

DONGFENG DFA1063DJ10(14)-301/303

SERVICE MANUAL



DONGFENG AUTOMOBILE CO., LTD.

September. 2006

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General Principles

General Principles

This manual mainly states maintenance and service methods of DONGFENG DFA1063DJ10(14)-301/303 light commercial truck.

To use vehicles safely and efficiently, you need to read the manual thoroughly and make sure that you are familiar with the items that mark "Note". This is very important.

Due to continuous improvements on our vehicles, maybe there are some instructions in the manual that do not accord with the actual vehicles.

Maintenance method varies with different skill level, methods, tools and available parts that serviceman adopts. Any serviceman should firstly take into consideration no harm personal safety and vehicle safety when working.

As for the maintenance of engine, please refer to service documents offered by Dongfeng Cummins Engine Co., Ltd.

General Principles

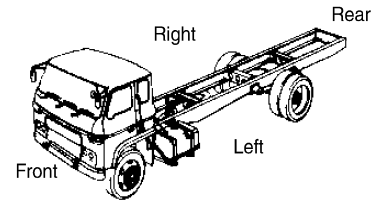
Operational Instruction

You can neglect the structural differences between the part in the manual and the corresponding one of your vehicle, because the manual is just teaching you principles for your operation.

Standard Terms

Vehicle direction

Vehicle direction referred in the manual is marked as the right picture.



Maintenance standard

The matching clearance or standard performance parameter of components while assembled.

Reparation limit

It means that the component size or component clearance after repairing must satisfy the specified repair limit;

Wear limit

It means that if a component is overworn or exceeds its wear limit, it must be replaced;

Unit

Legal measure units are used in this manual.

Standard Tightening Torque

To assure the safety and reliability of key vehicle parts, this manual makes specific prescriptions to the tightening torque of the bolts and other fasteners on those parts. As for the bolts and other fasteners not mentioned, the structures and the sizes of them have been standardized and they should be fastened with screwing torques prescribed in the following table.

| | M6 | M8 | M10 | M12 | M14 | M16 | M18 | M20 |
|---------------------------|------|-------|-------|-------|---------|---------|---------|---------|
| Ordinary carbon steel | 5~8 | 16~23 | 29~42 | 50~70 | 80~110 | 130~170 | 160~200 | 260~320 |
| High-strength alloy steel | 9~12 | 18~26 | 34~48 | 67~95 | 120~170 | 165~220 | 200~250 | 320~400 |

General Principles

Maintenance Rule

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 following schedule is not only for maintenance items of 80,000km, but also for normal maintenance items after 80,000Km.

△—maintenance mileage at running-in period (1,500~2,500km)

☆—maintenance items at running-in period

★—maintenance items at regular driving period

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.

Dongfeng Cummins Diesel Engine

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | | |
|---|--|---|---|----|----|----|----|----|----|----|----|----|----|-----|--|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 | |
| Clean engine assembly | | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check acceleration capability and decelerability | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check exhaust status | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the leakage of engine lubricant | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the cleanness and reserves of lubricant | | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the leakage of fuel | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the leakage in cooling system | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the damage of fan belt | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Remove the deposit in fuel prefilter | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check and clean air filter element | ☆ | | ★ | | ★ | | ★ | | ★ | | ★ | | ★ | | |
| Replace engine lubricant | ☆ | | ★ | | ★ | | ★ | | ★ | | ★ | | ★ | | |
| Replace oil filter | ☆ | | ★ | | ★ | | ★ | | ★ | | ★ | | ★ | | |
| Check and adjust valve clearance | ☆ | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Replace fuel filter and oil & water separator | | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Replace air filter element | | | | | | | ★ | | | | | | | ★ | |
| Check the compression pressure in cylinder | | | | | | | | | | | | | | ★ | |
| Check the injection pressure of injector | | | | | | | | | | | | | | ★ | |
| Check injection timing | | | | | | | | | | | | | | ★ | |
| Check the injection volume of injection pump | | | | | | | | | | | | | | ★ | |
| Check the working conditions of delivery pump | | | | | | | | | | | | | | ★ | |
| Check the working conditions of thermostat | | | | | | | | | | | | | | ★ | |
| Check the working conditions of radiator | | | | | | | | | | | | | | ★ | |
| Clean the cooling system of engine | | | | | | | | | | | | | | ★ | |
| Check the working conditions of supercharger, replace while necessary | | | | | | | | | | | | | | ★ ★ | |

General Principles

Clutch

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | |
|---|--|---|---|----|----|----|----|----|----|----|----|----|----|----|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 |
| Check the working conditions of clutch | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check the free travel of clutch pedal | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check the leakage of the hydraulic pipeline and clutch pump | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check the air leakage of clutch booster | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check the reserve of braking fluid in oil reservoir | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Replace clutch braking fluid | | | | | | | | | | | | | | ★ |

Propeller Shaft

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | |
|---|--|---|---|----|----|----|----|----|----|----|----|----|----|----|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 |
| Check the looseness of the linking parts of propeller shaft | ☆ | | | ★ | | | ★ | | | ★ | | | | ★ |
| Check the looseness of spider bearing | ☆ | | | | | | | | | | | | | ★ |
| Check the looseness of middle bearing | ☆ | | | | | | | | | | | | | ★ |
| Check the wearing conditions of spline | | | | | | | | | | | | | | ★ |

Gearbox

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | |
|---|--|---|---|----|----|----|----|----|----|----|----|----|----|----|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 |
| Clean gearbox and vent plug | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check the oil reserves in gearbox | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check oil leakage of gearbox | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Replace gearbox lubricant | ☆ | | | | | | ★ | | | | | | | ★ |
| Check the looseness of the linking parts of the control mechanism | ☆ | | | | | | ★ | | | | | | | ★ |
| Check the working conditions of the bearings in gearbox | | | | | | | | | | | | | | ★ |
| Disassemble and check gearbox | | | | | | | | | | | | | | ★ |

Suspension System

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | |
|--|--|---|---|----|----|----|----|----|----|----|----|----|----|----|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 |
| Check the leakage of shock absorber and fasten the bolts of brackets | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Clean front and rear leaf spring and shock absorber | | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Fasten U bolt of leaf spring when fully loaded | ☆ | | | ★ | | | ★ | | | ★ | | | | ★ |
| Check the damage and looseness of shock absorber | | | | ★ | | | ★ | | | ★ | | | | ★ |
| Check the wearing of pin sleeve of rear leaf spring, replace while necessary | | | | | | | | | | | | | | ★ |
| Check if shock absorber is out of service | | | | | | | | | | | | | | ★ |
| Disassemble leaf spring, replace spring pin and pin sleeve | | | | | | | | | | | | | | ★ |

General Principles

Axle and Wheel

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | | |
|--|--|---|---|----|----|----|----|----|----|----|----|----|----|----|--|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 | |
| Clean axles and wheels | | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the oil leakage of final drive | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the fastening conditions of important bolts | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | | |
| Check the pressure in tyres | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the abnormal wearing of wheels | | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check lubricant reserves of final drive, clean vent plug | | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Clean and adjust hub bearings | | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Replace the lubricant of final drive | ☆ | | | | | | ★ | | | | | | ★ | | |
| Wheel changing | | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Check the working conditions of final drive and the bearings | | | | | | | | | | | | | ★ | | |
| Disassemble and check final drive and adjust it | | | | | | | | | | | | | | ★ | |
| Make magnetic examination for axle shaft tube | | | | | | | | | | | | | | ★ | |

Steering system

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | | |
|--|--|---|---|----|----|----|----|----|----|----|----|----|----|----|--|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 | |
| Check the oil leakage of steering gear | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Clean steering gear | | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check free travel and working conditions of hand wheel | ☆ | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Check the fastening conditions of the ball heads of steering cross rod and tie rod | ☆ | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Check fastening conditions of steering mechanism and its brackets | ☆ | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Check fastening conditions of steering arm and steering knuckle arm | ☆ | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Check and adjust front wheel toe-in | ☆ | | | ★ | | | ★ | | | ★ | | | ★ | | |
| Check front wheel alignment | | | | | | | | | | | | | ★ | | |
| Check and adjust steering gear | | | | | | | | | | | | | ★ | | |
| Disassemble and check the connectors of steering cross rod and tie rod | | | | | | | | | | | | | | ★ | |
| Make magnetic examinations for steering knuckle | | | | | | | | | | | | | | ★ | |
| Replace the ball head pins in steering system | | | | | | | | | | | | | ★ | | |
| Check power steering oil reserves, add while necessary | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Replace power steering transmission oil | | | | | | | ★ | | | | | | ★ | | |

Braking System

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | | |
|---|--|---|---|----|----|----|----|----|----|----|----|----|----|----|--|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 | |
| Check the free travel of brake pedal | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check parking brake and its efficiency | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check the air leakage of braking pipeline | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | |
| Check and adjust the clearance between brake drum and friction disc | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |

General Principles

Braking System

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | |
|---|--|---|---|----|----|----|----|----|----|----|----|----|----|----|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 |
| Check the fastening conditions of brake back plate | ☆ | | | ★ | | | ★ | | | ★ | | | ★ | |
| Check the wearing of brake drum and shoe, replace while necessary | | | | | | | ★ | | | | | | | ★ |
| Check the working conditions of air compressor | | | | | | | | | | | | | | ★ |

Other

| Maintenance Item | Maintenance Mileage Interval(× 1,000km) | | | | | | | | | | | | | |
|--|--|---|---|----|----|----|----|----|----|----|----|----|----|----|
| | △ | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 80 |
| Check battery liquid reserves, add while necessary | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check the proportion of battery liquid | | | | ★ | | | ★ | | | ★ | | | | ★ |
| Check the looseness of the rivets in chassis frame | | | | | | | ★ | | | | | | | ★ |
| Check the efficiency of locking device of titing mechanism | | | | | | | ★ | | | | | | | ★ |
| Check the looseness of linking parts of cabin | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |
| Check and adjust latches of cargo body | ☆ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | |
| Check the looseness and damage of cross and side members of cargo body and the linking parts | | | | | | | ★ | | | | | | | ★ |
| Check the wearing of latches, replace while necessary | | | | | | | | | | | | | | ★ |

Recommended Fuel and Lubricant

The quality of fuel and lubricant can effect the performances, quality and even life of vehicles. Therefore, to ensure normal operations of vehicles, suitable oil products should be used according to relative prescriptions.

DongFeng Automobile Co., Ltd. prescribes the most suitable fuel and lubricants for its products. The following are the fuel and lubricants that should be used in our products.

Fuel

Qualified light diesel in accord with GB252—87 Standard should be used. Users can choose specific class of light diesel according to the specific temperature in his region.

Recommended temperature scope:

| Class | Recommended Temperature |
|------------------|-------------------------|
| 0# light diesel | above 4 °C |
| 10# light diesel | above -5 °C |
| 20# light diesel | between -5 °C ~ -14 °C |
| 35# light diesel | between -14 °C ~ -29 °C |
| 50# light diesel | between -29 °C ~ -44 °C |

Engine lubricant

High-quality lubricant meeting following standards must be used for Dongfeng Cummins engines:

Lowest standard: CF-4/SG 15W-40

Recommended Standard: CG-4/SH 15W-40

Ideal standard: CH-4/SJ 15W-40

General Principles

Note:

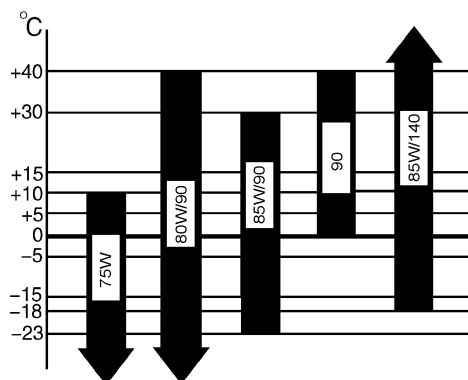
Engine damages for using lubricants below CD15W-40 or CE15W-40 or even lower are not in our warranty scope.

Suitable temperature scope:

For 15W-40: -10 °C ~-15 °C; For 10W: -5 °C ~-20 °C ; For 5W-30: below -25 °C

Lubricant for gears in driving axle

Recommend to use sulfur-phosphor API GL-5 gear lubricant for heavy duty vehicle. Applicable environment temperatures for different classes are as follow:



Gearbox oil

Recommend to use sulfur-phosphor 85W/90 GL-4 gear lubricant for middle duty vehicle.

Lubricating grease

Recommend to use generally-used lithium grease for the lubricating points on hubs and chassis frame.

Shock absorber oil

Recommend to use specially-used shock absorber oil.

Clutch boosting liquid

Recommend to use DOT 4 compounded braking liquid. Different classes of braking liquid can not be used together.

Note:

Braking liquid made by different manufacturers can not be used together.

Engine antifreeze liquid (coolant)

Recommend to use long-term antirust & antifreeze liquid. The freeze point of the antifreeze liquid used should be 8 °C lower than the minimum local temperature. Different classes of antifreeze liquid can not be used together.

Volume Data

| Part | Volume (L) |
|---------------------------|------------|
| Fuel tank | 120 |
| Engine lubrication system | 9 |
| Engine cooling system | 14.5 |