



93211-00431

July 2011

SHOP MANUAL

WHEEL LOADER

85ZV-2

General Information

***Standard Measurement Values for
Performance Check***

Function & Structure

Check & Adjustment

Powered by CUMMINS QSC8.3 ENGINE

Serial No. 85C5-9001 and up

Foreword

To ensure good machine performance, reduce failures or problems, and prolong the service life of each component, it is necessary to operate the machine as is directed in the Operator and Maintenance Manual.

To effectively diagnose and repair the machine, it is important to follow the guidelines laid out in this Shop Manual.

General Information Function and structure

For the engine, refer to the engine Shop Manual provided by the engine manufacturer.

The purpose of this manual is to provide information on the product and the correct maintenance and repair methods. Please read this manual to ensure correct troubleshooting and good repair service.

This manual will be periodically reviewed and revised for more satisfactory content. If you have any opinion or requests, please inform us.

Safety Symbols

An accident may occur if you disregard safety rules.

In this manual, several expressions are used according to levels of danger for inspection and repair work as shown below. Read the work procedures and cautions described in this manual, and take preventive measures against possible problems before starting service work.

DANGER

This danger symbol identifies special warnings or procedures which, if not strictly observed, will result in death or serious injury.

WARNING

This warning symbol identifies special warnings or procedures which, if not strictly observed, could result in death or serious injury.

CAUTION

This caution symbol identifies special instructions or procedures which, if not strictly observed, may result in minor or moderate injury.

IMPORTANT

This important symbol identifies special instructions or procedures which, if not correctly followed, may result in serious machine damage.

We cannot predict all possible accidents or incidents that may occur during service work. Therefore, an accident that is not specifically mentioned in this manual may occur. To protect yourself from all accidents, be careful when doing service work.

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85ZV-2 General Information

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How to Use Manual

Safety precautions

The most important point in providing repair service is safety. To ensure safety, observe the general cautions described below.

- This manual is intended for properly trained and equipped service technicians.
- Any work on the machine must be performed by the trained personnel only.
- Carefully read this manual to thoroughly understand the operation method before you operate or repair the machine.
- Be sure to wear appropriate clothes and protectors, such as safety boots, hard hat and goggles.
- Place the machine on level and solid ground, and place chocks against the wheels to prevent movement.
- Remove the cable from the battery before starting the service work, and attach a "DO NOT OPERATE!" tag to the steering wheel.

IMPORTANT

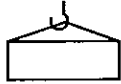
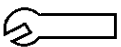



If a battery terminal is removed from a machine in less than 30 seconds after the key is put into the "OFF" position, it can corrupt the ECM program, which can disable the engine. Always wait 1 full minute to be sure to be past this "write to memory function" prior to removing battery terminals.

- Be sure to release the internal pressure before you remove a pipe, such as the hydraulic oil, air, or engine coolant pipe.
- Be sure to apply the articulation stopper before starting work.
- While supporting the bottom of the chassis using a jack, be sure to support the chassis using the blocks.
- When the boom or bucket is raised or when a unit is lifted by a crane, be sure to place a stand or adequate cribbing under the unit to prevent unexpected dropping.

- Do not start to work in an enclosed area if adequate ventilation is not provided.
- To remove a heavy unit (20 kg (40 lbs) or more), be sure to use a crane or other lifting device.
- Just after stopping operation, be careful not to directly touch a hot component. You may get burned.
- Contact tire manufacturer's local dealer for tire servicing and changing.
- Always store the tools in good condition, and use them properly.
- Keep the work area clean. Clean up spills immediately.
- Avoid the use of flammable solvents and cleaners.
- When working outdoors keep work areas, ladders, steps, decks and work platforms clear of snow, ice, and mud.
- Use safe work platforms to reach higher areas of the machine.
- Any technician that operates a refrigerant recovery and recycling machine must first be certified through an EPA approved testing program.
More information is available at <http://www.epa.gov/ozone/title6/608/technicians/608certs.html>.

Symbols

For safe and effective service work, the following symbols are used for notes and useful information in this manual.

Symbol	Item	Description
	Reference	Shows the condition or procedure that will be useful or efficient in doing service work.
	Weight	Shows the weight of a part or unit. The weight should be considered in selecting wire rope or cable for slinging work or determining the working posture.
	Tightening torque	Shows the tightening torque of a section that should be carefully tightened during assembly work.
	Coating	Shows the type of coating or adhesive and the coating section.
	Oil or water supply	Shows the oil or water supply port and the refill amount.
	Drainage	Shows the oil or water drain port and the drain amount.

IMPORTANT

If the specified conditions are not satisfied or the specified procedure is not observed, there is a strong possibility that the product will be damaged or the performance of the product will be reduced.
The message shows the preventive measures.

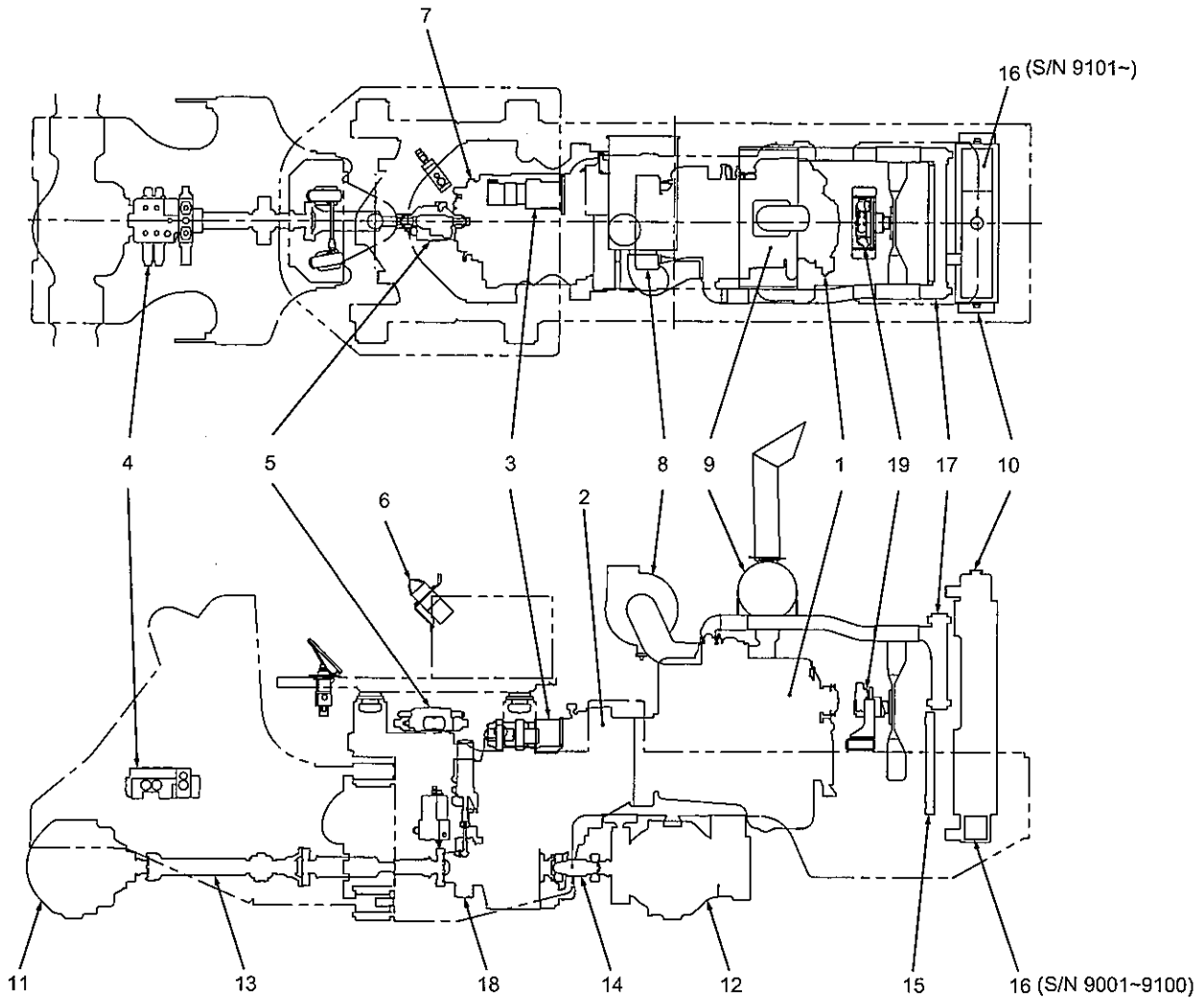
Abbreviation

To save space, abbreviations are used in sentences. To understand the contents of this manual, refer to the following abbreviation list. Additional abbreviations are listed on page 92-20.

E/G Engine	RHRight hand side	3rd3rd speed
T/C Torque converter	LHLeft hand side	4th4th speed
T/M Transmission	HHigh	M/CMachine
SOL Solenoid valve	LLow	min ⁻¹RPM
SW Switch	GNDGround	ELSEfficient loading system
F Front or Forward	OPTOption	MODMMachine operation diag-
A/M Auto/Manual	AssyAssembly	nostic module
B Battery	1st1st speed	MCUMachine control unit
R Rear or Reverse	2nd2nd speed	

Outline

Layout of main components



85V2E00001

- | | |
|---------------------------------------|--|
| 1. Engine assembly (Cummins QSC8.3) | 11. Front axle assembly |
| 2. Transmission/Torque converter assy | 12. Rear axle assembly |
| 3. Hydraulic pump | 13. 2nd propeller shaft |
| 4. Multiple (loader) control valve | 14. 3rd propeller shaft |
| 5. Steering valve | 15. Hydraulic oil cooler (air-to-oil type) |
| 6. Pilot valve (for loading) | 16. T/C oil cooler |
| 7. Transmission control valve | 17. Air charge cooler |
| 8. Air cleaner | 18. Parking brake |
| 9. Muffler | 19. Fan motor |
| 10. Radiator | |

Inspection and maintenance table

Refer to Operation & Maintenance Manual for maintenance procedures.

IMPORTANT

Severe application require more frequent maintenance.
Severe conditions include heavy dust, extremely abrasive material, caustic chemicals, extremely wet conditions or abnormally hot or cold ambient temperatures.

△ : First time replacement or cleaning only

Section	Item for check	Operating hours						When Required
		10	50	250	500	1000	2000	
Engine	Check Engine Oil Level	○						
	Check Engine Coolant Level	○						
	Check Warning Lamps	○						
	Check Exhaust Gas	○						
	Drain Water and Sediment from Fuel Filter	○						
	Check Fuel Level	○						
	Check Drive Belt	○						
	Check Crankcase Breather Tube	○						
	Check Air Intake System	○						
	Check Cooling Fan	○						
	Drain Water and Sediment from Fuel Tank		○					
	Replace DCA4 Coolant Filter Cartridge			○	○ ^{*1}			
	Replace Engine Oil and Oil Filter Cartridge				○			
	Replace Fuel Filter Cartridges				○			
	Inspect Automatic Belt Tensioner Pulley					○		
	Clean Fuel Tank						○	
	Check and Adjust Valve Lash Clearance						○	
	Check Vibration Damper						○	
	Clean or Replace Air Cleaner Element							○
Clean Radiator / Air cooler / Hydraulic oil cooler Fins							○	
Clean or Replace Air Cleaner Element	After six cleanings or once a year ○							
Replace Coolant	Every 2 years or 3000 hours ○							
Note								
*1 applies to machines from S/N 9201 and thereafter. Refer to the Operation & Maintenance Manual for details.								
Transmission & Torque Converter	Check Transmission Oil Level	○						
	Replace Transmission Oil Filter Cartridge			△	○			
	Replace Transmission Oil					○		
	Clean or Replace Transmission Breather					○		