

# **Service Manual**

**Shandong LOVOL Heavy Industry International  
Trading Co., Ltd.  
People's Republic of China**

# Contents

I. Notices to Users .....	1
II. Pre-delivery Service Sheet .....	3
III. Compulsory Maintenance Service Sheet .....	4
IV. Periodic Maintenance Service Sheet .....	5
V. Maintenance Record Sheet .....	11

## I. Notices to Users

Thank you for your trust in our company and purchasing the wheeled tractor produced by our company. In order to allow you to operate the tractor correctly, reasonably and efficiently, please read the following instructions:

### (I) Special tips:

1. Before operating this tractor, carefully read this manual regardless of your previous operation experience. This will help you operate the tractor more reasonably and effectively;
2. In order to create more economic benefits for you and prolong the service life of the tractor, please carefully read this manual and the operation manuals of its supporting engine and working implements before operating the tractor, and strictly follow the instructions for operation and maintenance in the manual so as to give full play to the performance of the tractor;
3. Please do not refit the tractor without authorization, so as to avoid affecting the tractor's performance and causing accidents;
4. Due to the large differences in agricultural conditions and sudden conditions in different regions, the recommended uses, parameters, supporting working implement and operation efficiency in this manual may vary. Please choose according to the actual situation;
5. This tractor can only be operated, maintained and repaired by personnel who are familiar with the characteristics of the tractor and have relevant knowledge of safety operation;
6. The driver must hold a driving license for agricultural vehicles and tractors issued by the local transportation department;
7. Follow local safety regulations and road traffic rules at all times to prevent accidents.

### (II) Description of limited warranty:

If any quality problems occur to products purchased from Lovol authorized dealers during the warranty period, Lovol or its authorized dealer will provide free replacement or repair service for you. Due to difference in applications and operating regions, the specific warranty period shall be subject to the dealer's commitment.

### (III) User's responsibilities:

1. Operate the product within the specified capacity limit and application scope;
2. Maintain the product correctly according to the maintenance schedule;
3. If the product fails, please inform the local dealer in time and keep the product in the state to be repaired; If you continue to operate the product after it fails and damage of other components occurs thereafter, the cost for the damaged components shall be borne by the user;
4. Please provide the complete purchase certificates and the copy of Pre-delivery Service Sheet when applying for warranty.

### (IV) Disclaimer:

1. Early wear and failure caused by improper operation and maintenance or operation out of the specifications;
2. Failure and damage caused by refitting without authorization, improper disassembly, etc.;
3. Products for which purchase certificates and copy of Pre-delivery Service Sheet are not available;
4. Traffic accidents and operation safety accidents caused by improper driving, operation or use, or property losses, casualties and other related losses caused thereby;
5. Damage caused by force majeure;
6. Unauthorized repairs;
7. Failures caused by the use of parts not genuine to Lovol in maintenance;
8. Wearing parts or maintenance parts (except the those parts with defects before delivery), including but not limited to:

Clutch, clutch friction plate, brake lining, filters (air filter, oil filter, fuel filter), general electrical components, bearings, rubber parts, seals, glassware, fluids (other than those used for permitted repairs) and fuel injector nozzle.

9. Products repaired after identified as completely damaged.

**This manual may be subject to change due to product improvements without notice.**

**The final interpretation right of this Warranty Manual belongs to Lovol.**

**Shandong WEICHAI LOVOL Heavy Industry International Trading Co., Ltd.**

## II. Pre-delivery Service Sheet

No:

Thanks for purchasing a Lovol tractor. Now Lovol will provide the delivery service to you, and inspection and acceptance will be carried out as per the table below.

If you have understood, please mark "√" in the confirmation column; If you have not understood, please mark "×".

**Warranty period:    M    D    Y ~    D    M    Y**

Basic information			
Product model		<b>VIN</b>	
		Engine No.	
User's name		User's phone number	
User's address			
Sales unit		Service date	
Inspection items			
S/N	Description	Confirmation	
1	Check that the VIN and the engine No. are consistent with those on the vehicle certificate.		
2	Understand the product service policies and service processes.		
3	View and understand the meanings of all safety signs.		
4	Understand the inspection location and standard of each oiling part.		
5	Master the operation, inspection and adjustment methods of clutch free travel and brake free travel.		
6	Master the maintenance methods and precautions of air filter, oil filter, fuel filter and hydraulic oil filter.		
7	Understand the running-in requirements of the tractor;		
8	Know the maintenance schedule, maintenance methods and requirements.		
9	Correctly master the operation method of the tractor.		
10	Correctly master the operation methods of four-wheel drive, power take-off, hydraulic output and air brake system.		
11	Master the adjustment method of hitch system.		
User commitments	I have mastered the requirements for the operation and maintenance of the product, and will carry out the operation and maintenance in strict accordance with these requirements. When problems are found, I will communicate by telephone in time.		
Comments:			
Signature of the customer: MM/DD/YY			
Evaluation (mark a "√" in □, to be completed by the owner)		<input type="checkbox"/> Satisfied <input type="checkbox"/> Acceptable <input type="checkbox"/> Dissatisfied	

### III. Compulsory Maintenance Service Sheet (100H)

No: \_\_\_\_\_

Thanks for purchasing a Lovol tractor. Now Lovol will provide the following maintenance services (for maintenance methods, please refer to Maintenance Instructions in the Operation Manual) to you .Please mark "√" for each completed item; For any uncompleted items, please mark "×".

Basic information				
Product model		<b>VIN</b>		Engine No.
User's name			User's phone number	
User's address				Working hours
Sales unit				Service date
Inspection items				
S/N	Description			Confirmation
1	Check and clean the air filter and replace it if necessary.			
2	Change the engine oil, replace the fuel filter and oil filter, and clean the oil sump.			
3	Replace (clean) the transmission oil filter and hydraulic oil filter, check the oil level and quality of oil, and change the corresponding oil if its quality does meet the corresponding requirements.			
4	For the structure of front axle with planetary reducer, change the front drive axle final drive gear oil, and do cleaning.			
5	Lubricate the tractor with grease at all lubrication points.			
6	Check and adjust the tension of engine belt.			
7	Check the toe-in of the front wheel, and the free travel of the clutch and brake, and make adjustment if necessary.			
8	Check and tighten all external fasteners.			
Attention: The service sheet is invalid if any one of the items listed above is not completed.			Signature of the service technician:	
Comments:          Signature of the customer : MM/DD/YY				
Evaluation (mark a "√" in <input type="checkbox"/> , to be completed by the owner)			<input type="checkbox"/> Satisfied <input type="checkbox"/> Acceptable <input type="checkbox"/> Dissatisfied	



### IV. Periodic Maintenance Service Sheet (600H)

No:

Thanks for purchasing a Lovol tractor. Now Lovol will provide following maintenance services (for maintenance method, please refer to Maintenance Instructions in the Operation Manual) to you. Please mark "√" for each completed item; For any uncompleted items, please mark "×".

Basic information			
Product model		VIN	Engine No.
User's name	User's phone number		
User's address	Working hours		
Sales unit	Service date		
Inspection items			
S/N	Description	Confirmation	
1	Check and clean the air filter and replace it if necessary.		
2	replace oil filter element and fuel filter.		
3	Change steering fluid, lifting hydraulic oil, brake fluid, etc., and clean or replace the filter at the same time.		
4	Change transmission oil, and replace the common oil filter element.		
5	Check the engine, transmission system and hydraulic system for oil leakage.		
6	Check the toe-in of the front wheel, and the free travel of the clutch and brake, and make adjustment if necessary.		
7	Check the hitch shaft sleeve for oil leakage and wear, and replace the shaft sleeve if the corresponding requirement is not met.		
8	Check and tighten all external fasteners.		
9	Lubricate the tractor with grease at all lubrication points.		
10	Check the oil level of the transmission and front drive axle, and add oil if the oil level is too low.		
Attention: The service sheet is invalid if any one of the items listed above is not completed.		Signature of the service technician:	
Comments:			
Signature of the customer : MM/DD/YY			
Evaluation (mark a "√" in <input type="checkbox"/> , to be completed by the owner)		<input type="checkbox"/> Satisfied <input type="checkbox"/> Acceptable <input type="checkbox"/> Dissatisfied	



**IV. Periodic Maintenance Service Sheet (850 H)**

No: \_\_\_\_\_

Thanks for purchasing a Lovol tractor. Now Lovol will provide following maintenance services (for maintenance method, please refer to Maintenance Instructions in the Operation Manual) to you. Please mark "√" for each completed item; For any uncompleted items, please mark "x".

Basic information					
Product model		VIN		Engine No.	
User's name			User's phone number		
User's address				Working hours	
Sales unit				Service date	
Inspection items					
S/N	Description				Confirmation
1	Check and clean the air filter and replace it if necessary.				
2	According to the fuel cleanliness, drain the water in the fuel filter element or replace the filter element, change the engine oil and replace the filter element.				
3	Clean the oil inlet and return filters of the hydraulic system and replace the filter element if necessary.				
4	Check the engine valve clearance, and make adjustment if the clearance is unacceptable.				
5	Check the oil level and oil quality of the transmission oil and hydraulic oil of the front and rear axles, add oil if the level is too low, and change oil if the quality does not meet the requirement.				
6	Check the toe-in of the front wheel, and the free travel of the clutch and brake, and make adjustment if necessary.				
7	Lubricate the tractor with grease at all lubrication points.				
8	Check and tighten all external fasteners.				
Attention: The service sheet is invalid if any one of the items listed above is not completed.				Signature of the service technician:	
Comments:          Signature of the customer : MM/DD/YY					
Evaluation (mark a "√" in □, to be completed by the owner)			<input type="checkbox"/> Satisfied <input type="checkbox"/> Acceptable <input type="checkbox"/> Dissatisfied		

**IV. Periodic Maintenance Service Sheet (1100H)**

No:

Thanks for purchasing a Lovol tractor. Now Lovol will provide following maintenance services (for maintenance method, please refer to Maintenance Instructions in the Operation Manual) to you. Please mark "√" for each completed item; For any uncompleted items, please mark "x".

Basic information			
Product model		<b>VIN</b>	
		Engine No.	
User's name	User's phone number		
User's address	Working hours		
Sales unit	Service date		
Inspection items			
S/N	Description		Confirmation
1	Check and clean the air filter, and replace it if it does not meet the concerning requirements.		
2	Change the engine oil, and replace the oil filter and fuel filter.		
3	Change the steering fluid, lifting hydraulic oil, brake fluid and coolant, and clean or replace the filter.		
4	Change the transmission oil, and replace the common oil filter element.		
5	Check the toe-in of the front wheel, the free travel of the clutch and the brake, and make adjustment if necessary.		
6	Check and tighten all external fasteners.		
7	Lubricate the tractor with grease at all lubrication points.		
8	Check the oil level of the transmission and front drive axle, and add oil if the oil level is too low.		
Attention: The service sheet is invalid if any one of the items listed above is not completed.		Signature of the service technician:	
Comments:             Signature of the customer: MM/DD/YY			
Evaluation (mark a "√" in <input type="checkbox"/> , to be completed by the owner)		<input type="checkbox"/> Satisfied <input type="checkbox"/> Acceptable <input type="checkbox"/> Dissatisfied	

### IV. Periodic Maintenance Service Sheet (1600H)

No: \_\_\_\_\_

Thanks for purchasing a Lovol tractor. Now Lovol will provide following maintenance services (for maintenance method, please refer to Maintenance Instructions in the Operation Manual) to you. Please mark "√" for each completed item; For any uncompleted items, please mark "x".

Basic information				
Product model		VIN		Engine No.
User's name		User's phone number		
User's address			Working hours	
Sales unit			Service date	
Inspection items				
S/N	Description			Confirmation
1	Check and clean the air filter, and replace it if it does not meet the concerning requirements.			
2	Change the engine oil, and according to the local fuel quality, drain water out of fuel filter or replace the fuel filter.			
3	Change the hydraulic oil and transmission oil, and replace the filter.			
4	Lubricate the tractor with grease at all lubrication points.			
5	Check and tighten all external fasteners.			
6	Check the wear of the four tires, and perform tire rotation or toe-in adjustment in case of eccentric wear.			
7	Support the front axle, check the gears of the main drive and the wheel reducers on both sides for abnormal noise, and adjust or replace the concerning gear.			
8	Check the free travel and internal wear of the clutch, and adjust or replace it if the corresponding requirement is not met.			
9	Check the wear degree of the hitch shaft sleeve. Replace the shaft sleeve in case of large shaking gaps or severe oil leakage.			
10	Dynamically check whether the brake is effective, whether the brake strokes of the left and right brakes are consistent, and adjust or replace unsatisfactory one.			
11	Dynamically check whether the gears of the rear axle and the transmission can be engaged normally, and whether the running gear produces unusual noise.			
12	Dynamically check whether the differential lock, the differential mechanism and the brake are effective, and adjust or replace them if the corresponding requirements are not met.			
13	Check the engine valve clearance and fuel supply advance angle, and make adjustment if they do not meet the corresponding requirements;			
Attention: The service sheet is invalid if any one of the items listed above is not completed.			Signature of the service technician:	
Comments:    Signature of the customer: MM/DD/YY				
Evaluation (mark a "√" in <input type="checkbox"/> , to be completed by the owner)		<input type="checkbox"/> Satisfied <input type="checkbox"/> Acceptable <input type="checkbox"/> Dissatisfied		

**IV. Periodic Maintenance Service Sheet**

In order to keep your machine in good condition, now we will carry out a comprehensive inspection and maintenance of the machine according to the maintenance requirements. Please prepare the oil, filter element and other consumable materials for replacement. Thank you for your support!

No:

S/N	Working hours	Maintenance item	Service personnel	Signature of user	Service time
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

**V. Maintenance Record Sheet**

S/N	Maintenance records	Maintenance personnel	Maintenance time
1			
2			
3			
4			
5			
6			
7			
9			
10			
11			
12			

## VII. Maintenance Indicator Card

Maintenance Indicator Card									
S/N	Maintenance parts	Check every shift	Compulsory maintenance at 100 h	Maintenance at 350 h	Maintenance at 600 h	Maintenance at 850 h	Maintenance at 1100 h	Maintenance at 1350 h	Maintenance at 1600 h
1	Air filter	●	※/●	※/●	※/★	※/●	●/★	※/●	※/★
2	Oil filter		★	★	★	★	★	★	★
3	Fuel filter		★		★		★		
4	Hydraulic oil filter		★		★		★		
5	Steering oil filter element		※	※	●	※	●	※	●
6	Front axle gear oil		※	★	※	★	※	※	★
7	Front axle toe-in		※	※	※	※	※	※	※
8	Radiator coolant level	※							
9	Engine belt		※/▲	※	※/▲	※	※/▲	※	※/▲
10	Valve clearance of engine					▲			▲
11	Fuel supply advance angle of engine					※			▲
12	Clutch free travel	※	▲	▲	▲	▲	▲	▲	▲
13	Brake free travel	※	▲	▲	▲	▲	▲	▲	▲
14	Brake fluid level	※			★				★
15	Rear axle gear oil		※	★	※	★	※	※	★
16	Lifting hydraulic oil		※	※	★	※	※	★	※
17	Hitch actuator		※	※	※	※	※	※	※
18	Greasing		★	★	★	★	★	★	★
19	Walk-around inspection	※							
20	Dynamic check		※	※	※	※	※	※	※

※ Check   ● Clean   ▲ Adjust   ★ Replace

**Tightening torque table of main bolts and nuts**

Connecting part	Connectors	Specification	Tightening torque (N·m)
Transmission system	Connecting bolt of diesel engine and clutch housing	M12	77.7
	Connecting bolt of transmission and rear axle housing	M12	77.7
	Differential bearing fixing bolt	M12	77.7
	Big bevel gear fixing bolt	M10	44.5
	Connecting bolt of drive shaft housing and rear axle housing	M12	77.7
	Fastening nut of rear center small bevel gear shaft	M39	300~350
	Fastening nut of power take-off shaft	M25	280~330
Running gear and steering system	Connecting bolt of the drive wheel hub and spoke plate	M14	123.6
	Connecting bolt of the front drive wheel and front wheel hub with spoke plate	M14	123.6
	Connecting bolt between steering gear and transmission housing	M12	77.7
	Fixing bolt at steering ball joint	M12	77.7
Hydraulic hitch system	Connecting bolt between hitch housing and rear axle housing	M12	109.3
	Connecting bolt between cylinder head and hitch housing	M14	173.9
	Connecting bolt between the rocker arm support of the upper pull rod and the rear axle housing	M12	77.7
Front drive axle	Connecting bolt between the driven bevel gear in the front differential assembly and the differential	M10	44.5
	Connecting bolt of the left and right axle shaft housings	M10	44.5
	Connecting bolt of the tee housing and the upper cover of tee housing	M8	31.6
	Connecting bolt of the final drive housing and the lower cover of the final drive housing	M10	62.6
	Connecting bolt of the final drive housing and the final drive housing cover	M10	44.5
	Connecting bolt of the steering arm with bushing assembly and the final drive housing	M12	77.7
	Connecting bolt of the bracket and the diesel engine	M16	192.9
	Connecting bolt of the swing seat assembly and the bracket	M12	77.7