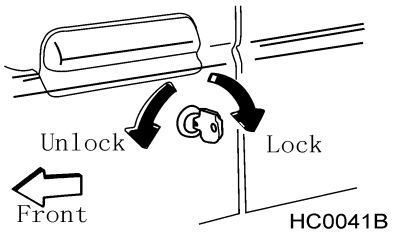
● Closing doors

From the outside

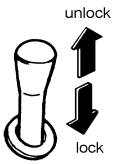
Turn the key forward to lock the door, while turn it backward to unlock the door.



HC0041B

From the inside

Set the lock ball to the locked place, and pull the door handle to close the door.



Seats

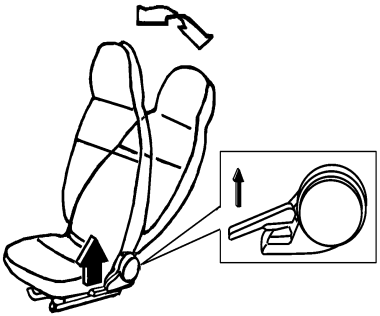
● Driver's seat forward and backward adjustment

Raise the adjusting lever on the front side of the seat, and move the seat forward and backward till to the optimum, then release the adjusting lever and lock the seat in the desired position.

Danger: Do not adjust driver's seat forward and backward in driving.

● Driver's seat back angle adjustment

Raise the adjusting lever on the left side of the seat, and adjust the seat back to an angle most appropriate for holding the steering wheel, then release the lever to lock the seatback in the desired position.



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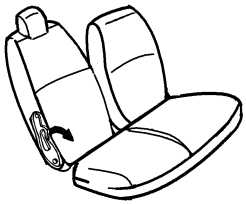
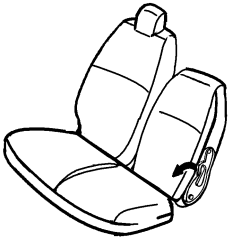
● Assistant's seat back adjustment

Turn the knob located on the right side of the seat, the seatback will be adjusted to the desired position or putted down face to the seat.



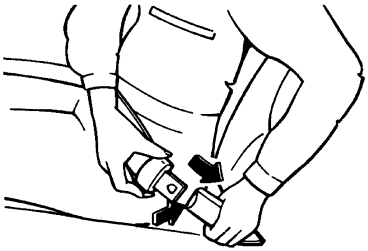
● Center seat back adjustment

Turn the knob located on the left side of the seat, the seatback will be adjusted to the desired position or putted down face to the seat.



● Safety belts

Slowly pull out the safety belt and make it throught your body from the left side of your neck to the right side of your waist and press the button, then insert the locking hook into the latch hook. Adjust the length of the safty belt to the optimum.



Note:

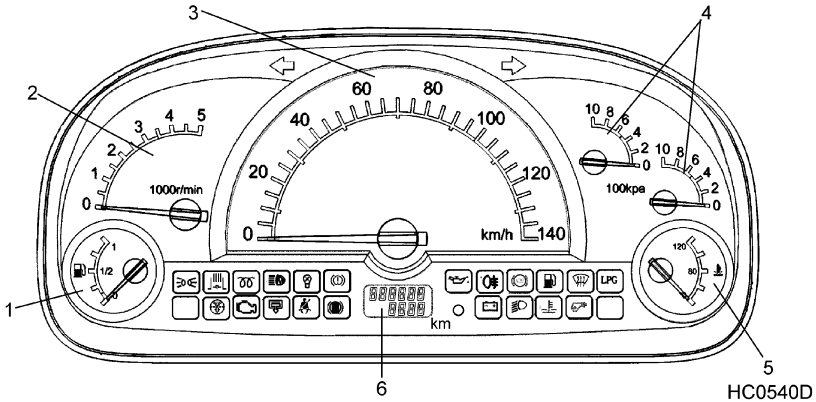
Make sure that the safty belt is not winded or rubbed by hard edge, and far away from the chemical and battery acid;

One belt for one person;

After being overused, invalid or damaged, the whole belt should be changed;

If the safty belt retractor does not work well, the whole belt should be changed immediately.

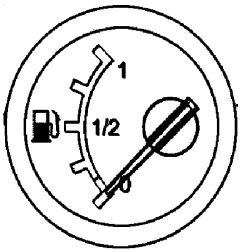
Instruments



1. Fuel gauge
2. Tachometer
3. Speedometer
4. Air-pressure Gauge
5. Water Temperature Gauge
6. Electronic Speedometer

● Fuel Gauge

The fuel gauge use to indicate the approximate level of fuel remaining in the fuel tank. The needle will change because of vehicle braking, turning, accelerating or climbing.



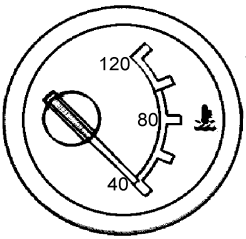
HC0091D

Note:

Do remember refill the fuel tank with clean fuel before the gauge indicates that the fuel has been used up.

● Engine Water Gauge

The gauge indicates the engine water temperature. Its needle will change because of atmospheric temperature and driving condition.The red zone indicates a range of ctritical engine water temperature. Be sure to



HC0100D

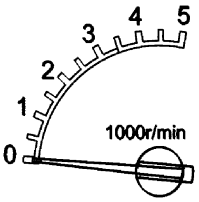
always keep the needle of the gauge below this critical zone.

Note:

Be sure to stop the vehicle as soon as possible when the needle of the gauge beyond the normal range.To run the vehicle with a overheated engine is extremely harmful to the engine.

● Tachometer

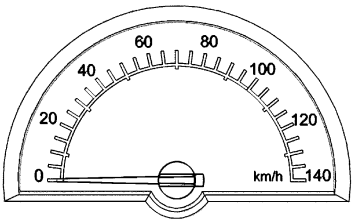
The needle of the tachometer indicates the engine speed in revolutions per minute. The red zone indicates a range of critical engine speed. Be sure to always keep the indicator below this critical zone. The white zone indicates the a range of most economical engine speed. Driving in this zone could save fuel and prolong the duration of engine.



HC0131D

● Speedometer

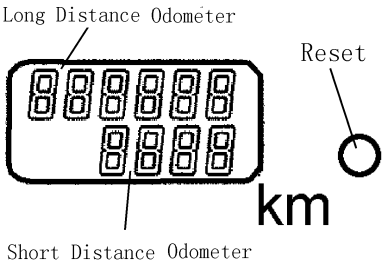
The speedometer indicates the speed of the vehicle in kilometers per hour. The red zone indicates a range of critical speed. Better to keep speed out of this critical zone while keep the indicator below this critical zone.



HC01

● odometer

The odometer measures distance in kilometers. The odometer is divided into two parts. The upper part is long distance odometer, the other is short distance odometer. The long distance odometer represents the accumulated driving distance; the short distance odometer represents the running distance of a day or a trip. Press the reset button to delete the numbers before you use it, then release the reset button.



HC0560D

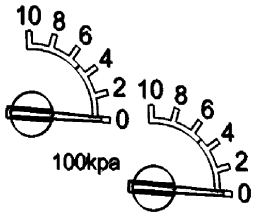
Note:

Do not press the reset button during the driving period.

Do not pull or turn the reset button when press it.

● Air-pressure Gauge

There are two gauges here, one for front brake system, the other for rear brake system. The range of the indicator is from 0~10x100kPa. When the indicators are in red zone the vehicle cannot be started. Only when the indicators are above the red zone can the vehicle be started.



HC0120D

Indicators

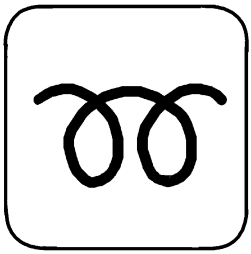
● Taillamp Warning Indicator

The indicator will lighten when any of the taillamp (exclude the turning lamp) is in trouble.

HC0150B

● Preheat Indicator

The indicator wil lighten when the exhaust brake is switched on.



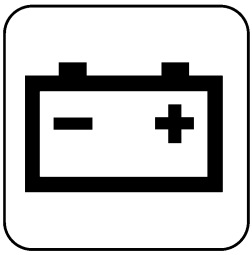
HC0140B

● Charge Warning Indicator

The light will lighten when the key switch is turned on, and will extinguish when the engine is started and charging is initiated. If charging is stopped due to the failure of the charging system during engine operation, the light will lighten.

Note:

Never run the vehicle with the warning light on. This will run down the battery.



HC0180B

● Parking Brake Warning Indicator

The light will lighten when the parking brake is actuated to aware the driver that the vehicle is in the braking condition. The light wil extinguish when the parking brake stops operating. Before moving the vehicle, make sure the light is off.

HC0250B

● Safety Belt Indicator

The indicator will flash for 7 seconds to aware the driver and passengers to use the safty belts when the ignition lock is placed at "ON" position.

HC0200B

● Oil Pressure Warning Indicator

The light will lighten when the key switch is turned on, and will extinguish after the engine starts. It will be lighted again when the oil pressure is too low during the operation of the engine.

Note:

The low pressure of the engine will cause the damage of the engine.

Never run the vehicle with the warning light on.

HC0240B

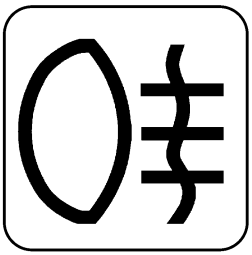
● Fuel Warning Indicator

The indicator will lighten when the remaining fuel is too little to assure the normal driving. It is used to aware the driver to refill the tank.

HC0210B

● Rear Fog Indicator

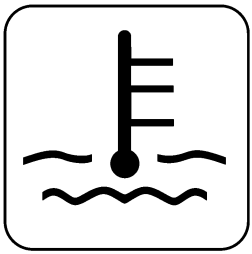
The light will lighten when the rear fog lamp is used.



HC0220B

● Water Temperature Warning Indicator

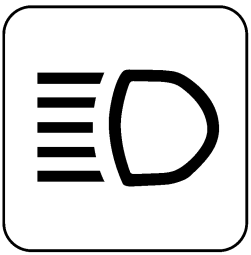
The light will lighten when the temperature of the water is over 101 ℃. At the same time, a buzzer will sound to make the driver aware that the engine is in dangerous situation. The buzzer stops when the key switch is turned off with the engine stopped.



HC0230B

● Headlamp Indicator

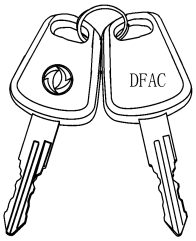
The light will lighten when the vehicle use the headlamp, also when use the passing lamp.



HC0170B

Keys

There are two keys provided that used to start the vehicle, open or lock the door.



HC0281B

Key Switch

LOCK: Only the key is set on the LOCK position can it be inserted or pull out.

OFF: Turn the key from ON to OFF to shut-down the engine.

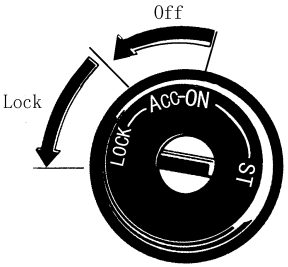
ACC: Set the key at the ACC position to use any of the accessories (such as radio cassette, wiper, cigarette lighter, etc), while the engine is not operating.

ON: After the engine starting, the key return from START to ON and the engine is started normally. Never turn the key to any other position while the engine is running.

START: Set the key to the START position to start the engine. The key will return automatically to the ON position when released from the START position.

Note:

Never turn the key to the START position while the engine is running, or else it makes the starter damaged. Only after the engine stops can the engine be started again.



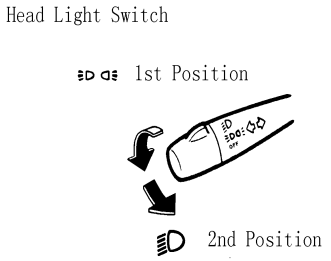
HC0291B

Light Combination Switch

This combined switch is used for front lamp, tail lamp, head lamp, instrument lamp, licence lamp, passing lamp, dimmer and turning lamp, etc.

● Light switch

Turn the end knob of the combination switch lever forward, the lamps represented in the below chart will illuminate depending on the position of the switch.



HC0300B

○ ON xOFF

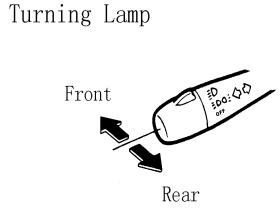
Knob position	Head lamp	Front lamp	Tail lamp	Licence lamp	Instrument lamp	Front width lamp	Rear width lamp	Side Maker lamp
OFF	×	×	×	×	×	×	×	×
First position	×	○	○	○	○	○	○	○
Second position	○	○	○	○	○	○	○	○

● Turn signal light switch

Put the control lever forward and backward to make the left or right turn signal lamp blinked. At the same time, the turning signal indicator on the instrument panel blinks also.

When put the control lever forward, the right turing signal blinks.

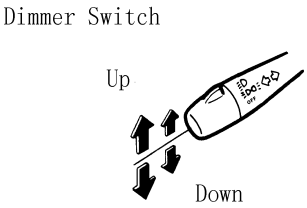
When put the control lever backward, the left turing signal blinks.



HC0310B

● Dimmer switch

Put the combined switch control lever up and down to change from the high beam to low beam or from the low beam to high beam.



HC0320B

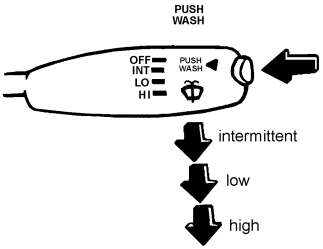
● Passing light switch

The head light high beam will lighten as long as the lever is being pulled from the low beam position, and when releasing the lever, it will automatically return back to the low beam position. During the normal running condition of the vehicle, no matter other lights' condition, if you use the passing light, it will be on.

Windshield Wiper and Washer Switch

● Windshield Wiper

The wiper starts after pulling the lever backward. It has intermittent, low and high three speeds.



● When the front windshield is dirty and needs to wash

Press the button on top of the windshield washer lever, the washer will operate and the washer fluid will be sprayed out continuously.

At the same time, the equipped intermitted wiper (3-speedtype) is also operating.

The wiper should be moved two or three more times after the washer stops.

Release the button, the washer stops.

Pull the lever to the end of the front, the wiper stops.

Note:

Use of the wiper alone will scratch the windshield. Be sure to operate it with the washer when the weather is well.

Do not use the washer without washer fluid, otherwise the washer motor will be damage.

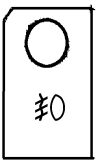
● Hazard Warning Indicator Switch

Use this switch to warn other drivers when your vehicle becomes a traffic hazard source due to mechanical trouble. If switch on it, all left and right turning signal lights are lightened, and the turning signal indicator will flash simultaneously.

HC0361D

● Front Fog Lamp Switch

When this switch is pushed, the fog lamps, front lamps and tail lamps all come on. Use this switch to control the lights when driving in a thick fog.



HC0341D

● Rear Fog Lamp Switch

In the condition that the front fog light is on, switch on this and the rear fog lights come on, while switch off, the rear fog lights will be off.

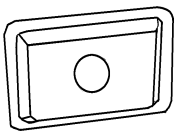
HC0351D

Power Switch

The rocker switch is used to control the electromagnetic power switch in the circuit system. Set the switch to the ON position to turn-on the vehicle circuit system, and set it to the OFF position to cut-off the circuit system. The circuit should be switched off to protect other electrical equipments in case the circuit system is checked or repaired.

Note:

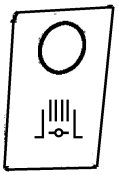
Don't turn off the power switch when the engine is running.



HC0601D

Exhaust Brake Switch

It is used to control the exhaust brake.



HC0581D

Air Horn and Electric Horn Shift Switch

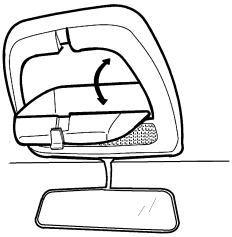
Choose the air horn or electric horn as you need.

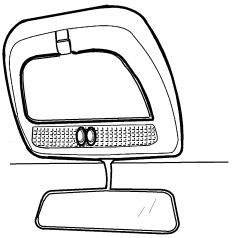
HC0571D

Dome Lamp and Glove Box

There are one glove box and two lamps on the inner front of the cab. If you want to use the glove box, just pull down the lid.

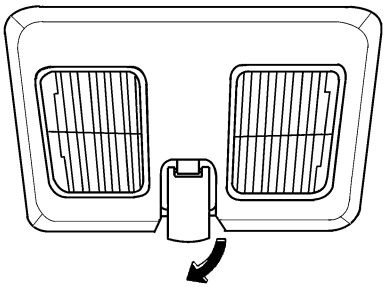
As for two dome lamps, press the left button they will lighten no matter the door is open or not; press the right button they will lighten if any of the door is opened.





Cab Skylight

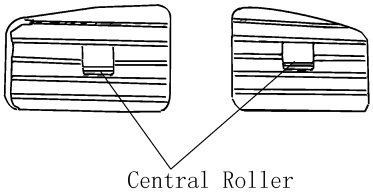
When you want to introduce some fresh air into the cab, just push up the switch of the skylight.



Air Conditioning System

● Ventilator

Turn the central roller to change the direction of the airflow.

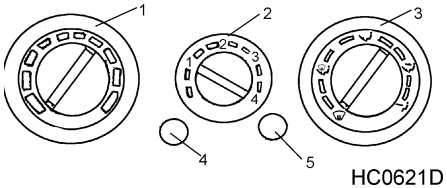


HC0611D

Air-conditioner

● Air-conditioner switch

When the air-conditioner is needed, press this switch and the indicator light goes on which means the connection of power supply.



HC0621D

1. Air-conditioner switch
2. Fan switch
3. Operating-mode chosen switch
4. Air-conditioner switch
5. Internal air circulating switch

● AC-Heater Switch

When the air-conditioner is needed, trun the switch to the green indicator side; when the heater is needed, trun the switch to the red indicator side.

● Fan switch

There are five speeds provided, from 0 to 4. At 0 position, the fan stops, and the wind will become even stronger from 1 to 4 speed successively.

● Internal air circulating switch

Press the button to circulate the air of internal cab, so that the hot and cool air could distribute averagely.

● Operating-mode chosen switch

 --blowing to your head

 --blowing to your feet

 --blowing both to your head and feet

 --inside heating and defogging

 --inside defogging

Note:

The warm air is heated by the cooling liquid of the engine. Its temperature depends on the temperature of the cooling liquid.

Please do not use the heating device too long when the engine is stop or idle, otherwise it will wear out the battery and influence the normal driving.

Do not forget to reduce the transmission speed and raise the engine revolution during low speed running, or climbing the long slope, to reduce the engine load.

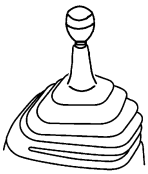
You have to wait for 2-3 minutes before you restart the air-conditioner to extend the sevice life of the compressor.

You also have to operate the air-conditioner for 10 or more minutes every month even in winter to extend its service life.

Levers, Steering Wheel and Accessories

● Transmission gear shift lever

When shifting gears, be sure to fully trample down the clutch pedal. Before shifting the gears from forward to reverse or from reverse to forward, be sure to make the vehicle stopped at first.



HC0380D

When the gear shift lever is set at the "R"(reverse) position, the reverse lamp will go on, and the reverse buzzer will sound simultaneously to alarm the passers-by and vehicles.

● Parking brake knob

Parking

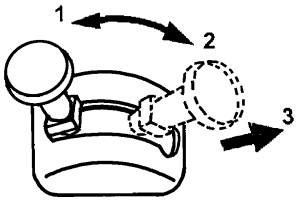
Pull up the parking brake knob backward after the vehicle stopped to lock the vehicle.

Release the parking

To release the parking brake, first pull up the lock sleeve of the knob, then push the knob forward.(if the air pressure is too low, the parking brake cannot be released)

Note:

Park the vehicle on a plain ground as possible as you can.



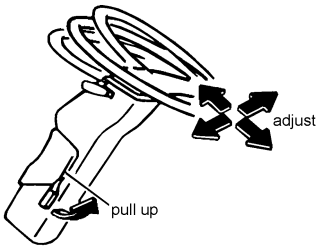
1. Push forward to release
2. push backward to brake
3. Pull up a little

● Steering wheel adjustment

Loosen the lock knob, and the steering wheel can be tilted forward and backward, upward and downward. Before adjust the steering wheel, first adjust the seat to suit the driver's build. After that, be sure to tighten the lock securely to prevent the steering wheel from being accidentally moved while the vehicle is in driving state.

Note:

The adjustment of the steering wheel must be performed only when the vehicle is parking. Adjustment of the steering wheel while driving is strictly prohibited.

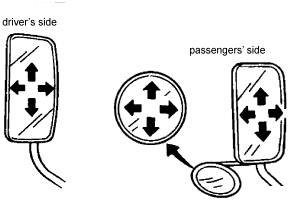


● Rearview mirror and bottom view mirror adjustment

They can be adjusted to any direction to reach the optimum.

Note:

Do not change the direction of the mirror during driving period, it will cause a traffic dangerous.



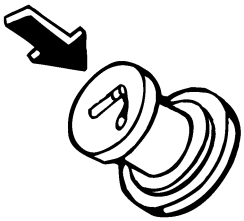
● Cigarette lighter

Press down the cigarette lighter knob fully, then wait for ten seconds until the top end of the lighter becomes red hot before the lighter jump back to its original position automatically. Then it can be pulled out to use, and put back the lighter after lighting cigarettes

Note:

If the lighter cannot jump back automatically after pressing approx 10 seconds, please pull out it manually to avoid other troubles.

Be sure to use this cigarette lighter carefully. Careless or incorrect handling of it may cause a fire accident.

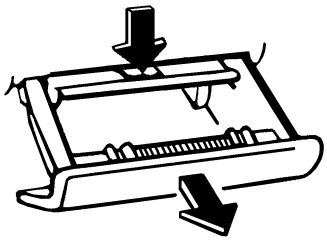


● Ash tray

Pull out the ash tray to use it. Detach the tray for cleaning by pressing down the ash tray tongue while pulling the ash tray out.

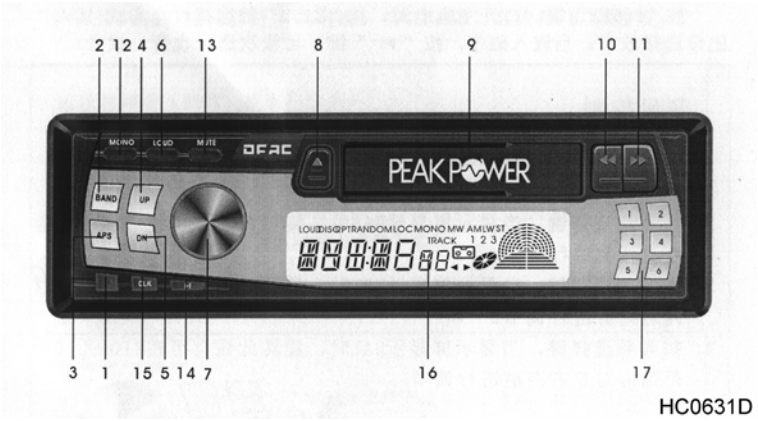
Note:

Be sure to close the ash tray for a safety precaution.



● Radio cassette

Panal fuction introduction



1.POWER
2.BAND
3.Auot restore and search
4.Upper search
5.Lower search
6.Soud controller
7.volume knob
8.Outlet
9.Cassette cover
10.Fast-backward
11.Fast-forward
12.BAL
13.Mute
14.Play
15.Time display
16.LCD screen
17.Pre-set

Basic operation introduction

Press "Power" button to turn on radio cassette. Press "Band" button to select the operation mode. Input a cassette to select tape play mode, press "Play" button to select tape play or receive in turn.

● Receive operation

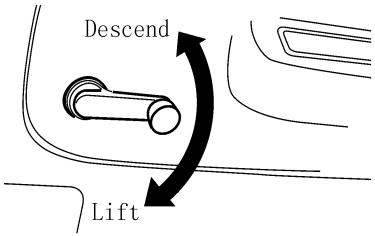
Press "Power" button to turn on radio cassette. Press "Band" button to select FM/AM broadcasting stations.

● Tape play

Press "Power" button to turn on radio cassette. Input a cassette to start tape play, Press "play" button after input a cassette to select the tape play mode

● Glass regulator

Turn the knob at the clockwise direction lift the glass, and at counter clockwise direction to descend the glass.



HC0460B

● Assembly and disassembly power harness

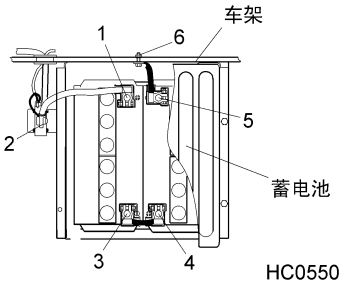
Turn off the power before assembly and disassembly.

Strictly follow the sequence shown in the picture to assemble the bolts.

Only when every bolt is tightened and make sure that the jacket is dependable, can go on the next step.

Turn off the negtive loop when dis-assemnle, which means disassemble the fifth bolt.

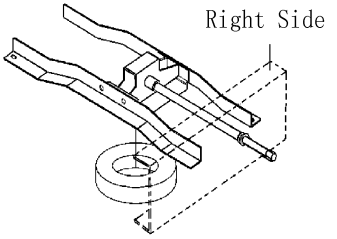
In using, avoid metal conductor contacting with main power switch and frame or battery bracket at the same time.



HC0550B

● Spare tyre device operation

The spare tyre is set underneath the chassis frame tail.



HC0451B

Take out spare tyre

Use a spanner to turn the propeller lever at the counter clockwise direction to down the spare tyre.

Take out the spare tyre from the holder.

Install the spare tyre

To Install the spare tyre follow the contrary sequence.

Note:

The spare tyre should be installed firmly and avoid missing.

Tilting Cab

● Precautions before Tilting Cab

Park the vehicle on a plain ground as possible as you can.

Note enough clearance between the roof height and the front wall when tilting the cab in a room.

Make sure whether the brake parking is in braking state or not. Set the gear shift lever on the neutral position.

Please withstand on every tyre with triangle chock if you need.

Note:

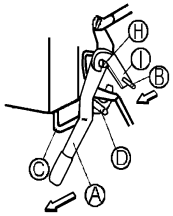
Be sure to take care of the objects in the cab druing tilting the cab,

● Tilt Operating

First push A with your left hand and pull B at the indicated direction with your right hand at the same time to release H from the hook, then pull up A to the limit.

After that, hold C with your left hand and pull D with your right hand until D relaese from J, then tilt the cab.

Be sure that E is hooked and pull out the safty pin from G and insert it into F at last.



HC0472B

Lock Operating

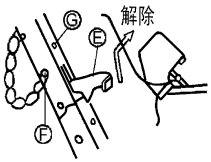
First hold C with your left hand to hold the cab, and pull out the safty pin from F, then insert it into G, and release E with your right hand at the same time.

After that, hold C to down the cab slowly until D hooks J. Please do not move A with your hand during operating and pay much attention to the falling cab and A.

At last, push down A until it hooks I completely.

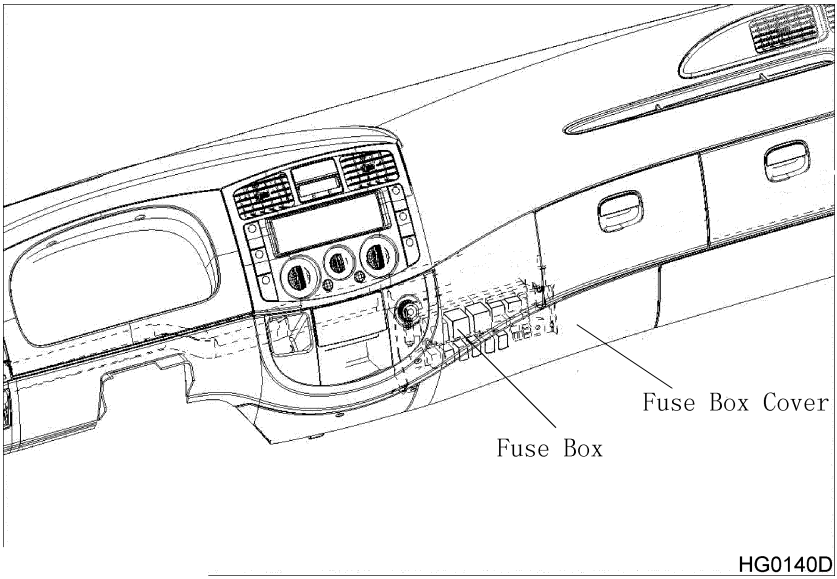
Note:

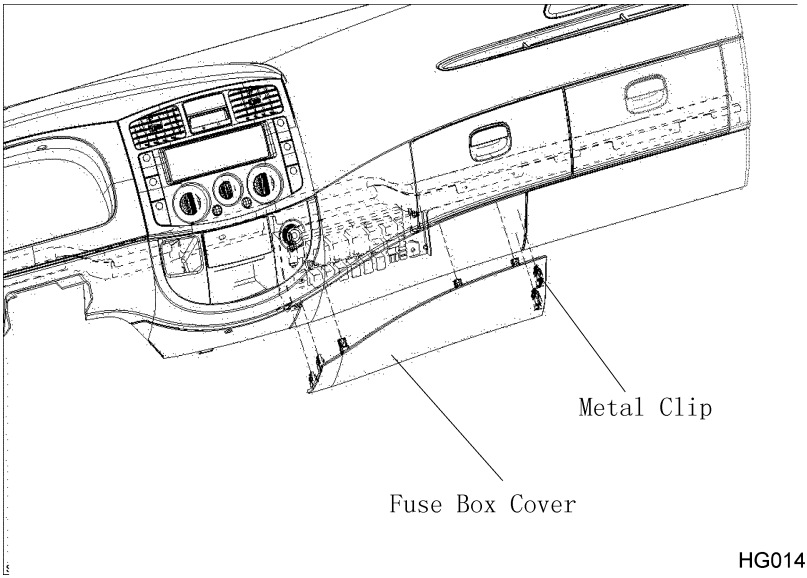
Whenever tilting the cab, do insert the safty pin.



HC0473B

Fuse box


Fuse Box Cover
Fuse Box
HG0140D


Metal Clip
Fuse Box Cover
HG0141D

● Assembly and disassembly fuse box

Fuse box cover contact the instrument panal by 7 metal clips. When maintain the fuse box, directly pull the cover out. If disassembly the fuse box is needed, use a screwdriver to loose two bolts which are beneath the box, then directly pull the box out.

● Observation the wash liquid

When open the cover of wash liquid pot, press the hole then lift the cover. The height of liquid in the tube of pot cover is the same of that of the remain liquid in the pot.

Vehicle Starting

Pay Attention Before Engine Starting

1.Check the oil and coolant level.

2.Check the fuel level.

3.Without the air-filter, the engine is forbidden to operate.

4.First using of a new vehicle and stopping for a long time, it has to use the hand priming lever of the fuel pump to pump fuel to bleed the air in the fuel system.

5.Make sure that the transmission gear shift lever is on the neutral position.

6.Turn on the power.

Normal Start

1.Turn the key switch to "ON" position, and check every warning indicator lamp to see whether is on or not.

2.Check whether the "Inlet pre-heat indicator" is lighten, start engine if it is not lighten, if it is lighten, wait until it go out and then start engine.

3.Depress the clutch pedal fully, and turn the key switch to the "START" position to start the engine.

4.After the engine has been started, release the key, and gradually release the accelerator pedal till idle running.

Be sure to inspect the oil pressure within 15 seconds.

Note:

Don't keep the key in the "START" opsition for more than 5 seconds at a time, because continuously use of the start will cause the battery run down. If the engine fails to start, wait 20 seconds before trying again.

The time for idling speed is no more than 5 minutes.

To ensure safety and reduce the motor load, please fully depress the clutch pedal when starting the engine.

Engine Starting (when the cab is tilted)

Pull up the parking brake lever and fill in the wheel with triangle chock.

Turn the key to "ON" position.

Be sure the transmission gear shift lever is set on the neutral position. The engine can't be started if the lever is on the other speed position.

Engine will be started when pressing the starter button.

Turn the key from "ON" position to "OFF", when stopping the engine running.

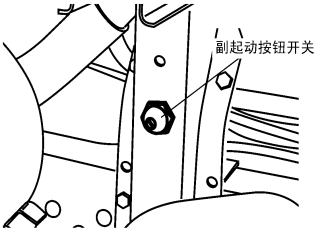
Note:

Don't keep the key in the "START" position for more than 5 seconds of one time. Otherwise it will be shorten the life of the battery.

If the engine fails to start, wait 20 seconds before trying again.

Don't touch the transmission lever when the cab is tilted during running.

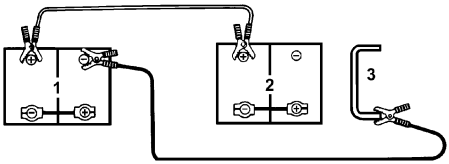
Don't put down the cab when the engine is running.



HD0070B

Assistant power start

When the battery is run out and the engine is hard to start, to start the vehicle, an assistant power can be uesd. Connecting process:



HD0090B

1.Extinguish the engine of a vehicle which epuiped by a good condition battery;

2.Connect one end of booster cable (red) with the positive terminal post of battery 2 which is run out, and the other end with the positive terminal post of battery 1 which has power;

3. Connect one end of the other-booster cable (black) with the negtive terminal post of battery 1 which is in good condition, and the other end with the chassis frame 3 which equiped with the run out battery 2. It must keep away from the battery as far as possible;

4.After connect the booster cables, start the engine of the vehicle which equiped with the run out battery. If the temperature is too cold so that it is hard to start, run the engine of the good condition vehicle for several minutes, then start the fomer engine;

5.After start the engine, disassemble the cables in contary process of connection.

Running-in and Maintenance of New Vehicle

The correct running-in of a new vehicle has a great influence to the vehicle service life and its reliability.

The running-in kilometrage of a new vehicle is specified as 1500~2500km, and the vehicle will be used normally only after 2,500 km's running-in. Because it will reach the peak of its power at that time. Otherwise the insufficient power and earlier overload operation will cause the parts of engine overwear.

You should follow the below rules during the running-in period:

Before Running-in

Clean the vehicle and check the tightness and connecting of every part.

Check the level of the water tank, and the cooling system(to see whether it is leaky or not).

Check the lubricating oil level of the engine, clutch control system, gear box, rear axle, and steering system to see whether the oil should be added, and check whether every part is leaky or not.

Check whether every part of steering is loosen or seized.

Check whether the brake system works normally, and the connecting pipe is leaky or not.

Check whether electrical equipments, lights and instruments work normally. And check the level of the electrolyte of battery.

Check whether the tyre pressure is up to the standard.

Check whether the speeds of gear shift is engaged.

Running-in Period

The vehicle shold be run on flat and paved road.

Corretcly drive, engaging the clutch smoothly, shifting gear in time, avoid to accelerate suddenly and brake sharply.

Load specified:The load capacity can't be over 70% of rated load during running-in period.

Pay attention to the temperature of gear box, rear axle, wheel hub and brake drum. If the temperature is too high, you should find out the reason and adjust or maintain.

Specially notice the oil pressure and control the normal temperature of the engine coolant.

After Running-in

After the running-in, please go to the truck technical service station to do the running-in service. The service should be carried out according to the "Maintenance Schedule".

Driving Recommendations

Proper driving habits will not only result in longer service life and better performance, but also in greater economy and safety in operation. Be sure to observe the following rules.

1.When the engine is cool, do not start to run hurrily.

2.After the cold start, rise the rotate speed of engine slowly to a permissible speed, so the oil pressure engine combusion will be stable along with the heating of the engine.

3.Start the vehicle until the exhaust smoke is azury colour.

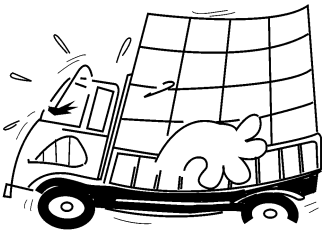
4.Never run-up the engine speed unnecessarily. If the temperature of the cooling water is low, it will cause the engine damage.

5. If the temperature is below 0 ℃ , the engine should run in moderate speed for 5 minutes before full load running.

6.The engine speed can't exceed 2,500r/min before the driving mileage is at 4,000km.

7.Avoid full-throttle starts fully and brake suddenly, the first case will cause the clutch damage or the tyre wear while the second case will accelerate wear on both the tyre and brake linings.

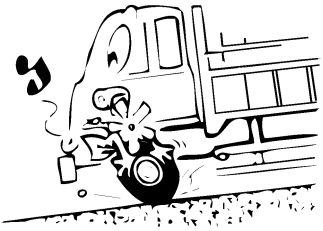
8.Don't overload driving. It will shorten the service life of the vehicle.



9.Be sure that the air pressure indicator surpass the red area, drive after the buzzer stop warning.

Danger: To drive when the pressure is not enough is fobbiden.

Driving on a slope



When descending a slope, be sure to keep the vehicle speed within a safety, controllable range by utilizing the engine, exhaust brake, and the foot brake.

When down shifting, as well as when descending a slope, engine can't be over 3000 r/min. Excessive running of the engine may cause some of the part to receive under stress and could result in mechanical problems.

Before descending a steep or a long gentle slope, apply the brakes and make sure that the brake system functions normally.

When driving on a downgrade or shifting into a lower gear, make sure of the vehicle speed by checking the speedometer, and the engine revolution by tachometer.

Note:Engine can't be over 3000 r/min in whatever condition.

Clutch Operation

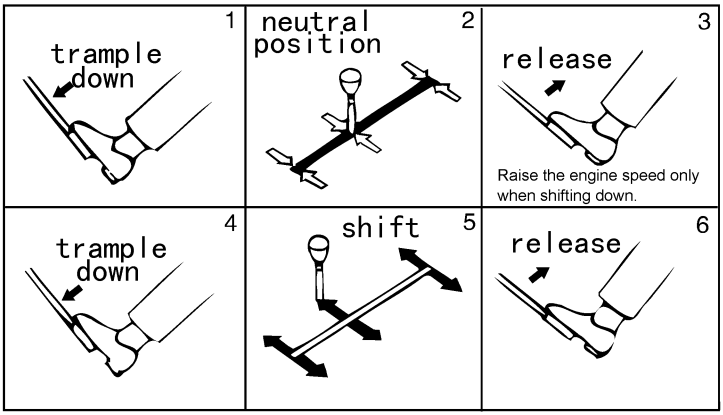
When use the clutch, release quickly and thoroughly. To release half-way is one of the reason of clutch damage.

Avoid engaging partially clutch, as this will greatly affect the clutch operation and service life.

After the clutch operation, ensure not to step on the clutch pedal.

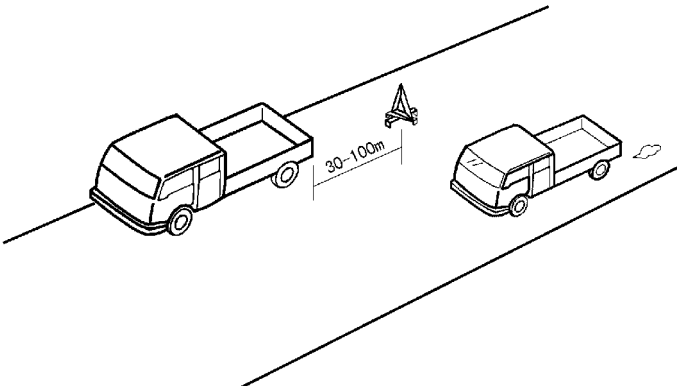
When changing the position of the transmission gear shift lever, both in shifting to higher gear and in downshifting, be sure to use the double-foot-clutch method for shifting.

Double-foot-clutch Method for Shifting



The Use of Warning Triangle

When your vehicle is break-down or has some problems, first light the warning light, then put the warning triangle behind the vehicle nearly 30-100 meters' far. Do remember to put the red side to the comings.



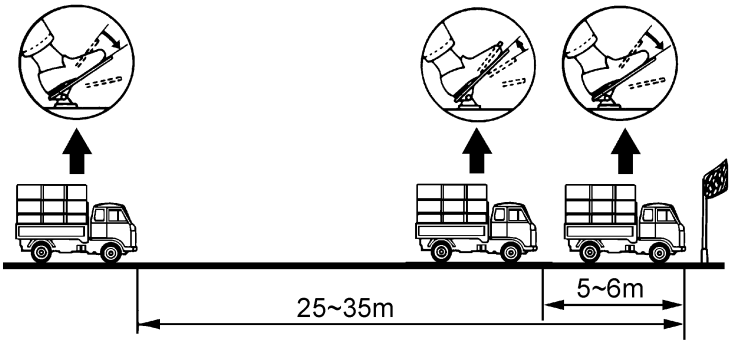
Braking Operation

To stop the vehicle successfully, please follow the process below to operate the brake system:

1.Trample down 1/2~1/3 brake pedal in front of the supposed stop spot 25~35m;

2.Begin to release the brake pedal in front of the supposed stop spot 5~6m;

3.Trample down the brake pedal slightly when near the stop spot to fully stop the vehicle.



HD0080B

If trample down the brake pedal continuously, the vehicle will stop violently in a short distance.

After wash the vehicle or pass a quite deep puddle, the brake drum may input some water and reduce the braking efficency. Trample down the brake pedal for several times in a stable low speed to vaporize the water and ensure the braking device work normally.

Note:

Avoid trampling down the brake pedal frequently, because this may empty the air restore tank and cause inefficient brake.

Danger:

Except Emergency, do not operate brake in emergency method, especially in a raining and slipping road condition, the emergency brake may possibly cause slide and other dangers.

Parking

Stopping Recommendation

1.After driving, allow the engine to idle for 3 to 5 minutes until the temperature of the engine becomes lower, then shut off the engine.

2.Especially after heavy loaded operation or high speed driving,

3.Turn off all switches after stopping the engine.

Parking recommendation

1.Whenever park the vehicle do pull up the parking brake lever to avoid accidental move.

2.Move the transmission gear shift lever to any but beside neutral position, suggest to 1 gear as the fisrt choice.

3.A chock should be placed behind the tyre when park the vehicle on a slope to avoid accidental move.

Note:

Be sure the parking brake is fully release before run the vehicle, partial release may cause braking partial over-heat and negtively influence the braking abality, further more, it may abrade the rear wheel in the early period.

Vehicle Inspection

Driver's Daily Inspection

Driver's daily inspection on the vehicle directly has effects upon the safety of driving. In order to prevent problems, to assure driving safety, and to know the condition of your truck, the daily inspection should be done by yourself before using the vehicle.

● Before Daily Inspection

1.The vehicle should be parked on the flat ground.

2.The switch key must be set on the OFF position.

3.The parking brake is applied properly.

4.The transmission gear shift lever should be in neutral.

● First Inspection

Check the abnormalties you noticed in the previous day.

If the abnormalities were repaired during the previous day, check again to make sure if it was really repaired.

● Inspection in Cab

1.Check the driver's seat

The driver's seat should be adjusted to the optimum position for safety.

Note:

Do not adjust driver's seat in driving.

2.Check safety belt

Fasten safety belt before check it;

Pull it violently for one time to check whether the locking component id firmly connected;

Check whether the fabric, locking head, auto furling implement of safety belt is in good condition.

Note:

The protection of safety belt is only once in accident, if the vehicle has expericed accident or there is any damage on safety belt, please immediately come to DFAC authoritied service station to repaire it.

Danger:

For your and other's safety, please do not drive when the safety belt is disabled

3.Check mirrors

Make sure that all mirrors are clean and provide clear views of all the sides, rear, front, left and right (including the rearview mirror).

Note:

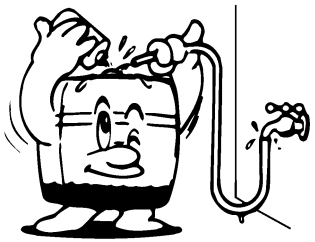
Do not adjust mirrors in driving

4.Check lock condition of the door

Check the locking condition of door near driver's seat, also the door near assistant driver' s side. Check whether the regulator of both door can work normally

5.Check the fluid level of the windshield washer

Check the fluid level of the windshield washer and add fluid if necessary.



6.Check the remaining fuel

Turn the key to "ON" position, check the remaining fuel shown by fuel

indicator, Decide whether you have to fill the tank according to the driving distance of that very day.

● Chassis inspection

Before inspection, tilt the cab forward.

1.Check the cooling water level

Before adding cooling water, check the engine and radiator for any sight of leakage, please repair it first if there is. Fill the cooling fluid into the filling hole of the radiator until the fluid is overflew.

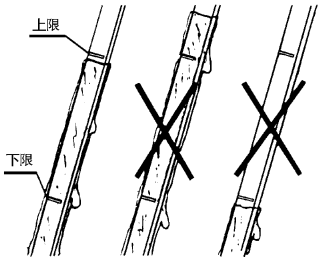
Check the seal and function of the pressure cover of the filling hole.

Note:

The long-life, antifreezing and antirust coolant is adviced. Forbid to use tap water, well water, or river water instead of the cooling fluid. Without using of the coolant fluid, the incrustation scale will appear in the cooling system, and result in the overheating of the engine.

2.Check the engine oil level

Check the oil level by pulling out the oil level stick. If below L mark, you must fill the specified oil from the oil filler of engine until the oil level is up to H mark. If it is above H mark, the surplus oil must be released from the oil-pan plug of the engine.



Note:

If the oil level of engine is lower than required, the engine will be burnt.

3.Check the brake pipes

Check the brake pipes to see whether it is leaky

4.Check the steering system

Check the tightening condition of bolts and nuts of steering system.

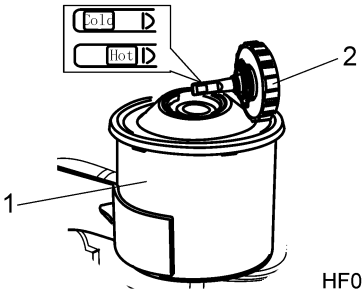
Check wheather the powert steering system is leaky, if there is, repair it at first.

Check level of power steering liquid, fill it if in shortage. Power steering system use No. 8 power steering liquid.

Note:

Filling power steering liquid when engine is running is forbiden.

When check power steering liquid, must stop engine.



HF0100B

1.Reservior 2. Cover with gauge

5.Check the Suspension System

Check the front and the rear leaf spring and their bolts and nuts.

6. Check the tyre pressure

Check whether there is damage or scratch on tyre. Check whether there is over-worn in a certain period.

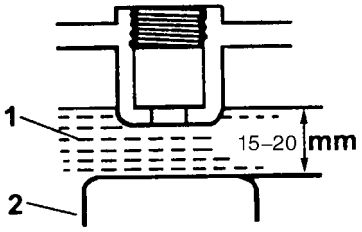
7.Check the engine, steering system, transmission and rear axle to see whether there is any leakage.

8.Check the harness

Check whether the harness is worn by other parts and earthing

9.Check the electrolyte height of battery

Normal level of electrolyte should be 15~20mm above plate, if the level is low, fill some distilled water and recharge more than half an hour to mix distilled water and origin eletrolyte.



HG0120B

1.Electrolyte 2. Plate

● Inspection After Engine Starting

1.Check each gauge

The needle of the engine oil pressure gauge should be in normal range. If the warning light is lighted for more than 15 seconds, the engine should be shut down immediately.

The needle of the fuel gauge should be between E and F.

The needle of the water temperature gauge should be within the range inside the inner line on the scale.

Whether the speedometer works normally.

Whether the engine fault indicator is off.

2.Check the horn

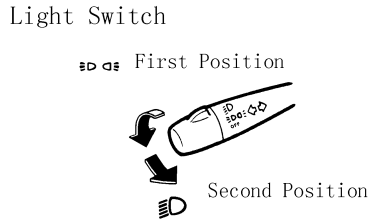
Press the horn button and make sure the horn sounds normally.

3.Check the windshield wiper and washer

Clean the windshield before the inspection, and then spray the washer fluid and check whether it is operated normally. Also make sure that the wipers operate normally in every speed.

4.Check the lamps

Turn the end knob of the combination switch lever forward, backward, up and down to check whether all the lamps and signals work normally.

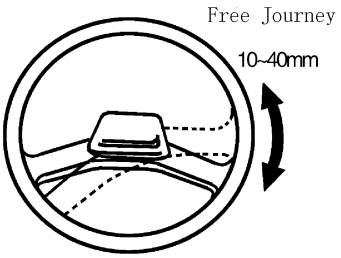


HC0300B

5.Check the steering wheel for free turning and axial play

With the front wheel set for movement straight ahead, alight rotate the steering wheel clockwise and counterwise to check the play.

Move the steering wheel in the axial and radial directions. There should be no excessive free play.



6.The exhaust gas inspection

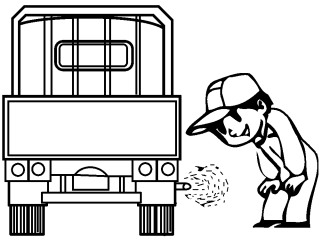
Thoroughly warm up the engine, and check the color of the exhaust gas in order to determine the condition of the engine.

Colorless or light blue: Normal

Black: Abnormal, incomplete combustion.

White: Engine oil is also burning. However, exhaust gas are often white when either air or engine temperature is low.

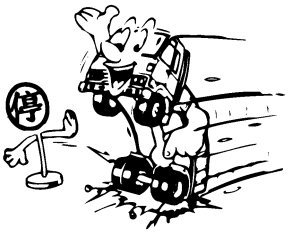
Also check the engine operating sounds and vibrations for any abnormalty.



● Inspection In Test Driving

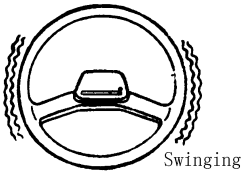
1.Check the brake.

Depress the brake pedal while driving, and make sure the braking response is normal.



2.Check the steering system

During the test running, make sure that the steering wheel operates normally without shimming, difficult steering or pulling to one side.



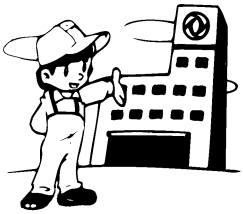
HF0070B

● Checking after test running.

After test running, parking and then walk around the vehicle to check for any signs of water and air leakage.

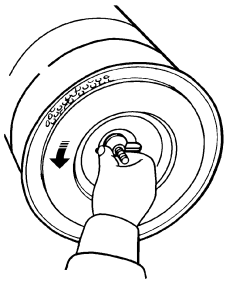
● Other

The above procedure completes the driver's daily inspection task. If any problems are encountered in this inspection, please get in touch with local agency or repair dealers.



General Maintenance

Air Filter



HG0010D

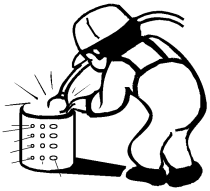
The air filter catridge is made of paper. The air filter is consisted of filter cartridge assembly, dust boot, casing and casing cover.

Check and clean the outer filter cartridge of air filter every 8,000km (4,000km in extremely dusty areas).

The safety cartridge can not be cleaned. If the outer cartridge has damaged or been cleaned more than 5 times, you have to replace it.

● The check method

1. Put a light into the filter to check for wear or hole, as well as to check the washer, replace it if there is something abnormal.



2.Take out the main filter, then use the dry compressed air of 2~3x100kPa to blow off the accumulated dust from the inside toward the circumference of the circle, or clap its top side slightly to remove the dust.

● The Replace Method

1.Loose the bolt of air filter catridge cover by hand and take off the cover.

2.Screw the locking bolt of filter and disassemle it.

3.Assemble the air filter catridge in the contary process.

Note:

Be sure not to take apart the air filter during driving.

Do not clean the filter cartridge with gasoline or water.

Check the cyclone boot for wear when clean it, replace it if it is worn.

Install the filter cartridge and cyclone boot correctly, otherwise the dust will come into and shorten the service life of the engine.

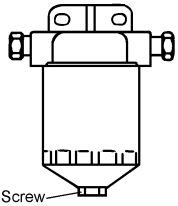
When installing,check every seal ring for wear, replace or stick it if it is damaged. Every seal ring should not be lost or missed.

Diesel Oil Prefilter

Diesel oil prefilter is fixed by bracket between fuel tank and fule pump.

Drain the water every 12000km.

Replace the prefilter every 36000km.

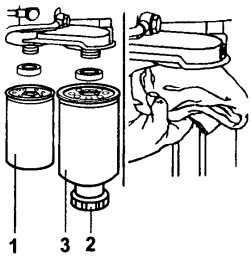


Fuel Filter and Fuel-water Separator

Replace it every 12000km.

Use the special wrench to disassemble the fuel filter and fuel-water separator. Before you installing the filter manually, fill it with clean diesel oil until the sealing surface is engaged with the connecting surface, you can screw for 3/4 circle to tighten it.

Note:

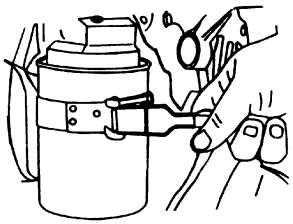


1. Fuel filter
2. Drain valve
3. Fuel-water separator

Do not use the special wrench during installation, otherwise it will deform the thread and damage the filter finally.

Oil Filter

The engine is equipped with a spin-on filter for lubricating oil which is one-time used.



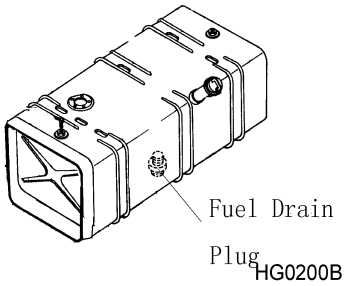
Replace the oil filter every interval 10,000km (or accumulate 250 hour). Use special filter wrench to remove the filter. When assemble a new filter, first fill the filter with clean lubricating oil, and apply oil on the surface of the oil seal, then fully tighten the filter. Start the engine to check the sealing surface for leakage. If there is any leakage, tighten it until there is no leakage.

Note:

Do not use the special wrench during installation, otherwise it will deform the thread and damage the filter finally.

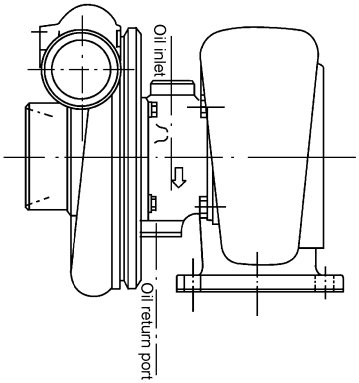
Fuel Tank Draining

Screw off the fuel drain plug at the bottom of the tank to drain the dirt and water every 12,000Km. Till the clean diesel oil flow out, screw up the plug immediately. Especially in winter, because the water is easy to ice and cut off the supply of the diesel oil, please do remember to drain.



HG0200B

Exhaust GasTurbo Supercharger



The lubricating-oil is supplied by the main pressure oil passage of the engine, and the return lubricating-oil will back to the oil pan by the gravity. In order to avoid the leakage of the supercharger and assure its normal operation, pay enough attention to the process of the inlet and return lubricating-oil and assure to their smoothly process. Do not change the shape or area of the return lubricating-oil pipe.

The supercharger belongs to the high-speed rotating precise mechanism, therefore, it can not be disassembled if not necessary. But if because of the dust or oily dirt that make the rotor or engine abnormal, you can have a simple cleaning without totally disassembling the supercharger, and the specific operating method is as follows:

1.Get rid of the dust and oily dirt of the surface of the supercharger.

2.Remove the supercharger from the engine but do not carry it by the connecting rod.

3.Remove the inlet pipe first then the exhaust valve adjustment.

4.Remove the compressor casing, turbing casing and inlet and return oil flange.

5.Clean the compressor casing, turbing casing and the surface of the two impeller.

6.Fill some clean washer liquid from the inlet and rotate the impeller by hand until the impeller works well.

7.Assemble and install to the engine.

Note:

Do not hit or knock the impeller vane during disassembling, assembling and cleaning. If there is any hit or knock, do not use the rectified blade again. The cleaning liquid could be kerosene, gasoline or high quality diesel oil.

Drain of cooling system

When park the vehicle in winter for quite a long time, if antifreeze is not fiied, drain the water to avoid freeze the tank.

Note:If open the water tank cover when the engine is running, turn the cover slowly to decompress level to aviod the hot water injuring [eople.

Check the Start Temperature of Thermostat

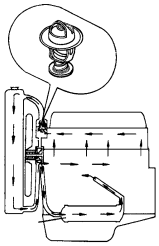
Check the working condition of thermostat in hot water in the 48000km maintaince.

The start temperature should be 76 ℃ and 86 ℃ .

The fully lead of thermostat should exceed 6mm (3~5 minute in boiled water).

Note:

Thermostat keep engine work normally and reduce the wear and tear a lot. Never dissamble it arbitarily.



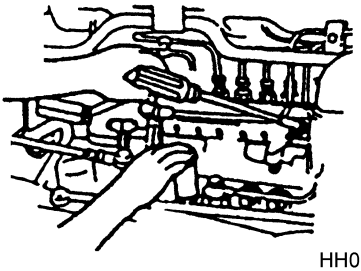
HH0010B

Drain Hole of Water Pump

There is a drain hole beneath water pump to leave the small amount of water which is leaked from water seal. To avoid the water remain inside the water pump dipping in the bearing and damaging the lubriction of bearing, it is not allowed to stop up it.

Exhaust of Fuel System

When egine stop running and need to pump fuel in order to eliminate the air in the fuel supply system, use hand fuel pump of fuel pipe pump to eliminate the air as followed:



HH0130B

1.Scew off the handle of hand fuel pump and press it to supply fuel for fuel system;

2.Loose the fuel filter bolt which is near the small fuel return pipe and exhaust bolt of fuel injection pump;

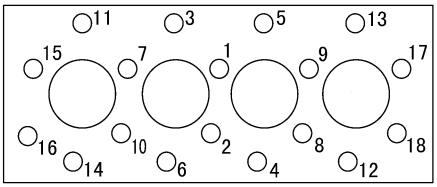
3.Continue supplying fuel by hand fuel pump until fuel is too full to pour off without air bubble to be eliminate;

4.Tighten the bolts and the handle of hand fuel pump.

Tightening Bolts of Cylinder Cover

Check the tightening condition of bolts of cylinder cover every 24000km. When tightening the bolts, strictly follow the sequence shown in the picture equably.

Fill approximately 20g lubricate oil into the inner side of each cylider equably. Set body and cover of cylinder by a set collar and connect them by bolts.



HG0070B

Engine Lubricating Oil

● Replacing Period

Running- in period: 1000km~1500km

Regular period: 8000km

● Check the Level of Engine Lubricting Oil

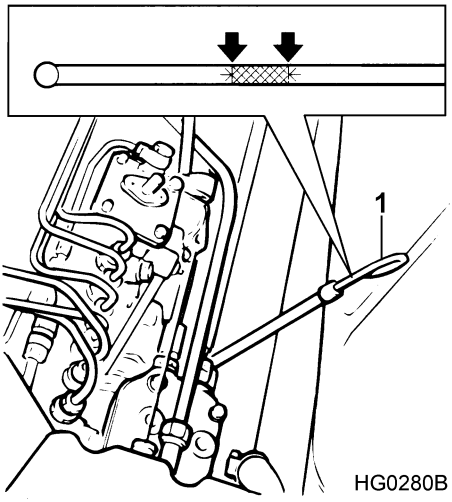
1.Pull out the oil depth gauge after shut the engine for 5 minutes, use a piece of duster cloth clean the gauge and place it in its former position.

2.Pull out the oil depth gauge again, observe the heighth of the oil level.

3.Normal scale is between of two reticles. If the level is below the reticle, fill some clean lubricating oil, if the level is above the reticle, drain some oil.

Note:

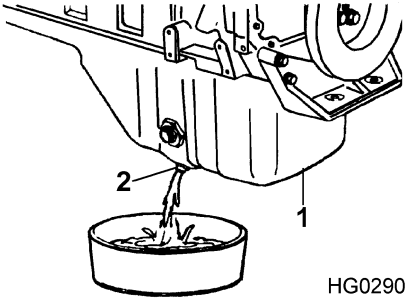
Must check the oil level when the engine is stopped and cool down.



HG0280B

Oil depth gauge

● Replace Method



1.Loose the plug of seal oil draining hole beneath of oil housing, drain the oil clearly when the engine is heated;

2.Clean the plug and place it in its former position;

3.Replace the oil filter and clean the seal connecting surface of filter bracket;

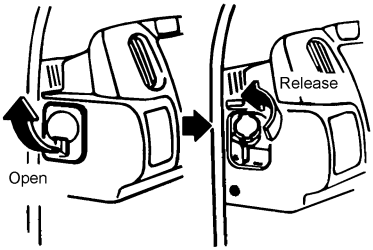
4.Fill new lubricating oil according the provision;

5.Start engine and obseve if there is any leaking of filter and the plug under the idling condition,

Note:

Must drain lubricating oil completely after the engine fully stop.

Check the Oil Level, and Refill the Clutch Oil Reservior



The oil reservior of the clutch is located in the cab. The fluid level in normal condition is above 2/3 of the resevior, if it is below 2/3, refill it.

Check the pipe line before adding fluid. Repair it if there is leakage, then refill it.

Note:

Do not use the different quality or different brand of fluid.

Never use mineral oil as the clutch fluid.

Be sure to use clean clutch fluid.

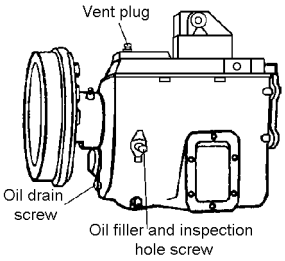
Be careful not to get the fluid on any painted surfaces, otherwise the paint will be damaged.

Use special care to seal off the clutch fluid, because the clutch fluid will absorb the moisture of the air.

Be extremely careful not to allow dirt or dust enter the reservior. Make sure that the reservior and its surrounding areas are clean before adding or replacing the clutch fluid.

The Transmission Lubricating Oil

Check the oil level of transmission lubricating oil every 4,000 km. First screw off the check plug, if the oil level is below the edge of the plug, add oil. Then check the function of vent plug and clean it.



Replace the transmission lubricating oil under the truck heated condition every 24,000 km. Screw off the drain plug first, drain off the oil in the transmission. Then clean the drain plug (the magnet on the drain plug which collects accumulated iron sediment in the oil) and reassemble, refill the new lubricating oil through the check plug hole.

Note:

If the oil level is too low, the bearing and gear will be burnt, and if too high, it will cause overheat and oil leakage.

Keep the vent plug fluent.Be caseful not to allow any dirt or dust enter the gear box.

The Rear Axle Main Reductor Lubricating Oil

Check the lubricating oil level of main reductor every 12,000 km. Screw off the oil level check plug first, if the oil level is below the edge of checking hole, add oil. Then check the function of drain plug and clean it.

Replace the lubricating oil of the main reductor every 24,000 km. Screw off the drain plug first, drain off the oil, then clean the drain plug and reassemble it. Refill the new lubricating oil through the filler hole.

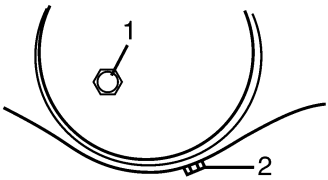
Note:

Fill the lubricating oil according to the requirement. Do not use the normal gear oil instead, otherwise it will damage and rub the gear face quickly.

Be careful not to allow any dust or dirt enter the main reductor.

Keep the oil level at normal height, overheight or overlow will effect the service.

Keep the vent plug fluent.



1.Inspection screw
2.Oil drain screw

Maintaince of Wheel Hub bearing

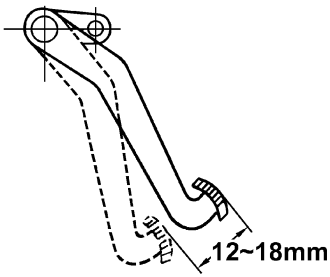
Maintain the wheel hub bearing every 8000km.Disassemble wheel and Brake hub and clean wheel hub bearing. Wash out dirty degenerative lubricating grease from inner part of wheel hub and refill new lubricating grease from the clearacne betwwen bearing inner gasket and holding bracket roller. After smear a layer of quite thin lubricating grease on both inside and soutside of bearing, assemble it again.

Brake Pedal Journey

Trample brake pedal slightly and check its journey. The nornal value is 12~18mm;

Brake pedal should be easy to be trampled.;

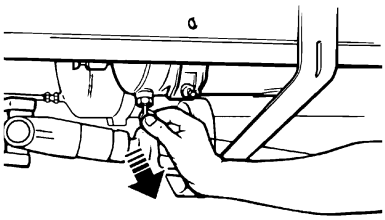
When release the padel, there should be a sound of exhaust.



HG0240B

Drainage of Air Reservior

Must drain water in air reservior after every day driving, especially the wet air reservior, Pull the drain valve beneath the air reservior to drain the water.



HG0110B

Battery Checking and Maintenance

● Pay Attention When Assemble battery

1.When assemble the power harness of battery, it is better to smear a layer of thin lubricating grease(vaseline) on the surface of battery conencting rod to prevent from oxidation or erosion.

2.When assemble and disassemble the battery harness, do not knock or skewly prize the connecting rod. When assemble the bolts, thighten them by air-gun in proper force to prevent from loosing them.

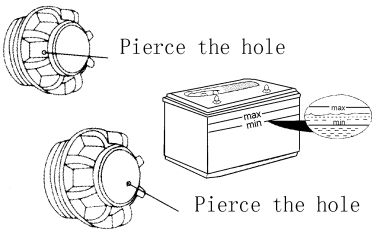
3.When assemble battery, the pulling rod and press strip of backet should be

tighten in proper force. If they are too losse, the battery can not be fixed firmly, if they are too tight, the battery housing may distortion, the seal rubber may crack, the battery liquid may leak and other mechnical damage may occur.

4.When disassemble the battery, disassemble the negtive rod first, the positive rod after that. When assemble, the sequence is contrary.

● Fill electrolyte

1.Screw the electrolyte plug off, if there is seal mark on the plug, remove it and check weather the vent plug is fluent;



HG0210B

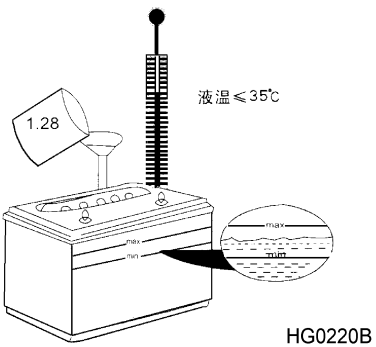
2.When fill electrolyte, the consistency of liquid should be 1.280±0.05g/cm³(25°)(temperature of liquid below 35°C);

3. The level of electrolyte should in the scale between the max and min level;

4.Formula for meauring the consistency of electrolyte: consistency in 25°C=practical measured consistency + 0.0007×(temperature of electrolyte − 25°C);

5.Remain battery stable for 20 minute after filling, recharge when temperature of electrolyte is below 35°C

● Recharge

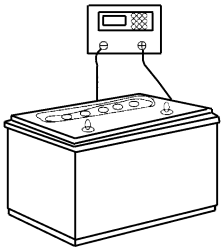


HG0220B

1.Recharge curent is 0.1C20A （C20:20 hour rating capacitance);

2.After end tension reach 14.4V (6V battery recharge tension is 7.2V), recharge for appproximately 5 hour;

3.Measure the end tension and consistency of electrolyte one time per hour in the ending period of recharging. When 3 time measured value is the same, stop recharge, screw the plug on, then the battery can be used.



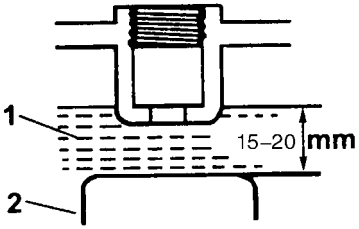
HG0230B

● Check and Maintain the Battery

When check and maintain the battery, shut the main switch of power.

● Check the battery liquid

Check the battery liquid monthly or every 4,000 km. The liquid should be above the plate 15 to 20 mm. If it's lower than that, add distilled water, and charge the battery for 30 minutes until the distilled water mixed with the battery liquid.



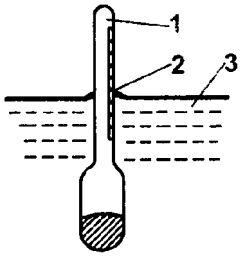
1.Electrolyte 2.Plate

● Checking specific gravity of electrolyte

Check specific gravity of electrolyte every 12,000km or three months.Use the hydrometer to check. The normal specific gravity is between 1.26~1.265 (when the electrolyte temperature is 20 ℃） . If the specific gravity is less than 1.22, the battery must be recharged.

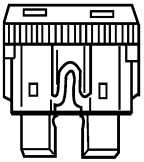
Note:

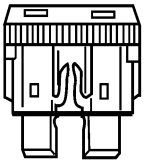
Never use thick lead or tool earth connect the two poles of battery and other short circuited method (observing the strong and weak of the electric spark) to check the electric capacity.



1.Float
2.Reading
3.Level of electrolyte

Fuse


Normal


Burnt

Be sure to affirm the load of fuses before replacing. If the new fuse are blown easily, you should find out the reason and repair it.If can not eliminate fault, please contact the nearby technical service centre(station) of DFAC and deal with the problem.

Note:

Never use normal lead or the fuse with other load instead.

Danger:

Connecting wire, taking off electricity in fuse box whithout permission is forbidden. When replace fuse use the same content value with designed, or may cause fire.

Check Harness

When repaire or maintain vehicle, check the fixing condition of all harness and make sure that they are fixed firmly(can not drop from the clips while driving) and not swinging. Also make sure that harness does not interferense or rub with other parts or sharp borders. The clearence between harness and moving parts of vehicle should be over or equal to 50mm, and the clearence between that and exhaust pipe should be over or equal to 100mm.

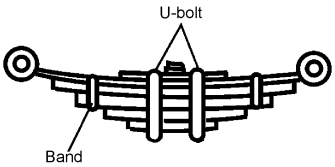
Note:

Fix the power positive harness and harness nearby the engine exhaust pipe firmly.

Danger:

Connecting any harness or any part of positive wire to exhaust pipe is forbidden.

Suspension

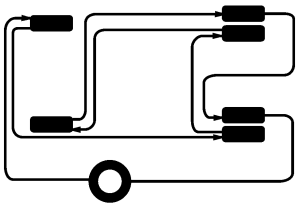


After the running-in of new truck, tighten the U-bolt and nut of leaf spring under the certain torque of fully laden condition.

The tightening torque of front leaf spring U-bolts and nuts is 250~300N.m; the tightening torque of rear leaf spring is 300~350N.m.

Tighten the leaf spring U-bolts and nuts every 12,000km.

Tire Rotation



Rotate the tires according to the picture every 12,000Km. The principle for tire rotation is as follows:

1.The differential of outer diameter of two rear axle tirs is no more than 12mm. Mount the smaller one to the inside wheel.

2.Mount the same type, less wear and blanced tires on the front wheel.

3.After rotation, the turning direction of tires should be opposite from its former mounting direction.

4.New tires must be used in pair.

5.Be sure to mount the tires of the same size in the same shaft, otherwise it will cause braking deviation, cab swing and lost controlled steering.

6.Check whether there is any scars on the wheel hub bolts and wheel nuts. For the sake of the safty, whenever there is screw damage in bolt or nut, it

must be replaced in pairs as the other part may also be damaged.

7.Check the connecting (ball) surface of the tire rim and the installing hole to see whether there is any deformation or damage. If there is, replace it. And if there is any damage on the ball surface of tire nut, replace it, too.

8.Check the rim of the tires, if there is any cracks, replace it.

9.When mount tires in pair, the air intake-outer and the air intake-inner must be separated in order to breathe air in.

Replace Tyre

● Disassembly Tyre

1.Use a triangle block to stuff the rear (fornt) tyre when disassembly front (rear) tyre;

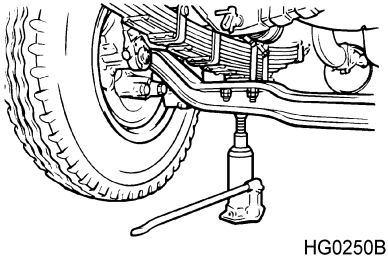
2.Use wheel nus socket spanner to release the nuts;

3.Prop up one end of axle by jack to lift wheel a little from land;

4.Disassembly wheel nuts;

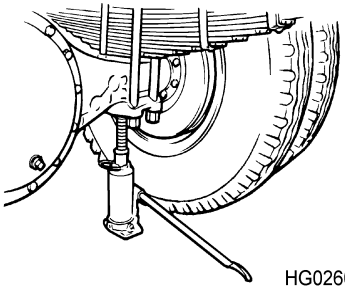
5.If the tyre is in pair, descent the axle to its origin position, release the nuts of inner tyre, prop up the axle by jack until wheel leave from land;

6.Disassembly nuts of inner tyre, then disassembly inner tyre.



HG0250B

Front axle



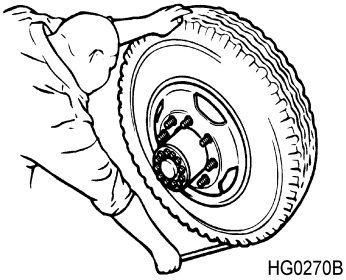
HG0260B

Rear axle

Note:

Clean outside whorl of wheel bolts and swear some lubricating grease on them.

Assembly Tyre


HG0270B

1.Use a lever to put rim bolt of tyre into hub bolt;

2.Adjust hub bolt to centre of bolt hole and tighten it;

3.Desecent jack slowly to make tyre meet land;

4.Tighten tyre nuts in three times to provison torque.

5.If the tyre is in pair, prop up axle again to leave wheel little from land, follow 1~4 steps to assembly outside tyre;

6.If only disassembly outside tyre, tighten inner side tyre nuts according to provsion torque, then assembly outside tyre.

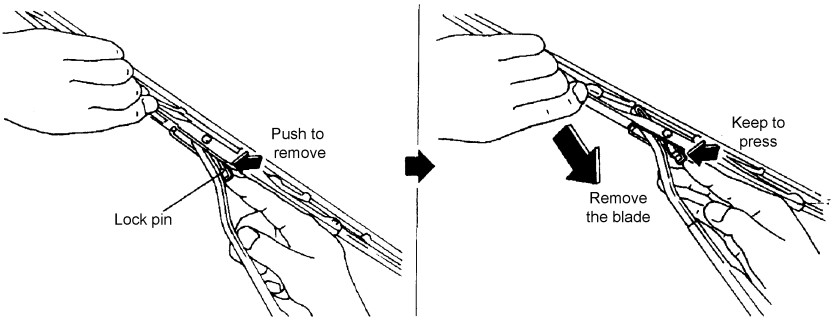
Check tyre pressure and surface

1.Check whether the tyre pressure is meet the demand of provision by pressure gauge, charge if the pressure is in lackage.

2.Chack whether there are any eye-winker on the surface of tyre and get rid of them.

3.Check the tread depth of tyre, if the depth is less than 1.6mm(2.4 in highway), replace the tyre (no less than 6 point by circle of tyre in measuring).

Clean and Replace the Wiper Blades



● Clean the Wiper Blades

After using the wipers, if the window glass is still not clean, this may be caused by uncleanness of the wiper blades, at this point, the blades need to be cleaned. First, wash the windshield with washing liquid or special washing fluid, and wash the blades with cloth soaked with washing liquid or special washing liquid, then wash off the liquid or fluid with water.

● Replace the Blades

After the wiper blades are cleaned, if it still could not clean up the window glass, replace it.

The procedure for replacement is as follows:

1.Pull out hte wiper arm

2.Untighten the lock pin, and push to remove the blade

3.Install a new blade into the wiper arm, if a sound "clicks" can be heard, it shows that the lade is well fixed.

General Adjustment

Using Engine in a Environmental Protection Standard

● **Note:**

1.As for those who dismantle the leaden seal of engine without permission, the DongFeng Automobile Co., Ltd would consider they have given up the right of obtaining service.

2.The engine has been reached the requirements of national environment law before leaving the factory, so the users can not change or adjust it. Only in those recommended service station or agencies of DongFeng Automobile Co., Ltd, the engine could be adjusted, otherwise, it will be treated as given up the right of obtaining service.

During the maintenance you should follow the principles below:

1.Do the maintenance or change the three filters at a certain interval and you have to quiken your changing step if the outside driving condition is severely bad.

2. Use the specific or recommended oil and change them at certain intervals.

3. Use different type of diesel oil of high quality according to the local temperature.

4. Please do not allow the shortage of engine liquid or lubricating oil.

5.Check the supercharger, intercooler, and the seal condition of the in and out pipe, avoid the leakage.

6. The start and stop of the engine.

7.To assure the normal using of the engine, the users should idle the engine for 3 to 5 minuts before moving to lubricate the engine parts, especialy the supercharger. Do not full throttle to warm up the engine after starting. Please idle the engine for 3 to 5 minutes before stopping to cool the engine parts, especially the supercharger to avoid the gel and carbon deposit of the lubricating oil on the heating parts. It will cause trouble.

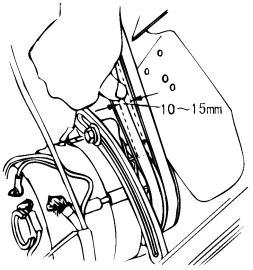
8.Use the recommended oil filter and diesel oil filter catridge.

9.Check the clearance of the inlet and outlet valve following the guidance of the instructions.

10.The idling revolution has its own normal standard, so the users can not adjust, because the low idling revolution will cause the accelerated smoke acceed quota.

Adjustment of Fan Belt

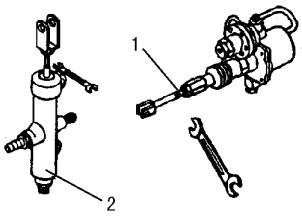
The tightness of fan belt should be checked frequently. The checking method is like this, press the belt at a force of 29~39N to see whether deflection is in the range of 10~15mm (Note: Both belts should meet the requirement). Over tighten will damage the bearing of water pump and the bearing of generator, over loosen will cause the belt slipping, low cooling efficiency and engine over heating.



Chang the relative position of adjusting arm to the generator to adjust the tightness of fan belt.

Adjustement of Clutch

The clutch is controlled by hydraulic mechanism, the adjustment method for the total travel and free travel of the pedal is as below:



1. Slave cylinder 2. Master cylinder

1.Adjust the clearance between the push rod and the piston of master cylinder to 0.2~0.7mm. When made the adjustment, loosen the lock nut and turn the push rod towards the piston, when the push rod touch the piston, withdraw the push rod by 1/7~1/2 pitch, then tighten the lock nut.

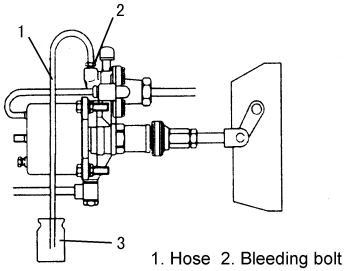
2.Adjust the free travel of slave cylinder push rod to 3~5mm and tighten the lock nut.

3.After the above adjustments has finished, the travel of master cylinder push rod and slave cylinder push rod

should be 20~24mm, and 17~20mm, the free travel of clutch pedal should be 30~40mm.

Air Release of Clutch(with Vacuum Powering)

The existence of air in clutch hydraulic system may lead to abnormal work for clutch control system, therefore it is necessary to release air. The method is like this:



1. Hose 2. Bleeding bolt
3. Bottle with brake fluid

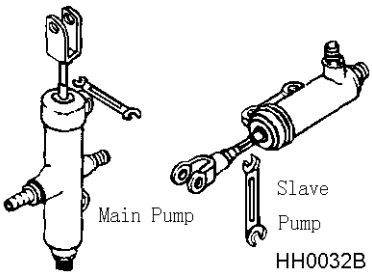
1.Fill up the clutch oil reservoir with composite brake liquid, and make the air pressure of the air tank reached to 650kPa.

2.First remove the dust cap of clutch slave cylinder, and loosen its bleeding bolt, then trample the clutch pedal repeatedly until some air bubbles come out.

3.Screw on the bleeding bolt, trample down the clutch pedal, then screw off the bleeding bolt to exhaust the air in the oil, then screw on again and release the clutch pedal.

4.Do the 3rd step repeatedly until there is no bubbles come out and you can feel the clutch can be disengaged totally.

Adjusting Clutch(Without Vacuum Powering)



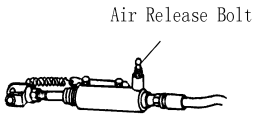
HH0032B

The clutch of this vehicle is operated by hydraulic mechanism. Its pedal total journey and free journey adjusting method is:

Adjust the clearance between push rod of clutch main pump and main piston to 0.2~0.7mm. Loosen locking nut when adjust, circumrotate the push rod towards piston, turn back 1/7~1/2 round when push rod reach piston. Tighten locking nut after adjust, then adjust slave pump push rod's blank journey to 3~5mm. Tighten locking nut of slave pump push rod after adjust. After adjustment above, total journey of clutch pedal is 160~180mm, journey of main pump and slave pump's push rod are 20~24mm and 17~21mm respectively, free journey of clutch pedal is 25~40mm.

Air Release of Clutch(without Vacuum Powering)

The existence of air in clutch hydraulic system may lead to abnormal work for clutch control system, therefore it is necessary to release air. The method is like this:



HH0041B

1.Fill up the clutch oil reservoir with composite brake liquid;

2.Remove the dust cap of clutch slave cylinder(on left of clutch), loosen its air releading bolt, connect one end of a plastic tube which has the same caliber

with air release mouth of air release nut to the nut, put the other end in a bottle filled with brake liquid;

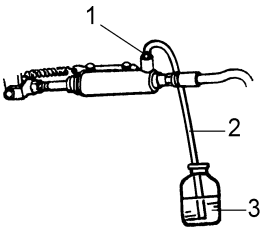
3.Trample the clutch pedal repeatly, some air bubbles will come out, until there is no air bubbles come out, after enlarge pedal force;

4.Tighten air release bolt, take off the plastic tube.

Note:

Do not over-tighten air release bolt, stop tightening when feel hard by hand. Too large torque will damage seal strip of air release bolt and cause air leakage.

When use plastic tube to eliminate air, do not let the end of the tube which is put in the liquid come out of the surface of the liquid.



HH0051B

1.Air release bolt 3.Bottle
2.Plastic tube

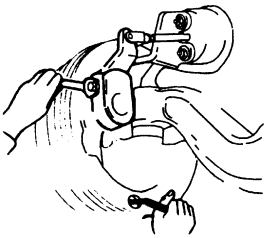
Adjustment of Brake Clearance

Check brake clearance every 12,000km in maintainment. In normal condition, the brake clearance between brake drum and brake shoe friction linings is approximately 0.60mm. The clearance between two brake shoes in the same end should less than 0.1mm.

● **Partial Adjustment**

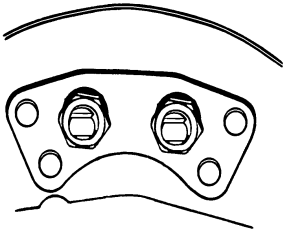
When the clearance between brake drum and brake shoe friction lining exceeds the range above,

1.Screw the square toe of adjusting arm worm tp push the air chamber rod outward until can not screw anymore, then push back 3~4 sound.



HH0070B

2.Check the push rod journey of brake air chamber, its range should be 25±5mm.



HH0060B

● **Complete Adjustment**

After replace the brake shoe lining, it is better to have a complete adjustment to the brake , the method is as follows:

1.Loosen the locking nut of brake shoe's supporting pin and locking nut of camshaft bracket.

2.Screw repeatly the supporting pin of brake shoe and worm shaft of adjusting arm to completely inosculate the brake shoe lining and brake drum.

3.On the adjusted position, carefully tighten the camshaft bracket and locking nut of brake shoe supporting pin.

4.Loosen worm shaft of adjusting arm, adjust the clearance between the end of camshaft and the end of supporting pin to the provision range.

5.Check journey of brake air chamber's push rod, its should be in the range of 25±5mm.

6.Put a club wrench on the head of worm and press the locking sleeve inward to release the worm from locking condition. Then screw the warm shaft to adjust, If the locking sleeve can not be press down, use a hammer knock it slightly, then press down the locking sleeve.

7.After adjusting release the locking sleeve slightly and make the locking sleeve hitch the hexagonal head of worm shaft to lock the shaft from turning.

Note:

When adjust the clearance of brake drum, loosening the fixing blot of locking sleeve on adjusting arm is forbidden.

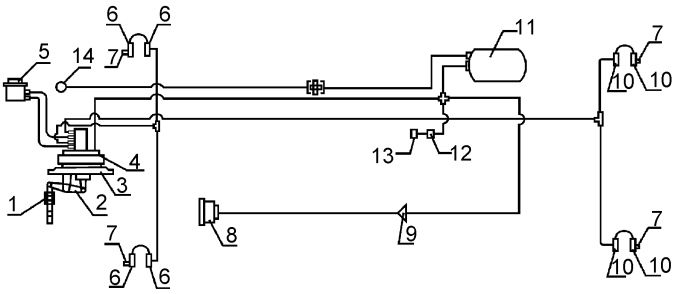
When parial adjusting, turning the brake shoe supporting pin is forbbiden.

Changing the push rod journey by screwing the connecting fork of brake air chamber 's push rod is forbbiden.

When adjust the rear brake system, must park the vehicle on a flat ground and make sure the air pressure in air reservoir exceeds 700kPa.

Brake Principle Figure

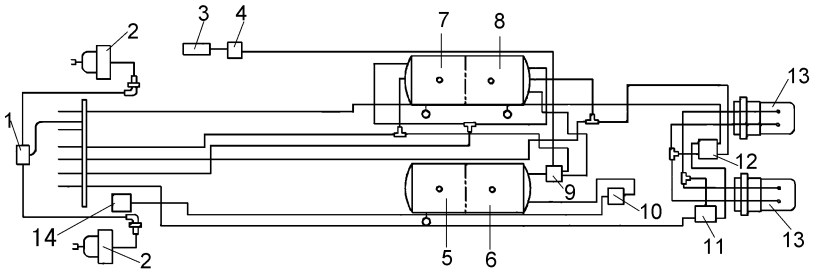
Hydraulic Pressure brake Principle Figure



HH0080B

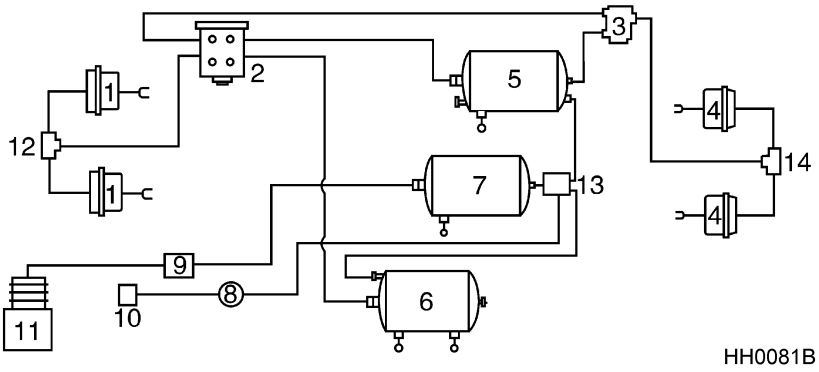
1.Brake rod
2.Rocker
3.Bracket
4.Vacuum assist device with brake main cylinder ass'y
5.Oil reservior
6.Front wheel slave pump
7.Air releasing bolt
8.Vacuum pump
9.One-direction valve
10.Rear wheel slave pump
11.Vacuum Can
12.Solenoid ass'y
13.Exhaust brake ass'y(exhaust brake is optional equipment)
14.Vacuum meter(to cab)

Air Pressure Brake Principle Figure 1



1.Quick release valve
2.Front axle brake device
3.Exhaust brake valve
4.Exhaust brake solenoid valve
5.Parking air reservior
6.Wet air reservior
7.Front air reservior
8.Rear air reservior
9.Four-return-way protecting valve ass'y
10.Unload valve
11.Dual-way valve
12.Loading sensing valve
13.Rear axle brake device
14.Air compressor

Air Pressure Brake Principle Figure 2



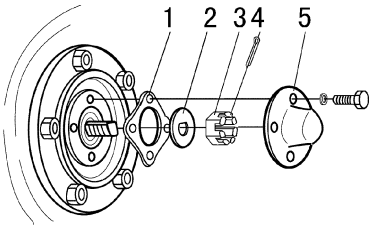
1.Front axle brake device
2.Dual-chamber brake valve
3.Relay valve
4.Rear brake device
5.Rear air reservior
6.Front air reservior
7.Wet air reservior
8.Exhaust brake solenoid valve
9.Pressure Adjusting valve
10.Exhaust brake valve(8,9 are optional equipments)
11.Air compressor
12.Quick release valve
13.Four-return-way protecting valve
14.Three way pipe joint

Adjustment of Wheel Hub Bearing

Adjustment for the Front wheel Hub Bearing

1.Tighten the locking nut 3 with a torque of 120~150N.m and turn the wheel 2~3 turns to completely joint bearing;

2.Tighten the locking nut 3 with a torque of 120~150N.m to ensure the bearing in proper position;



1.Seal washer
2.Anitifriction washer
3.Locking nut
4.Cotter pin
5.Wheel hub cover

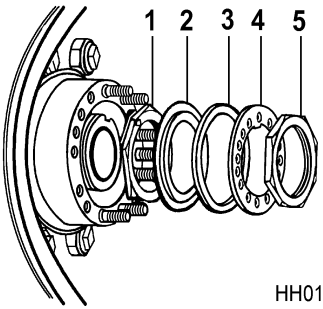
3.Then turn back the locking nut about 1/3 turn, , if cottter 4 and the hole of lock washer can not align, turn the locking nut out a little until align to the cotter pin 4.

Adjustment for the Rear wheel hub bearing

1.Tighten the hub bearing nut 3 with a torque of 150~180N.m, in the meantime rotate the wheel to set the bearing roller in the proper position.

2.Loosen the nut 3 for 1/6 turn and set the hole on the bearing nut align the hole of lock washer.

3.Tighten the setting screw, the bearing can rotate freely, no axial play is found.



HH0101B

1.Adjusting nut
2.Oil seal housing
3.Wheel hub outer oil seal
4.Locking washer
5.Locking nut

Note:

Carefully disassemble and reassemble the wheel hub avoid to be damage.

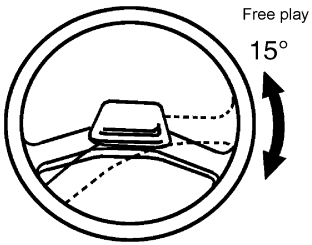
Don't lose the outter oil seal retainer.

The inner oil seal should be smeared with grease when renewing.

Pay attention to the temperature of the wheel hub during running in about 10km, after adjusting the wheel hub bearing. If the temperature is too high, the bearing will be too tight, so the adjustment should be applied.

Adjustment of Free Play of Steering Wheel

Check the free play of steering wheel every 12,000km, which is under 15° normally. If it is too large, check and adjust the following part:



1.Check and adjust the clearance of the bearings of the front wheel hub.

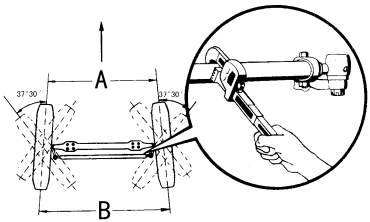
2.Check the tightness of tie rod ends and drag link joints, if it is too loose, replace it.

3.Check whether the fastening bolts are loosen at the connection of the spline of the pitman arm and its shaft.

Adjustment for Toe-in

Check and adjust toe-in every 12,000km, which recommend value is 1.5~3mm, if toe-in is adjusted improperly, the tyre wear would be increase.

The adjusting method is as follows:



1.Park the truck on a level ground before checking, the front axle is lifted by a jack, the front wheels are put to run straightly. Screw off the clamp bolts on tie rod, turn the tie rod with pipe wrench and the proper value of toe-in can be achieved by adjusting.

2.Make a mark in the middle of tyre engraving of the right and left tyre when adjusting, then measure A, B value respectively in the front of the axle and behind it.

3.Tighten clip bolt after adjustment.

4.After adjusting, if the condition is permitted, check the side sliding of tyres. The specified side sliding is between 0~5mm/m.

Maintenance Schedule

It's necessary for periodical inspection and maintenance of truck to prolong its service life, improve its power performance and fuel economy, so periodical inspection and maintenance should be carefully carried out according to the following items. Then it will achieve the max economic and social benefits.

The users have to do the maintenance accord with the specific content in this chapter. The following schedule is not only for maintenance items of 80,000km, but also for normal maintenance items after 80,000Km.

☆——Running in maintenance items:1,500~2,500km

★——Normal maintenance items

Note:

Customers should carry out the inspection and maintenance intervals according to the different area condition. Properly shorten the maintenance intervals can ensure the truck to get the reasonable maintenance and move reliability. Never prolong the intervals.

Engine

Maintenance Items	**Maintenance Intervals （× 1000km）**										
	△	4	8	12	16	20	24	28	32	36	40
Clean engine assembly	☆	★	★	★	★	★	★	★	★	★	★
Check the performance of accelerating and decelerating	☆	★	★	★	★	★	★	★	★	★	★
Check the condition of exhaust	☆	★	★	★	★	★	★	★	★	★	★
Check engine lubricant oil for leakage	☆	★	★	★	★	★	★	★	★	★	★
Check the cleanness and capacity of lubricating oil	☆	★	★	★	★	★	★	★	★	★	★
Check fuel system for leakage	☆	★	★	★	★	★	★	★	★	★	★
Check cooling system for leakage	☆	★	★	★	★	★	★	★	★	★	★
Check and adjust the engine and fan belt	☆	★	★	★	★	★	★	★	★	★	★
Check and clean fuel-water separator	☆	★	★	★	★	★	★	★	★	★	★
Check and clean air filter and its cartridge	☆	★	★	★	★	★	★	★	★	★	★

Engine

Maintenance Items	Maintenance Intervals （× 1000km）										
	△	4	8	12	16	20	24	28	32	36	40
Check the working condition of engine stop controlling cable (Drawbench type)	☆	★	★	★	★	★	★	★	★	★	★
Replace lubricant oil of engine	☆		★		★		★		★		★
Check the working condition of the cushion of engine suspension	☆		★		★		★		★		★
Replace fuel filter	☆		★		★		★		★		★
Tighten engine intake mainfold and bolts of suspension	☆		★		★		★		★		★
Replace oil filter or oil filter cartridge	☆		★		★		★		★		★
Check and adjust the valve clearance	☆			★			★			★	
Replace fuel filter and fuel-water separator				★			★			★	
Check the fuel spraying pressure and sprayer spare parts					★				★		
Replace fuel pre-filter					★				★		
Replace air filter cartridge						★					★

Clutch

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check working condition of clutch	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check clutch pedal free play	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check hydraulic pipe line and pump for leakage	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check the slave cylinder for leakage	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check brake fluid level in clutch oil reservoir	☆	★	★	★	★	★	★	★	★	★	★	★	★
Change hydraulic oil of clutch													★

Transmission

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Clean transmission and its vent plug	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check transmission oil level	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check transmission for oil leakage	☆	★	★	★	★	★	★	★	★	★	★	★	★
Change transmission lubricant oil	☆						★						★
Check the connections of control mechanism for looseness	☆						★						★
Check working condition of every bearing													★
Disassemble and check transmission													

Note: Disassemble transmission once per 80,000km.

Brake System

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check brake pedal free play	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check effectiveness of brake and parking brake	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check brake line and valve for leakage	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check and adjust the clearance of brake drum and lining	☆		★		★		★		★		★		★
Check the tightness of the brake support plate	☆			★			★			★			★
Check brake drum for wearing							★						★
Check brake shoe for wearing			★		★		★		★		★		★
Check working condition of air compressor													★
Check working condition of each valve.													★

Brake System

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check air reservior one-way valve plate, replace it if necessary.													★

Steering System

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check steering gear for oil leakage	☆	★	★	★	★	★	★	★	★	★	★	★	★
Clean steering gear		★	★	★	★	★	★	★	★	★	★	★	★
Check steering wheel for free play and operating	☆			★			★			★			★
Check tightening condition of tie rod ends and drag link joints	☆			★			★			★			★
Check tightening condition of steering mechanism and brackets	☆			★			★			★			★
Check tightening condition of knuckle arm and pitman arm of the steering	☆			★			★			★			★
Check and adjust toe-in	☆			★			★			★			★
Check front wheel alignment													★
Check and adjust steering gear													★
Dismantle and check tie rod ends and drag line joints													★
Have a magnetic detection for steering knuckle													★
Change steering ball joint pin													★
Replace the steering oil	☆						★						★

Suspension System

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check shock absorber for oil leakage and fasten bracket bolts	☆	★	★	★	★	★	★	★	★	★	★	★	★
Clean front, rear leaf spring and shock absorber		★	★	★	★	★	★	★	★	★	★	★	★
Tighten U-bolts and nuts of leaf spring during full load	☆			★			★			★			★
Check shock absorber for looseness and damage				★			★			★			★
Check pin bushing of rear leaf spring for wear and damage, change it if necessary													★
Check shock absorber for malfunction													
Dismantle and check leaf spring, change spring pin and pin bushing													

Note: Check shock absorber once per 80,000km for invalidation, disassemble leaf spring and replace spring pin and pin bushing

Propeller Shaft

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check shaft joint for looseness	☆			★			★			★			★
Check tightening condition of spider bearing of propeller shaft	☆												★
Check tightening condition of midship shaft bearing	☆												★
Check propeller shaft splines for wear and damage													★

Axle and Wheel

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Clean front, rear axle assembly and wheel assembly		★	★	★	★	★	★	★	★	★	★	★	★
Check reduction gearbox for oil leakage	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check tightening condition of axle shaft bolt and wheel nut	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check tire pressure	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check tire for wear and damage		★	★	★	★	★	★	★	★	★	★	★	★
Check lubricant oil level in reduction gearbox and clean vent plug				★			★			★			★
Clean and adjust wheel hub bearing				★			★			★			★
Change main reduction gearbox oil	☆						★						★
Rotate tires				★			★			★			★
Check working condition of reduction gearbox of rear axle and its bearing													★
Disassemble, check, and adjust reduction gearbox assembly of rear axle													
Do the magnetic inspection to the half shaft sleeve													

Note: Check, disassemble and adjust reduction gearbox of rear axle once per 80,000km, do the magnetic inspection to the half shaft sleeve

Others

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check battery electrolyte level(fill up if insufficient)	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check specific gravity of battery electrolyte				★			★			★			★

Others

Maintenance Items	Maintenance Intervals （× 1000km）												
		4	8	12	16	20	24	28	32	36	40	44	48
Check chassis frame rivets for looseness							★						★
Check the tilt locking equipment for its function and damage							★						★
Check connections of cab for looseness	☆	★	★	★	★	★	★	★	★	★	★	★	★
Check crossmember sidemember connection for looseness							★						★

Main Adjusting Data

Dongfeng Cummins Engine

Adjusting Item		Standard			
Model of Engine		EQB140-20	EQB125-20	EQB160-20	EQB160-21
Port Timing	Inlet valve open (before top dead center)	11.5°			10°
	Inlet valve close (After bottom dead center)	9.5°			30°
	Exhaust valve open (before bottom dead center)	53°			58°
	Exhaust valve close (after top dead center)	19°			10°
Valve Clearance (Cold)	Inlet valve (mm)	0.25 ± 0.05		0.25 ± 0.05	0.25 ± 0.05
	Exhaust valve (mm)	0.5 ± 0.05		0.5 ± 0.05	0.5 ± 0.05
Advance angle of fuel injection pump (mm) (Static,before top dead center)		1.20 ± 0.05	0.80 ± 0.05	1.10 ± 0.05	1.0 ± 0.10

Cab and chassis

Adjusting Item	Standard
Clutch pedal free journey	25~40mm
Steering wheel free play	No more than 15°
clearance of front and rear brake shoes / between brake drum	0.6~0.8mm
Steering wheel front and rear adjusting distance	±6°
Steering wheel up and down adjusting distance	30mm
Gravity of battery electrolyte	1.26~1.265

Fuel

The qualified light diesel oil specified by GB252-87 could be applied for, and the users choose different qualified light diesel oil according to the local temperature.

Temperature range of the recommended light diesel oil:

Type	Temperature
0# Light diesel oil	Local temperature above 4 ℃
10# Light diesel oil	Local temperature above -5 ℃
20# Light diesel oil	Local temperature between -5 ℃ ~ -14 ℃
35# Light diesel oil	Local temperature between -14 ℃ ~ -29 ℃
50# Light diesel oil	Local temperature between -29 ℃ ~ -44 ℃

Grease Application Place and Schedule

Greasing should be performed periodically for all parts of the vehicle.

Before filling up, clean all dust and dirty from the grease nipples and other parts which are needed to lubricated, then apply grease.

After greasing, wipe off the excess grease. Be sure to put the caps back on.

The table includes first 48,000 kilometers lubricating schedule. You have to follow the schedule after the first 48,000 kilometers.

☆——Running-in maintenance lubrication item（running-in maintenance mileage 1,000~2,500km）

★——Normal driving lubricating item

Place of Lubrication	Lubrication Interval Kilometerage (× 1000km)												
		4	8	12	16	20	24	28	32	36	40	44	48
Spides bearing of propeller shaft	☆	★	★	★	★	★	★	★	★	★	★	★	★
Middle bearing of propeller shaft	☆	★	★	★	★	★	★	★	★	★	★	★	★
Slip yoke of propeller shaft	☆	★	★	★	★	★	★	★	★	★	★	★	★
Pins of front and rear leaf springs	☆	★	★	★	★	★	★	★	★	★	★	★	★

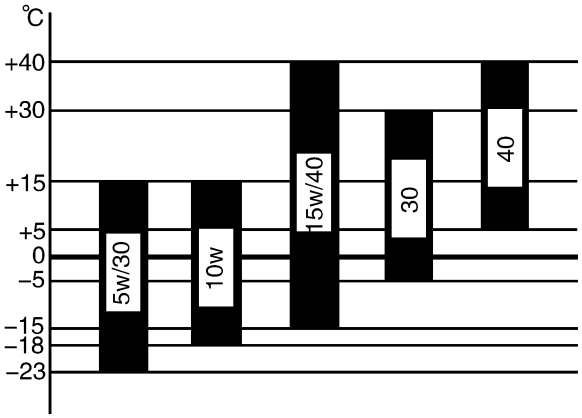
Place of Lubrication	Lubrication Interval Kilometerage (× 1000km)												
		4	8	12	16	20	24	28	32	36	40	44	48
Steering knuckle pin	☆	★	★	★	★	★	★	★	★	★	★	★	★
Ball pin of tie rod	☆	★	★	★	★	★	★	★	★	★	★	★	★
Ball pin of drag rod	☆	★	★	★	★	★	★	★	★	★	★	★	★
Slip yoke of steering drive shaft and spider bearing	☆	★	★	★	★	★	★	★	★	★	★	★	★
Wheel hub bearing				★			★			★			★
Front bearing of gearbox first shaft	☆			★			★			★			★
Door hinge							★						★
Tilt locking system	☆			★			★			★			★
Supporting point of tilt torsional bar arm	☆			★			★			★			★
Clutch release bearing													★

Lubricant and Vehicle Used Fluid

Place of Lubricatng	Lubricant	Type and Grade
Engine	Oil	CF Grade 15W/40
Gearbox	Transmission oil	85W/90
Driving axle	Vehicle gear oil under heavy load	GL-5 85W/90
Steering System	Transmission oil	85W/90
Power Steering System	Oil	CD Grade 15W/40
Clutch and Braking System	Synthetic brake liquid	V-3
Bearing and Ball Pin	Li-base lubricant grease	
Engine cooling system	Freezbite, anti-rust coolant	DF-2

Engine Lubricant

Engine use CD grade oil, consumer could choose different grade oil according to local temperature, recommended ambient temperature range is shown below:



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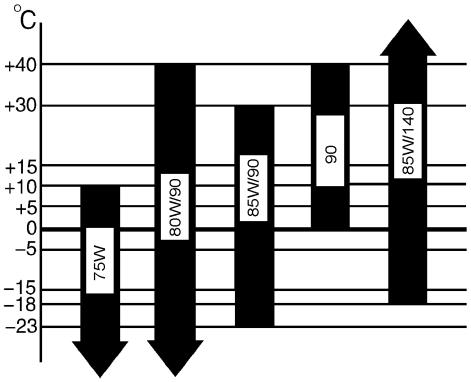
Designated Brand:

Jin Da Brand Dong Feng Castrol Oil Ltd.

Driving Axle Gear Oil

API GL-5 gear oil under heavy load is recommended for gear, the recommended ambient temperature range for all gear oil is below



Gearbox oil

85W/90 transmission oil is recommended for gearbox, consumer could choose different grade gear oil which is above GL-4 grade istead according to local temperature.

Power Steering System

CD grade 15w/40 oil is recommended instead.

Lubricating Grease

Vehicle Li-base lubricating grease is used inlubricant points of wheel hub and chassis.

Shock Absorber Oil

Special shock absorber oil is recommended.

Clutch Boost Liquid

V-3 synthetic brake liquid is recommended. The clutch liquid of different factory and brand can not be mixed to use.

Engine Anti-freeze Fluid (cooling fluid)

DF-2 Anti-freeze Fluid is recommended and its ice point must be 8 ℃ lower than the lowest local temperature. The engine fluid from different factory can not be mixed to use.

Designated Brand:

Dong Feng Castrol Brand Dong Feng Castrol Oil Ltd.

Note:

To remain good performance of your vehicle, we suggest that you use special oil and affiliated production which are designated by DFAC in maintaining. If you choose other production of bad quality in maintaining, it may damage your vehicle.

Tightening Torque

Engine

Tightening parts	Tightening torque（N.m）
Fix bolt for fan	24
Fix bolt for water pump	24
Fix bolt (upper) for alternator	43
Fix bolt (lower) for alternator	24
Fix bolt for oil pump	24
Fitting for oil tube and filter	32
Fix bolt for fuel injector	55
Fix bolt for injection pump	24
Lock nut for injection pump timing gear	81
Connecting bolt for exhaust manifold and cylinder	43
Fix nut for pressure limiting valve	40
Oil drain plug	41
Fix bolt for crankshaft	137
Fix bolt for flywheel and crankshaft	137
Fix bolt for starter	43
Lock nut for valve adjusting bolt	24
Fix bolt for valve-chamber cover fixing bolt	24
Fix bolt for main bearing cover of crank-shaft	176
Connecting bolt connecting-rod bearing cap	100
Fix bolt for flywheel housing bolt	77
Cylinder head bolt	126

Note:

No locking spacer, but to make sure the required tightening torque.

When tightening during installing, make use of the oil to lubricate. Do not use the bolt with thread damaged.

Each bolt need to tighten within 2~3 times.

Chassis

Tightening parts		Tightening torque（N.m）
Oil drain plug		130~150
Main drive gear big nut		350~500
Steering drag link nut		120~140
Left and right steering knuckle arm nut		120~140
Brake bottom plate bolt	Front bottom plate	140~170
	Rear bottom plate	156~206
Bolt of air chamber bracket	Front brake air chamber	55~70
	Rear brake air chamber	55~70
Bolt for air chamber	Front brake air chamber	55~70
	Rear brake air chamber	50~75
Engaged wheel bolt		140~160
Differential housing bolt		140~160
Locking pin nut		55~70
Steering limit bolt locking nut		80~100
Steering ball pin nut		130~160
Tie rod thimble nut		40~60
Adjusting nut	Front adjusting nut	120~150
	Rear adjusting nut	150~180
Knuckle pin plug screw		40~60
Front leaf spring U-bolts and nuts		250~300

Chassis

Tightening parts	Tightening torque（N.m）
Rear leaf spring U-bolts and nuts	300~350
Steering knuckle arm tightening bolts and nuts	200~250
Front wheel hub bearing adjusting nuts	120~150
Rear wheel hub bearing adjusting nuts	150~180
Tie rod ball pin nuts	192~226
Wheel bolts and nuts	280~350
Main reductor housing fix bolts	140~170
Connecting bolt for axle housing rear cover and axle housing	90~120

Attached Drawing:

Electric System Drawings

1. Battery
2. Fusible wire
3. Fusible wire
4. Power switch
5. Electronic main power switch
6. Starter
7. Starter relay
8. Ignition switch
9. Ignition relay
10. Electric control engine cut-off
11. Fuel cut-off electronic valve
12. Clutch switch
13. Exhaust brake electronic valve
14. Throttle switch
15. Exhaust brake switch
16. Exhaust brake indicator
17. Neutral switch
18. Assist starting button
19. Alternator
20. Fuse
21. Wiper motor
22. Wiper switch
23. Washer motor
24. Wiper intermittent relay
25. Fuse
26. Cigar lighter
27. Speaker
28. Fuse
29. Radio cassette
30. Speaker
31. Fuse
32. Heater relay
33. Heater motor
34. Heater motor resistance
35. Heater switch
36. A/C switch
37. Temperature control AMP
38. A/C relay
39. Dual direction pressure switch
40. A/C compressor
41. Heat emission relay
42. Heat emission motor
43. Fuse
44. Dome lamp and Switch
45. Left door switch
46. Right door switch
47. Horn button
48. Fuse
49. Horn relay
50. Electric control dual tone air horn
51. Electric horn
52. Electric horn
53. Air/electric horn shift switch
54. Fuse
55. Reverse gear switch
56. Left reverse lamp
57. Right reverse lamp
58. Reverse buzzer
59. Drier switch
60. Drier
61. Charging indicator
62. Oil pressure warning sensor
63. Oil pressure warning indicator
64. Oil pressure gauge

004 W/R
005 W/R
004 A
200 Bl/B
005 B
005 A
360 Br
005 C
130 Y/R
004
220 Bl
230 A
250 Bl/Y
007 W/G
340 R
330 Bl/W
330 A
120 G
110 Y/B
361 R
380 W
362 Gr/R
362 A
362 B
364 Y/BL
100 W/Bl
122 Bl
123 Y/B
140 Bl
141 Bl/W
410 U
124 B/W
124 A
124 B
124 C
127 B/R
125 Y
126 Y/W
128 Bl/Y
129 Bl/Y
210 Bl/R
210 A
210 B
211 Bl/W
212 BL
213 G/Y
214 R
215 Bl/B
215 A
216 Y
122 Bl
365 Gr/G
366 Gr/B
364 A
363 Gr/Y
B+
D+
W+
保险
收放机
230 Br
313 R
231 Br/W
232 Br/R
233 Br/Y
234 Br/B
241 Bl
242 R
245 W
244 Y
243 G
242 A
254 R/Bl
250 B
250 C
250 D
250 A
250 E
253 R/G
256 G/Y
252 Bl/B
251 Bl/W
251 A
255 R/B
341 B/G
341 A
332 G/B
333 G
333 A
335 R/W
334 R/G
335 A
121 R/Bl
121 B
121 A
120 A
150 G
120 B
413
413 A
413 B
413 C
413 D
400 G
400 A
418 A
410 A
418 B
380 A
418 C
418 D
418 E
418 F
400 B
418 G
410 B
410 C
410 D
OFF ACC ON ST
B
Ig
S
OFF ACC LO HI
OFF 1ST 2ST
A B C
OFF ON
R M L
130
004
005
310 R/Y
311 R/G
312 R
312 A
313 A
313 M
313 N
351 B
351 A B/W
351
320
320 B
320A R/B
313 Q
324 R/G
321 W/R
321 A
322 A
323 A
323 G/R
322 G/B
313 F
331
313 P
353 B/R
353 A
162
241 A
400
400 D
400 E
400 F
400 H
400 Q
410 Q
418 L
418 M
418 N
418 P
400 C
410 L
410 M
410 N
410 P
410 K
410 J
418 K
418 J
418 H
410 H
410 G
410 F
410 E
413 E
418
317 R/B
315 W/B
316 R/W
314 R/Bl
314 A
313 C/W
313
313 B
313 C
313 D
313 E
313 H
313 J
313 K
313 L
370
371
372
373
374
375
161
160
400 M
313 G/W
313 G/Y
313 Y/R
313 Y/G
313 Y/B
313 Y/W
313 Br/W
313 Br/R
313 Br/B
313 Br/Y
313 Gr/W
313 Gr/R
313 Gr/B
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313 Bl/W
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313 Bl/Y
313 W/R
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313 R/G
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313 L/Y
313 G/W
313 G/Y
313 G/R
313 G/B
313 Y/R
313 Y/G
313 Y/B
313 Y/W
313 Br/W
313 Br/R
313 Br/B
313 Br/Y
313 Gr/W
313 Gr/R
313 Gr/B
313 Gr/Y
313 Bl/W
313 Bl/R
313 Bl/B
313 Bl/Y
313 W/R
313 W/B
313 W/G
313 W/Bl
313 R/B
313 R/W
313 R/Bl
313 R/G
313 L/W
313 L/R
313 L/B
313 L/Y
313 G/W
313 G/Y
313 G/R
313 G/B

65. Oil pressure sensor
66. Air flow blocked warning indicator
67. Air flow blocked warning sensor
68. Brake warning indicator
69. Air pressure too low warning sensor
70. Air pressure too low warning sensor
71. Air pressure too low warning sensor
72. Air pressure too low warning sensor
73. Parking brake indicator
74. Parking air pressure switch
75. Fuel gauge
76. Fuel sensor
77. Water temperature gauge
78. Water temperature sensor
79. Water temperature warning indicator
80. Tachometer
81. Revolution sensor
82. Combination switch--lighting part
83. Low beam
84. High beam
85. Left headlamp
86. Low beam
87. High beam
88. Right headlamp
89. High beam indicator
90. Left front lamp
91. Right front lamp
92. Front clearance lamp
93. Front clearance lamp
94. Rear clearane lamp
95. Left side position lamp
96. Fuse
97. Fuse
98. Fuse
99. Rear clearance lamp
100. Right side position lamp
101. Licence lamp
102. A/C control panel indicator
103. Speedometer illuminator
104. Instrumrnt illuminator
105. Air pressure gauge illuminator
106. Left front fog lamp
107. Right front fog lamp
108. Brake lamp switch
109. Combination warning controller
110. Left rear lamp
111. Right rear lamp
112. Left brake lamp
113. Right brake lamp
114. Left rear fog lamp
115. Right rear fog lamp
116. Safety belt indicator
117. Filament check warning indicator
118. Buzzer
119. Door lamp switch
120. Rear fog lamp indicator
121. Rear fog lamp switch
122. Fuse
123. Quartz clock
124. Hazard warning switch
125. Fuse
126. Flasher
127. Combination switch-steering part
128. Left turning lamp
129. Left turning indicator

130. Front
131. Rear
132. Right turning lamp
133. Rear
134. Front
135. Right turning indicator