Contents

Safety Attentions

Operators should understand and follow prevailing national and local safety regulations. In case of no relevant national or local regulation, safety attentions in this manual will be applicable.

Most accidents are caused by failure of following regulations on machine operation and maintenance. To avoid accident, please read, understand and follow all warning requirement and notes in the manual and on the machine before operation and maintenance.

Details of safety measures are explained in Chapter I "Safety".

Since it is unable to predict all possible dangers, therefore, safety explanation in the manual and on the machine may not include all safety precautions. In case of using steps and operation in this manual, it should be guaranteed that both the operator and others are safe and the operation would not damage the machine. If the operation safety is uncertain, please consult the company or dealers.

Precautionary measures on operation and maintenance in the manual are only applicable to using the machine as specified purposes. If the machine is used beyond the range listed in the manual, our company will bear no liabilities. All safety liabilities of such operation should be borne by the user and operator.

Operation prohibited in the manual should not be executed in any circumstance.

Caution signals below are used to indentify safety information in the manual.

DANGER – If the situation classified as “DANGER” is not avoided, serious injury or casualties is likely to occur. This word can also be used when the machine may be seriously damaged if the possible hazard is not avoided.

WARNING – If the situation to be warned is not avoided, serious injury or casualties may occur. This word can also be used when the machine may be seriously damaged if the potential hazard is not avoided.

CAUTION – If the situation to be noticed is not avoided, minor or moderate injury may occur. This word is also used when the machine may be damaged or the service life shortened if the potential hazard is not avoided.

2.1 Outline and component name

1.Rare drive axle 2.Middle drive axle 3.Cargo 4.Fuel tank 5.Air filter 6.Streeing axle 7.Cab

2.2 Outline dimension

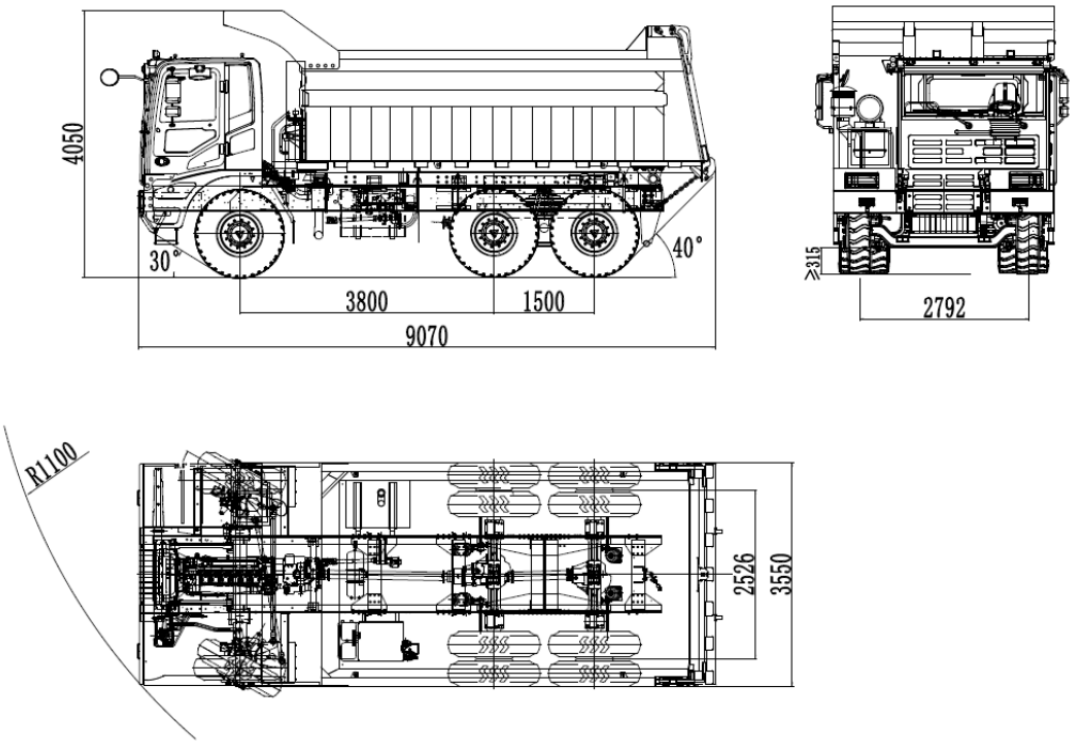

Fig 3-8

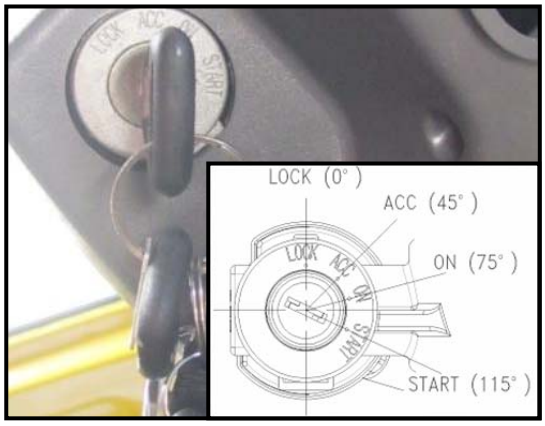

Fig 3-9

Fig 3-10

3.2.5 Power switch

1) Main power switch

The main power switch is located outside the battery compartment of frame side rail.

⚠ CAUTION: If a vehicle will not be driven for a long time, please turn off the main power switch for the avoidance of accident. After the engine stops and the key switch is set to LOCK position, turn off the main power switch.

2) Key switch

Arrange the key switch to the steering column.

Position	Usage	Remarks
1(LOCK)	Power off the vehicle.	The key can be pulled out at this time.
2(ACC)	Power on consumers when the vehicle is parked.	
3(ON)	Driving position	
4(START)	Start the engine	Auto reset to ON gear

3.2.6 Combination switch handle

1) Steering lamp operation:

Horizontally move the combination switch handle forward to turn on the right turn signal

Fig 3-35

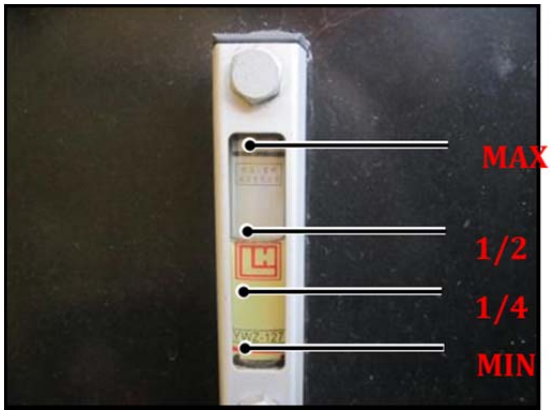

Fig 3-36 Oil scale

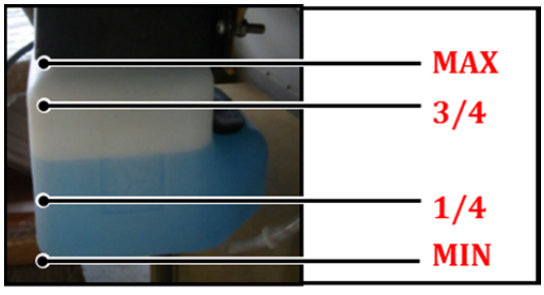

Fig 3-37 Glass water scale

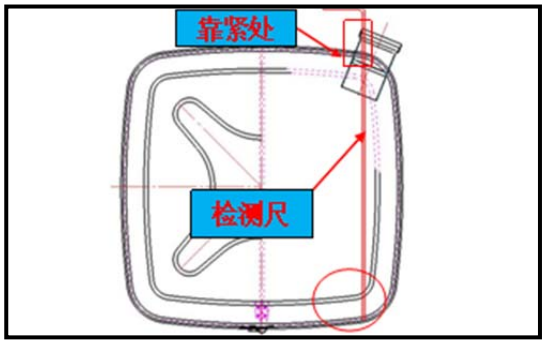

Fig 3-38 Fuel oil level inspection

fault!

3.6.1 Preparation

The preparations before driving mainly include: routine inspection before every driving, engine start and flameout.

1) Turn on the main power switch (as shown in Fig. 3-35) to power on the truck.

2) Check the working condition of electrical system. When the key switch is turned on (i.e. key switch is set to ON), the instrument panels indicate normally.

3) Check oil/coolant condition of the truck.

a. Check hydraulic oil: park the truck on the flat road, lift the container continuously for 5 times, and then keep it still for 15min. At this moment, the standard level of hydraulic oil shall be between 1/4 of the level meter and MAX. If the oil level is higher than MAX, drain oil; if it is lower than 1/4 of the level meter, refill it to the standard level.

b. Check windshield washer fluid: the windshield washer fluid visually observed shall be between 1/4 and 3/4 below the clamp. If it is lower than 1/4, refill it.

⚠ Note: Refill special windshield

condition. Under normal condition, the service life of desiccant in the air dryer is half a year. If any oil-water mixture is drained from air reservoir, air dryer is ineffective and the desiccant should be replaced immediately.

3.8.3 Battery

The battery applied is maintenance-free. If the vehicle will not be used for a long time and the temperature is low, you had better remove the battery and place it in a warm room. Check the battery electrode terminal and conductor connection clamp for looseness and the battery for normal working condition every 500 km.

⚠ WARNING:

- Before the battery repair, always keep good ventilation.
- Nobody, other than professional service personnel, is allowed to repair and remove the battery without permission!
- While removing (installing) the battery, always disconnect (connect) the negative cable first!

While adjusting, push the pedal gently by hand until you feel the drive cylinder push rod against the piston, adjust the height of stop bolt to ensure a clearance between the push rod and piston of 0.5 mm~1 mm, and then tighten the nut. The clearance hereof should be no more than 1 mm, or the effective stroke of the drive cylinder may shorten.

4) Bleeding of hydraulic system: If there is air in the clutch hydraulic system, the effective stroke of the booster cylinder push rod will shorten, resulting in an incomplete clutch release, as well as gear engagement difficulty. To add new brake fluid, release the booster cylinder bleed valve, fill the fluid reservoir with brake fluid of specified grade, replenish brake fluid while stepping on the clutch pedal until it spills out of the bleed valve, and tighten the bleed valve. Then depress the clutch pedal for several times, and hold it, release the booster cylinder bleed valve until no air comes out, then tighten the bleed valve. Repeat the steps above for 2~3 times, so that the air in the hydraulic system can be discharged thoroughly.

before 5,000 kilometers (or within 1 month). The first maintenance items are listed as follows:

① Refill grease to the grease nozzle of the master pin, the camshaft support and the regulating arm as required. If it is difficult to refill grease, check it immediately and stop operating;

② Check if the connecting bolts between components outside the axle are loose and fasten them;

③ Check and regulate the brake clearance, which shall be between 0.7mm and 1.2 mm;

c. Periodic maintenance

The periodic maintenance shall be carried out every 20,000 km or 1 year after the first maintenance. The periodic maintenance items are listed as follows:

Repeat the first maintenance items;

Lubricate the brake shoe pin and the brake roller;

Check the friction plate wear degree. The thickness of the friction plate shall not be less than 8mm. Replace it if it is less than 8mm.

Note: When performing inspection

1. Re-tighten the thrust rod bolts/front and rear leaf spring bolts periodically at the interval specified in "5.2 MT86 mining dump truck compulsory maintenance details". If the engine has operated for 30 hours during the truck shipment process, the user shall immediately perform the first re-inspection of the thrust rod bolts, and re-tighten bolts every 500 hours (5,000km) after 4-level maintenance.

2. Push rod bolt re-tightening table

Application	Specification	Tightening torque*(Nm)
Front push rod bolt	M20	690Nm
Upper/ lower thrust rod bolt	M27	1000Nm
Transverse thrust rod bolt (depending on actual truck configuration)	M24	900Nm

4.6.1 Front suspension system

The front suspension system mainly consists of parallel semiellipse leaf spring, cylindrical

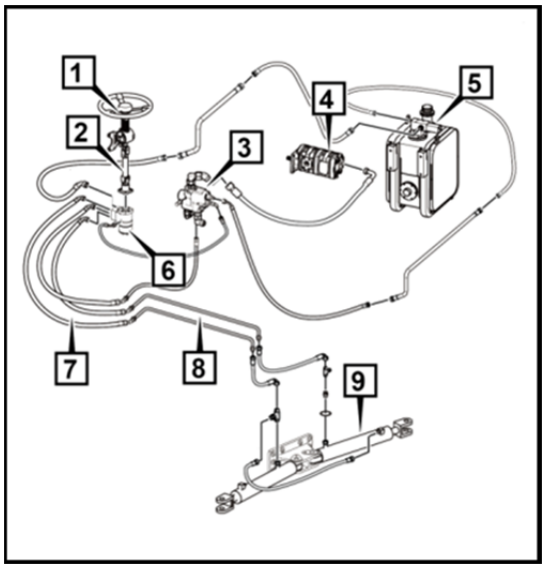

Fig 4-33 steering system Structure diagram

1. Steering wheel 2. Steering column and steering drive axle 3. Pilot valve 4. Vane pump 5. Hydraulic oil tank 6. Steering gear 7. Oil pipe 8. Return steel pipe 9. Steering cylinder

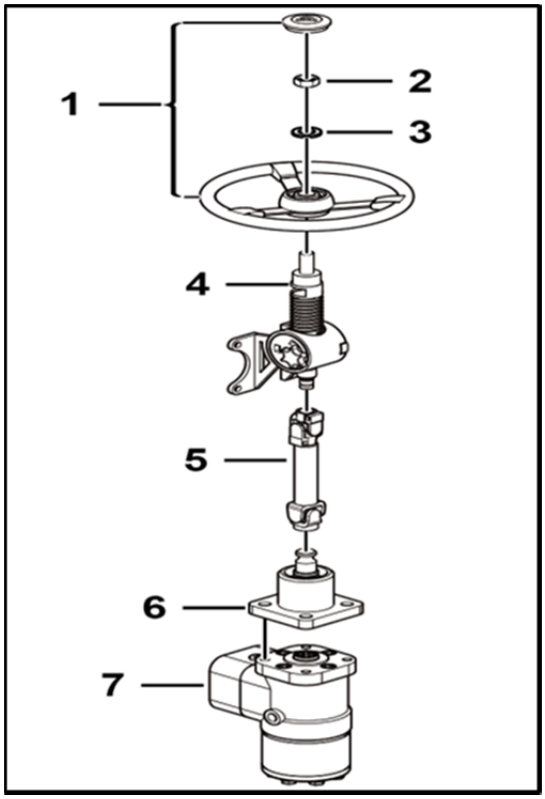

Fig 4-34

1. Steering wheel 2. Nut 3. Washer
4. Steering column5. Steering drive axle
6. Support 7. Steering gear

4.7 Operation and maintenance of steering system

The steering system consists of a steering control system and a hydraulic power steering system. The steering system consists of a steering wheel, a steering column, a steering drive axle, a pilot valve, a vane pump, a hydraulic oil, a steering gear, an oil pipe, a steel pipe, a steering cylinder, etc., as shown in left Figure 4-33. In order to adapt to harsh operating conditions, the hydraulic power steering system consists of an internal power steering system and a external power steering system.

4.7.1 Steering control system

It consists of steering wheel and steering column with adjustable height and angle. The diameter of steering wheel is Φ480 mm.

As shown in Figure 4-34, the steering wheel 1 is mainly composed of a rim, a spoke and a hub. The lower part is in wave shape to facilitate the driver grip. The steering wheel 1 and the steering drive axle 5 are generally splined and the ends are fixed with nuts. The steering drive shaft 5 passes through the steering column 4 with the lower end connected witn the steering gear 7, to transmit torque between them, for which the energy absorption type steering axle is used.

In addition to the conventional steering function, the steering control system can effectively absorb impact energy at collision, and buffer the impact of the steering wheel to the driver. Basic principle: axial displacement will occur when the steering drive shaft is subjected to great impact, and energy is absorbed by the deformation of the steering column or the dislocation of the steering drive shaft.

Steering control system is of continuous and adjustable type. With this system, the height range of steering wheel is ±25mm, and the angle range is ±5°.

Specific adjusting method: Unscrew adjusting handle as shown, adjust steering wheel 1 to appropriate

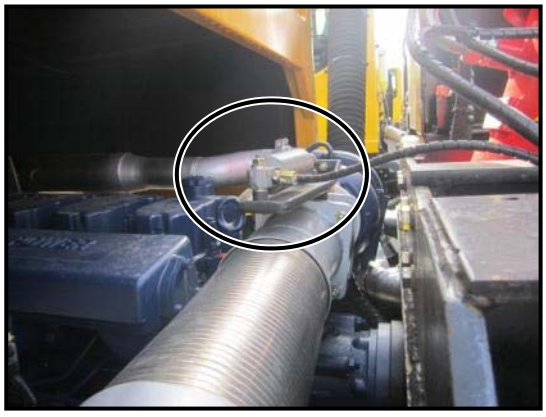

Fig 4-41 Exhaust butterfly valve

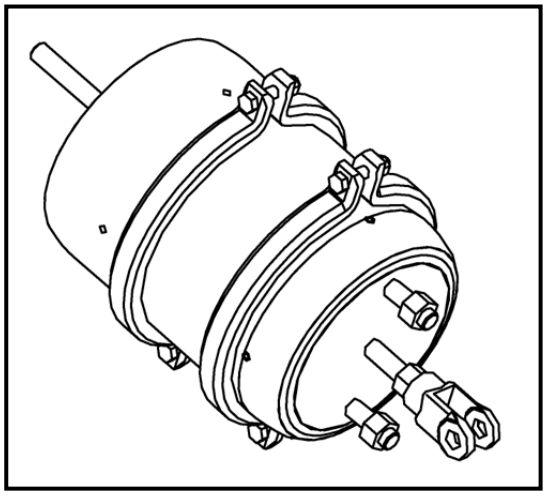

Fig 4-42 Brake chamber

pressure falls by 0.05 Mpa at most or in 30 min, it falls by 0.01 Mpa at most.

⚠CAUTION: Do not adjust the release pressure of pressure regulating valve without approval.

4.8.2 Engine exhaust brake

The MT86 mining dump truck is equipped with the function of engine exhaust brake. After you press the exhaust brake switch, the running vehicle can utilize the energy from engine for auxiliary brake.

When driving down a long slope, be sure to use the exhaust brake. In case of running on icy or muddy road, the use of exhaust brake can reduce the risk of side slide. In the event of meeting other vehicles or passing through poor road, it is better to use the exhaust brake to accelerate. The use of auxiliary brake can reduce the times of applying main brake, which will reduce the wear and heat of wheels and final drive so as to extend their service life, reduce fuel consumption and increase driving safety. After driving down a long slope, simply check the performance of the exhaust brake.

△! CAUTION: When transmission is in neutral

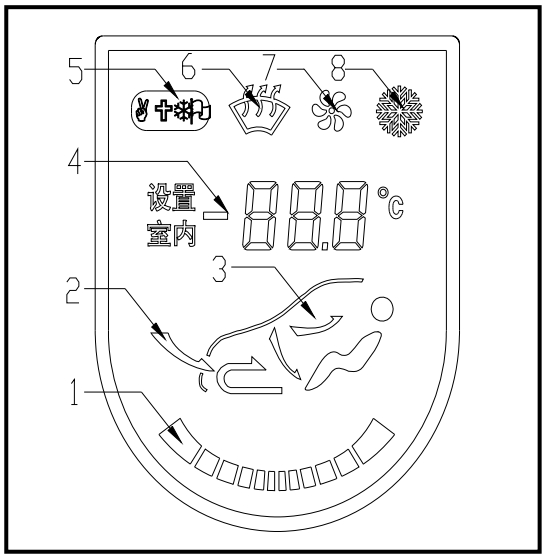

Fig 4-45

1. Air grade 2.Air inletwighar 6to

3.Air outlet statewighar 6to wighar 6to

4.Setting temperature and ambient temperature

5. AUTO 6.Defrosting 7. Blowing

8.Refrigeration

Refrigeration: after the refrigerant enters the pipeline of the refrigeration system, it is pressurized by the compressor into refrigerant gas of high-temperature and high-pressure, and then into liquid state (actually a vapor-liquid mixture) after being cooled through the condenser. The liquid refrigerant is throttled by an expansion valve in front of the evaporation tank, enters the evaporation tank in the form of fog, absorbs the surface temperature of the evaporator core to make it cool. Heat exchange occurs when the hot air sucked by the air blower passes through the evaporation tank, it turns into cold air and enters the cabin from the air outlet.

Heating: A heater box is arranged in the evaporation tank, which is also referred to as a heat exchanger and is directly connected with the engine water tank via a water pipe; the cold air sucked by the blower turns into hot air when passing through the surface of the heat exchanger by absorbing heat, and enters the cab.

4.9.2 Operating instructions

1) Set your desirable inside temperature

Adjust the temperature setting key to set your

Item	Description	Maintenance level					
		Initial inspection	Routine inspection	1st class maintenance	2nd classmaintenance	3rd classmaintenance	4th class maintenance
Electrical system	Check fixation of battery wiring terminals and apply grease to electrodes	•		•	•	•	•
	Check correctness of speed displayed in electronic tachometer	•	•	•	•	•	•
Steering system	Replace steering oil	(20000~25000km)					
	Check and adjust front wheel alignment	•	•				
	Check functions of steering system					•	•
	Check clearance of steering lever		•		•	•	•
	Check bolts, joints and locking pieces of steering levers	•	•				
Lifting system	Check for wear of oil pipe	Once every day					
	Check oil level in hydraulic oil tank and level meter	Once every day					
	Check for looseness of oil cylinder bracket and top big nut, and clearance of oil cylinder bracket	Once every day					