



Service Manual

LG956L/LG958L/LG959 COMPLETE APPLIANCE

SHANDONG LINGONG CONSTRUCTION MACHINERY CO., LTD



Complete Appliance Service Manual

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SHANDONG LINGONG CONSTRUCTION MACHINERY CO., LTD

Add: Lingong Industry Park, Linyi Economic Development Zone, Shandong, China

Tel: 86-0539-8785624/86-0531-66590955

Fax: 86-0539-8785618/86-0531-66590959

Web: www.sdlg.cn

Services Tel: 86-0539-8785800

PREFACE

This service manual, which contains the structure, principle and the maintenance technology of the loader, will help the maintenance persons understand the disassembling and assembling method of the loader more deeply and build a firm foundation for the maintenance persons to locate the faults and repair correctly. Please read this manual first to make sure that it will play its role completely.

Main contents of the Service Manual:

1. Structure and working principle of the loader

This chapter shows the structures and functions of each kind of part, which establishes the basis of assembling and disassembling loader. Furthermore, it also could be used as the reference of troubleshooting.

2. Disassembling and assembling of the loader

The steps how to disassembling and assembling the parts correctly and the points for attention in disassembling and assembling loader are shown in this chapter.

3. Standard of criterion for repairing and replacement of parts

The identification methods and standards of criterion of vulnerable parts are formulated in this chapter.



ATTENTION

The change information in this specification due to the development of complete appliance will not be noticed in advance. The latest information could be get from Shandong Lingong Construction Machinery CD., LTD.



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CHAPTER I PRODUCTION INFORMATION

1.1 Safety Considerations



IMPORTANT SAFETY WARNING

It's very important for operating the vehicle safely to keep maintenance and repairing. The related technologies about how to assemble and disassemble the transmission correctly are described in this manual.

The safety considerations, marked with  and  as the security label, should be paid more attention when operate it for avoiding hurting persons. Persons should keep themselves safe first and take some necessary measures when the potential dangers coming.



Security Warning

On the process of assembling and disassembling, parts wear, life losing, properties failure would be caused by the incorrect operating methods. Meanwhile, there are unsafe factors. Please read the manual carefully when assemble and disassemble the transmission's parts.

1. The parameters, graphs and related contents in this manual are suitable to the standard configuration products. As to the deformed products, please consult our company or refer to the related data.
2. In repair workshop, the region for placing the single using or special parts after assembling and disassembling should be marked. Put the corresponding tools on the suitable region. The

cleanness of operating region must be kept and make sure there is no oil or pollution in the operating region. Smoke in the specified region and smoking is forbidden in the course of operation. And there are corresponding fire extinguishing equipments.

3. When welding operation is needed, it should be done by expert persons who are trained by professional welding training. Welding gloves, baffles, goggles, hats and other work clothes suitable for welding are essential during welding operation.

4. Before the complete appliance is disassembled, the appearance of which must been cleared up to avoid polluting the parts in the course of disassembling.

5. In the progress of operation, safety shoes and safety helmets must been worn. Working clothes which are not coincided with requirements are forbidden and the buttons on the working clothes must be attached. Goggles should be worn when persons knock the parts with copper rod.

6. The disassembled parts could be cleaned by petrol, gasoline and water-base oil cleaner.

7. Check the lifting tools whether they were broken before operating the cranes or other hoisting equipments. The lifting amount of the lifting equipments must be big enough. For avoiding collisions between parts, lifting equipments should use the specified lifting position and operated slowly. Make sure no one work under the part lifted.

8. When two or more persons work together, engage the operation procedure which should be

implemented by everyone before work to avoid the accident caused by out of steps.

9. All tools must be kept carefully, and familiar with their using method.

10. When align two holes, don't put hands and figures in the holes. Pay attention to whether the hands would be extruded when assemble parts by hands directly.

11. The disassembled parts must be checked. The parts which have poor properties should be changed, and the standard of criterion can refer to Chapter X: JUDGMENT STANDARD OF MAINTENANCE AND REPLACEMENT.

12. There should be no interference after assembling each part.

13. When assemble the oil seal and the seal ring, take protection measures if through the keyway, screw holes and steps to protect the oil seal and seal ring.

14. When assemble the parts, all tools must be suitable to the screw fasteners to protect the screw fasteners.

15. When tighten the screws, the tightening tools like the gas trigger are forbidden. Tighten them by hands first, and then tighten them with some specified wrest wrenches to reach the torque demanded.

16. Not all of the potential dangers could be previewed. So, the explanation about safety in this manual or on the loader would not include all the safety precautions. If the steps and operations, not recommended in the manual, are used, make sure that the people are safe and machine will not be damaged. If the safety of some operations could not

be ensured, please consult our company or the distributors.

17. The positions such as bench and soft ladder used for treading and handing should not be polluted by mud and oil. Use the bench and soft ladder when getting on and off, don't jump up or down. If bench and soft ladder can not be used, the steps on the safe place should be used.

18. When disassemble the plugs with hydraulic pressure, the plug should be loosen slowly to avoid the oil blowout; Eliminate the pressure when disassemble the pipeline with pressure.

19. The oil and water temperatures are very high when the engine is just to be flameout. The disassembling work of the oil and water pipeline should be done after the temperature comes down.

20. When disassemble the oil pipeline, prevent the fuel oil and hydraulic oil exuding. If the fuel and hydraulic oil drop on the part during the disassembling, clean them soon to avoid bringing potential danger.

21. The parts which have been disassembled, such as hydraulic pipeline, air pipeline and hydraulic oil, should be protected from pollution. For example, the disassembled hydraulic pipeline joints should be packed by clean plastic bags. Other protection method also could be implemented.

22. When tighten connection bolts in the section with many fastening bolts, the bolts had better be marked to avoid forgetting any bolt.

1.2 Oil Products and Coating Materials

Type	Recommended Types and Standards	Capacity (L)		Using Positions
		956L	958L 959L	
Engine Fuel	Temperature $\geq -15^{\circ}$ CD 15W-40 GB11122 Temperature $< -15^{\circ}$ CD 5W-30 GB11122	17 $\pm$ 1L	20 $\pm$ 1L	Engine
Hydraulic transmission oil	CALTEX Delo Gold Multi-grade Engine Oil 15W-40	44L	35 $\pm$ 1L	Torque Converter and Gearbox
Gear Oil	Heavy Loading Vehicle Gear Oil(GL-5) SAE 85W-90 GB13895	30 $\times$ 2L	34 $\times$ 2L	Axle Main Drive and Wheel Side Reducer
Hydraulic Oil	Super Temperature Range and Anti-wear Hydraulic Oil 46	200L $\pm$ 6 5	200L $\pm$ 6 5	Hydraulic Oil Tank
Fuel	Ambient Temperature $\geq 4^{\circ}\text{C}$ 0#Light Diesel Oil GB252 Ambient Temperature $\geq -5^{\circ}\text{C}$ -10#Light Diesel Oil GB252 Ambient Temperature $\geq -14^{\circ}\text{C}$ -20#Light Diesel Oil GB252 Ambient Temperature $\geq -29^{\circ}\text{C}$ -35#Light Diesel Oil GB252	76L	90L	Fuel Tank
Brake Fluid	Auto Brake Fluid HZY3 (DOT3) GB12981	3 $\times$ 2L	3 $\times$ 2L	Brake Oil Cup
Grease	2# or 3# Lithium Based Grease GB7324	2.8kg	2.8kg	Pins in Every Joint Points of the Work Equipment
Coolant	Engine Coolant of Glycol Type SH0521	46L $\pm$ 1 L	45 $\pm$ 2L	Radiator

Attachments:

Table 1: The recommended temperature range of light diesel oil

Brand	Recommend employ range
0#	The oil is used in the region where lowest temperature is more than 4°C , and whose risk rate is 10%
—10#	The oil is used in the region where lowest temperature is more than -5°C , and whose risk rate is 10%
—20#	The oil is used in the region where lowest temperature is more than -14°C , and whose risk rate is 10%
—35#	The oil is used in the region where lowest temperature is more than -29°C , and whose risk rate is 10%

Table 2: The composition concentration of antifreeze as the coolant (when ambient temperature is below 0°C, antifreeze should be added into coolant)

Name	Composition %					Freezing point≤°C
	Glysol	Alcohol	Glycerin	Water	Units of Composition Ratio	
Glysol Antifreeze	60			40	Cubage Ratio	-55
	55			45		-40
	50			50		-32
	40			60		-22
Alcohol	Glycerin	30	10	60	Weight Ratio	-18
Glycerin		40	15	45		-26
Antifreeze		42	15	43		-32

Reference Table of Foreign and Domestic Oils

● Engine Oil

Domestic Oils Brands	Similar Foreign Oil Brands (classified by SAE standard)			
	SHELL	MOBIL	CALTEX	ESSO
Diesel Engine oil CD and more than that. 15W-40 GB11122	RotellaSX 40; Rotella TX 40, 20W/40; Rotella DX 40	HEIBAWANG 1300 (SAE15W-40) (-15℃~50℃)	CALTEX Delo Gold Multigrade Engion Oil 15W-40	Essolube XT-3 ; Essolube XT-2
Diesel Engine oil CD and more than that. 5W-30 GB11122	Rotella SX30, 10W/30;Rotella TX30; Rotella DX30	HEIBAWANG 1300 (SAE10W-30) (-20℃~40℃) ; DUOWEILI 1# (More than-40℃)		Essolube XT-5

● Hydraulic Oil

Domestic Oils Brands	Similar Foreign Oil Brands				
	CALTEX	MOBIL	SHELL	CASTROL	ESSO
Hydraulic Oil L-HM46 (-5℃~40℃) GB11118.1	Super Temperature Range and Anti-wear Hydraulic Oil 46# RANDO HDZ46 (-25℃~40℃)	DTE25 (-10℃~ 40℃)	Tellus 27 Tellus 29	Hyspin AWS 32 Hyspin AWS 46	Nuto H46
Hydraulic Oil L-HV 46 -30℃~40℃ GB11118.1		DTE15M (-26℃~ 40℃)	Hydro-kin etic Tellus T27 46	Hyspin AWH46 Nuto	Vnivis N46

● Hydraulic Transmission Oil (Torque Converter-Transmission Oil)

Domestic Oils Brands	Similar Foreign Oil Brands				
	CALTEX	MOBIL	FUCHS	ESSO	SHELL
8# Hydrostatic Transmission oil Q/SH303 064	JINDELE Multilevel Engion Oil 15W-40 Delo Gold Multigrade 15W-40	HEIBAWANG 1300 (SAE15W-40)	Titan universal HD15W- 40	Standard Torque Fluid G7	Rotella 10W

● **Gear Oil (Used in the Driving Axle)**

Domestic Oils Brands	Similar Foreign Oil Brands (classified by U.S.SAE standard, GL-5)				
	CALTEX	FUCHS	MOBIL	ESSO	SHELL
Heavy Loading Vehicle Gear Oil (GL-5) 85W-90 GB13895	Special Extreme-pressure Gear Oil 90 Thuban GL5 EP 90	Titan Gear LS90	MOBIL Gear Oil HD80W-90 (-20°C~40°C); MOBIL Gear Oil HD85W-90 (-10°C~50°C)	Gear Oil GX 85W-90	Spirax EP Heavyduty HD90 HD80W-90

● **Brake Fluid**

Domestic Oils Brands	Classify	Similar Foreign Oil Brands			
		MOBIL	ESSO	British BP	SHELL
Auto Brake Fluid HZY3 GB12981	SAE 1703C	Super Performance Brake Fluid DOT3	Brake Fluid	Brake Fluid Disc-Brake fluid	Donax B

● **Grease**

Domestic Oils Brands	Similar Foreign Oil Brands					
	MOBIL	CALTEX	CASTROL	ESSO	British BP	SHELL
ZG-2 or ZG-3 Lithium Based Lubricant Grease GB7324	Mobile Grease XHP222	Marfak multi Purpose	LM grease	Ronex MP; Beacon EP 2	Energrease L	Retinax A; Alvania

Precautions in changing the oil:

1. Stop the loader on the condition which is convenient for draining diesel oil and get the oil with special vessel. Open the oil outlet of the oil tank and drain diesel oil. After draining out all the oil, close the oil outlet. Add the corresponding brand of diesel oil. Clean up the excessive oil near the outlet with cotton yarn.

2. If the different brands of oil should be distinguished by oil marks, the corresponding brand oil mark should be changed. The stick position should be the same as the old one, and the stick trace of old one should be clean up.

3. If the diesel oil, which has been exchanged, would be reused, they must be stand and filtrated. The different brands of light diesel oil could not be used together.

Name	Code	Application scope and function
Sealant	AT1545 oxygen-weary type pipe-thread sealant	It's suitable to be used to seal the pipe-thread of hydraulic system and pneumatic system or be used on the surface with little oil.
	AT262 pipe-thread fixed sealant	It's used to fix and seal the M10~M20 screws and the ones be endured intense vibration and impact.
	AT598 silica seal glue	It is used to seal the connected surface of gearbox, water pump, valve, engine and so on.
Grease	2# or 3# lithium based grease GB 7324-1994	It's suitable to be used to lubricate the fiction position, rolling bearing and sliding bearing of any kinds of engineering machinery between -20~120 °C.
Cleanin g agent	AT1755 cleaning agent	It's used to clean the surface of metals and enhance the adhesion strength between repair agent, pope-thread fixed sealant and substrate.

1.3 Tightening Torque and Correlation Criterion

Torque control classification table of the bolts of LG958L loader

Importance					
I (Most Important)		II (Important)		III (Less important)	
Position	Size	Position	Size	Position	Size
Flanges of the Front Frame Articulated Hole	M12	Multiple Valve Fixed Plate	M16	Balance Iron	M30
Flanges of the Rear Frame Articulated Hole	M12	Bolts of cover on the valve block	M12	Rear taillamp hood	M10
Bolt of the Front Frame Articulated Hole	M16	Bolts of cover on small cavity steel pipes of boom cylinder and hose of big cavity	M10	Bolts of fixing valve bolts	M12
Bolts of front and rear axle	M30	Bolts on multiple valves	M12 、 M10	Fixed 2 way pipes	M12
Fixed Multiple Valve	M12	Bolts on priority valves	M12 、 M10	Circuit block assembly	M10
Front, Middle and Rear Transmission Shaft Locknuts	M12	Bushing of rear axle plate	M16	Bolts of pins on the rear frame	M16
The Middle Supporting Bolts of the Transmission Shaft	M14	Bolts of operation devices assembly	M12	Right and left frame	M12
Hub Nut	M20	Booster Assembly	M10	Right and left ladder	M12
		Bolts of fixed gas holder assembly	M12	Right and left handrails	M12
		Bolts of oil inlet/outlet pipes of multiple valve	M12	Bucket indicating lever, guard plate	M10

		Engine hood Assembly	M16 , M12	Right and left headlights	M10
		Fuel tank	M16	Right and left light frame	M12
		Big cavity steel pipes and hose of small cavity of bucket cylinder	M10	Right and left render	M12
		Priority valve Assembly	M14	Bolts of fixed pin shaft	M16
		Bolts of oil inlet/outlet hoses of working pump and steering pump	M12	Pins of steering cylinder	M12
		Steering device	M10	Support plate of oil – water separator	M10
		Frame of gearbox	M12	Hood of rear light	M10
		Operation box assembly	M12		
		Frame of seat	M12		
		Bolts of fuel tank assembly	M24		

Explain:

1. Class C (Less Important) includes the common bolts and screws which are less than M10 and the strength of which are below 8.8 level. The torque of common bolts and screws, whose strength are below 8.8 level, should be referred to attached table “Table of the Torque of Common Bolts”.
2. The common bolts and screws, which are not mentioned in the table or the process of assembling, follow the class C. The tightening torque can refer to attached table 2 “Table of the Torque of Common Bolts” of the “Assembling Criterion of the Screw Fixing Part”.
3. The torque of common bolts and screws, which fix the way of rubber hose and clips, is not required.

Just tighten it and keep the hose circular.

4. Torque of common bolts, whose diameter is more than 16, are shown as followed:

A (Most important):

1) Bolts of front and rear axle M30: tightening torque: 730 ± 70 Nm

2) Bolts of Hub M20: tightening torque: 530 ± 50 Nm

B (Important):

Bolts of Oil tank M24: tightening torque: 320~480 Nm

C (Less important):

1) Balance iron M30: tightening torque: 660~800 Nm

5. If the assembly has some elastic parts, the torque of which should follow these regulation:

(1) Bolts of engine and gearbox and converter assembly M20 (24): tightening torque: 120~200 Nm. Fixing bolt of gear box M27: 530 ± 50 N.m. Bolts of Radiator assembly M12: tightening torque: 15~35 Nm

(2) Bolts of Cab assembly M30: tightening torque: 220~350 Nm

Note: Because the elastic parts in the cab may vary with weather, the tightening torque may be not proper and please refer to the deformation volume of elastic parts.

6. Fixing bolts on the wind guard glass of common cab air conditioner M6: 3~5Nm.

7. The torque wrench in testing are: pointer-type torque wrench 0~70N.m , 0~140N.m 0~350N.m, 0~800N.m.

The bolts of A and B positions should be assembled follow the tightening torque as table 1 “Tables of the Torque of Common 8.8 Level Bolts” of the “Assembling Criterion of the Screw Fixing Part”.. Bolts of C positions should be assembled in the range of torque. In the process of test, it will be qualified if the torque in the range. And the error of torque wrench must be considered.

8. If the connection parts are made up from cast iron or aluminum, the torque should follow Table 3 “Table of the Torque of Common Bolts for Cast Iron and Aluminum Connection Parts” of the “Assembling Criterion of the Screw Fixing Part”.

9. Before assembly, check each part and make sure the shape, dimension and type are all right. Furthermore, check the part whether they are clean or be scratched. Do not assemble the parts are not up to the mustard.

10. When assemble the hose, the true assembling situation require that after the connection between hose joint and oil port, the hose will not bring distortion and torque. So, the true assembly order is: tighten the hose curved end first and then tighten the straight end; Hose with joint should be tightened the joint end first. In the process of assembling, order may be different from the above order. No distortion and torque occur other orders could be used. On contrast, the order above must be obeyed. Loosen the straight end first, after tightening the curved end, tighten the other end.

11. When assemble electrical wire, make sure that the routing to be more reasonable. After assembling, the wire could not extrude or rub other pipeline.

12. When assembling the joint, 24° taper seal and

joint bolts, the tightening torque should follow the Table 4, 5, 6.

Table 1: Table of the Torque of Common 8.8 Level Bolts

Nominal Diameter of Bolts: mm	Importance		
	A	B	C
M6			12±3
M8		28±5	28±7
M10	52±7	52±10	52±13
M12	90±15	90±20	90±25
M14	145±20	145±28	145±35
M16	225±30	225±40	225±52

Table 2: Table of the Torque of Common Bolts

Bolts Strength Grades	Yield Strength N/mm ²	Bolts Nominal Diameter mm				
		6	8	10	12	14
		Tightening torque N·m				
4.6	240	4~5	10~12	20~25	36~45	55~70
5.6	300	5~7	12~15	25~32	45~55	70~90
6.8	480	7~9	17~23	33~45	58~78	93~124
8.8	640	9~12	22~30	45~59	78~104	124~165
10.9	900	13~16	30~36	65~78	110~130	180~210
12.9	1080	16~21	38~51	75~100	131~175	209~278
Bolts Strength Grades	Yield Strength N/mm ²	Bolts Nominal Diameter mm				
		16	18	20	22	24
		Tightening torque N·m				
4.6	240	90~110	120~150	170~210	230~290	300~377
5.6	300	110~140	150~190	210~270	290~350	370~450
6.8	480	145~193	199~264	282~376	384~512	488~650
8.8	640	193~257	264~354	376~502	521~683	651~868
10.9	900	280~330	380~450	540~650	740~880	940~1120
12.9	1080	326~434	448~597	635~847	864~1152	1098~1464
Bolts Strength Grades	Yield Strength N/mm ²	Bolts Nominal Diameter mm				
		27	30	33	36	39
		Tightening torque N·m				
4.6	240	450~530	540~680	670~880	900~1100	928~1237
5.6	300	550~700	680~850	825~1100	1120~1400	1160~1546
6.8	480	714~952	969~1293	1319~1759	1694~2259	1559~2079
8.8	640	952~1269	1293~1723	1759~2345	2259~3012	2923~3898
10.9	900	1400~1650	1700~2000	2473~3298	2800~3350	4111~5481
12.9	1080	1606~2142	2181~2908	2968~3958	3812~5082	4933~6577

Table 3: Table of the Torque of Common Bolts for
Cast Iron and Aluminum Connection Parts

Bolts level and torque Bolt type	8.8		10.9	
	Torque (Nm)		Torque (Nm)	
	Cast Iron	Aluminum	Cast Iron	Aluminum
M8	20~25	15~20	28~33	15~20
M10	45~50	25~30	55~60	25~30
M12	70~80	50~55	100~105	50~55
M14	110~125	80~90	150~165	80~90
M16	160~180	120~140	220~240	120~140
M18	205~230	165~180	295~320	165~180

Table 4: Tightening Torque of the Joint

Joint with copper pad seal or taper screw seal		Joint with O-type seal	
Joint Type	Tightening torque Nm	Joint Type	Tightening torque Nm
M14、G1/4	34±5	M12×1.5	35±3.5
M18、G3/8	73±10	M14×1.5	45±4.5
M20、G1/2	93±10	M16×1.5	55±5.5
M24	142±20	M18×1.5	70±7.0
M27、G3/4	205±30	M20×1.5	80±8.0
M33、G1	421±49	M22×1.5	110±10
M42	872±98	M27×2.0	170±17
		M33×2.0	310±31
		M36×2.0	310±31

Table 5: Tightening Torque of 24° Taper Seal

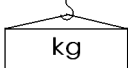
Tightening torque of 24° Taper Seal Joint Nut	
Type	Tightening torque Nm
M12×1.5	15~20
M14×1.5	25~30
M16×1.5	30~35
M18×1.5	35~45
M20×1.5	40~50
M22×1.5	45~65
M24×1.5	45~65
M26×1.5	65~85
M30×2	85~110
M36×2	120~145
M42×2	170~210

Table 6: Tightening Torque of Joint Bolts

Screw Type	Tightening torque (Nm)
M10×1	25~35
M12×1.5	60~75
M14×1.5	80~100
M16×1.5	105~115
M18×1.5	20~130
M22×1.5	140~155
M24×1.5	160~180
M27×2	190~230
M33×2	270~320

1.4 Marker

To emphasize the important of safety and quality more definitely, the followed signs are used as markers.

Marker	Items	Remark
	Safety	Specially take care of the safety during the operation.
		Specially take care of the internal pressure during the operation.
	Attention	Pay attention to the technical requirements and make sure the operations reach the requirements in operation
	Weight	Weight of assembly and equipment, and disassembling method. Pay attention to choosing the right spreader and the position in operation.
	Tightening torque	Pay more attention to the tightening torque of assembly in assembling.
	Coating	Section where need coat adhesive and grease
	Oil, Water	Adding some capacity of engine oil, water or fuel oil
	Outpour	The part where outpour oil or water, and the outpour capacity

1.5 Hoisting Explanation

1. When it is not easy to assemble the parts from complete appliance, check the following items:

- Check that whether all of screws of the

part have been assembled.

- Check whether the assembly is hindered by some other parts.

2. Tight Wire (could be replaced by rope which has the same carrying capacity)

1) Wire rope should be in the middle of the hook. If be in one end of the hook, the wire rope may drop from hook and that may cause serious accident. The biggest strength is in the middle of the hook. As shown in Fig.1-1.

2) One single wire rope is forbidden. Make sure that two or more ropes are used in hoisting the heavy.

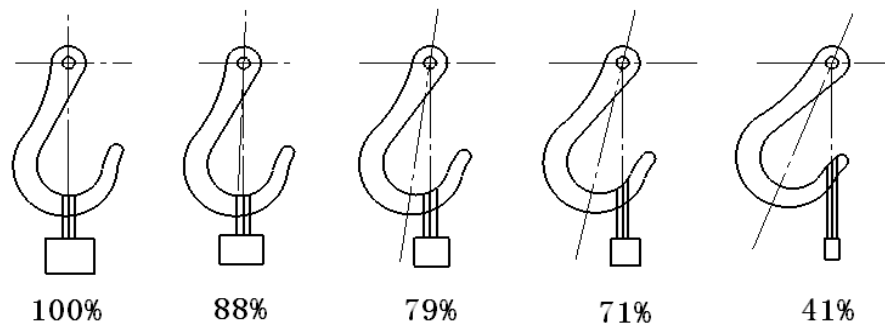


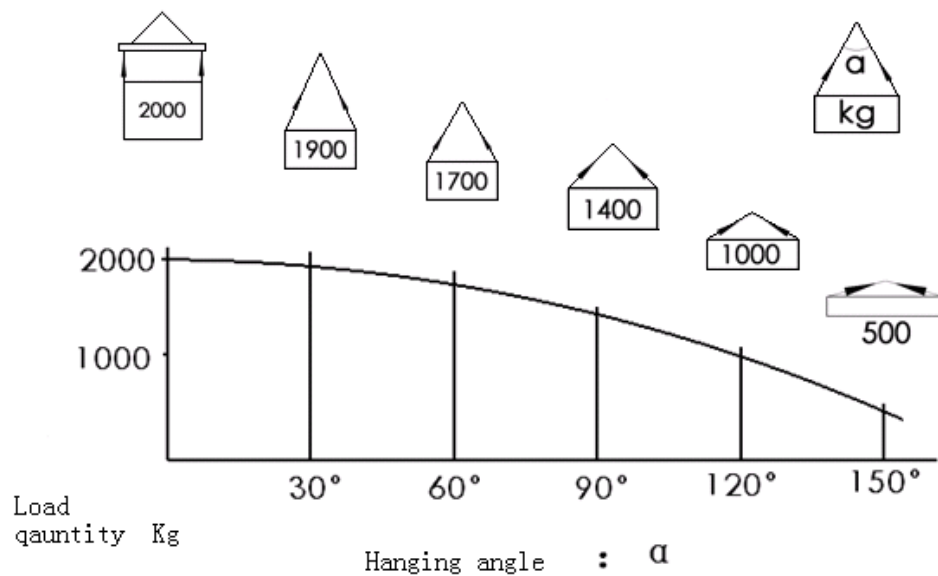
Fig. 1-1

Hoisting with one wire rope may  cause the heavy rotates, and then the wire rope looses or the heavy slides from the fixed location which will cause serious accident.

3) The hoisting angle between wire rope and hook should not be oversize when hoist the extremely heavy loading.

When the hook hoists heavy loading with two or more ropes, the bigger of angle between wire rope and hook is, the heavier of each rope loads. The Fig.1-2 shows the changes of allowed loading (kg) in different angles when hoisting with two ropes

(The limited vertical hoist loading of each rope is 1000 kg). It can hoist 2000kg when two ropes in the vertical location. But when the angle reaches to 120°, the ropes can only hoist 1000kg. Another hand, the force of the ropes would be 4000kg when the angle reaches 150°, although the loading is only



2000kg.

Fig. 1-2

1.6 Adjust Clearance of Typical Parts

No	Description of Typical Parts	Adjustment Requirement	
		Sleeve (Unilateral clearance)	Joint Bearing (Unilateral clearance)
1	Joint of Boom and Becket	0.5~1.5	\
2	Joint of Boom and Front Frame	0.5~1.5	\
3	Joint of Boom and Rocker Arm	0.5~1.5	\
4	Joint of Boom Oil Cylinder and Boom	0.5~1.5	1~2
5	Joint of Boom Oil Cylinder and Front Frame	0.5~1.5	1~2
6	Joint of Boom Oil Cylinder and Back Frame	0.5~1.5	1~2

1.7 Related Parameters of Electric Circuit

1.7.1 LG956L Related Parameters

No.	Name	Section Area (mm ²)	Color	Remark
0	Grounding Line	5.00	Black	
0	Grounding Line	2.00	Black	
2	Upper Connection wire on fuse box	5.00	Red	
2	Connection wire from battery relay to fuse box	5.00	Red	
3	Power Line of Whole Vehicle Line	2.00		
4	Connection wire from rear Rear light High Beam	1.25	Brown/black	
4	Connection wire from Prying Plate to Rear Headlight High Beam	1.25		

5	Connection wire of low beam of rear light	1. 25	Brown/black	
5	Connection wire of low beam of rear light	1. 25		
6	Right Turn Lamp wire	0. 85	White/ Purple	
7	Left Turn Lamp wire	0. 85	Green/ Orange	
8	Brake Lamp switch Wire	0. 85	Yellow/Brown	
8	Brake Lamp Wire	0. 85	Yellow/Brown	
9	Reversing Buzzer, Reversing Lamp Connection wire	0. 85	Blue/Yellow	
10	Front Headlight High Beam Connection wire	0. 85	Brown/green	
11	Front Headlight Low Beam Connection wire	1. 25	Brown/ Blue	
12	Horn Button Connection wire	1. 25	Yellow/ green	
12	Electric Horn Control Wire	0. 85	Yellow/ green	
13	Connection wire of Hand Brake Indicator Lamp	0. 85	White/ Yellow	
14	Engine Water Temperature Sensor Wire	0. 85	White/Brown	
15	Torque Converter Oil Temperature Sensor Wire	0. 85	White/Brown	
17	Gearbox pressure Sensor Wire	0. 85	Purple/Black	
18	Brake Air Pressure Sensor Wire	0. 85	Purple/green	
19	Oil level Signal Wire	0. 85	Yellow/ Black	
19	Oil level sensor Wire	0. 85	Yellow/ Black	
20	Charge Signal Wire	0. 85	Purple /White	
20	Charge Alarm Lamp Wire	0. 85	Purple /White	
21	Connection wire of the upper end of fuse box	2. 00	Red/Yellow	
22	Connection wire from Electric Lock to Starting Relay	0. 85	Yellow/ White	
22	Connection wire from Electric Lock to Starting Relay and oil cut-off valve relay	0. 85		
23	Wire of Water Sprayer motor	0. 85	Purple	
24	Scraper Reposition Wire	0. 85	Yellow/ Blue	
25	Scraper Low Speed Connection	1. 25	Brown/ Yellow	
26	Scraper High Speed Connection	1. 25	Green/Black	
28	Battery relay coil wire	0. 85	White/blue	
28	Battery relay coil “+” pole	0. 85	White/blue	
29	Connection wire from cut-off valve relay to cut-off valve	2. 00		

30	Wire of Indicating Width Lamp	0.85	Green/ Brown	
30	Indicating Width Lamp and connection wire	0.85	Green/ Brown	
31	Wire of Engine Oil Pressure Alarm Lamp	0.85	White/Black	
31	Wire of Engine Oil Pressure Alarm	0.85	White/Black	
32	Wire of Brake Air Pressure Alarm Lamp	0.85	Gray/Black	
33	Wire of Flasher Signal Output	0.85	Purple/Yellow	
34	Wire of Front Headlight	1.25	Brown/White	
35	Output wire of headlight and backlight	1.25	Red/Black	
36	Wire of warm wind and air conditioning	3.00	Red	
37	Power wire of Scraper	1.25	Orange/Red	
38	Reserved Power wire	1.25	White/Red	
39	Power wire of headlight	1.25	Blake/red	
40	Power wire of Brake lamp and backing lamp	0.85	Red/black	
40	Power wire of radio	0.85	Red/black	
40	Outlet wire of fuse box	0.85	Red/black	
41	Power wire of radio	0.85	Brown/Red	
42	Fuse output wire	1.25	Red	
43	Power wire of timer	0.85	Red/ Brown	
44	Power wire of combination switch	1.25		
45	Power wire of rear light	1.25	Green/Red	
46	Power wire of brake solenoid valve	0.85	Red/green	
47	Power wire of rear light	1.25	Red/gray	
48	Power wire of computer box	0.85		
49	Connection Wire from combination switch to medium relay	0.85	Gray/Yellow	
50	Connection Wire from combination switch to medium relay	0.85		
52	Wire of computer box indicating lamp	0.85		
53	Connection Wire of wind heater	0.85	Green/blue	
54	Connection Wire from emergency brake to hand brake	0.85	Brown/green	
55	Connection Wire from brake solenoid valve to hand brake	0.85	Brown/blue	
56	“+” connection wire of battery	5.00	Red	

56 (a)	“+” connection wire of battery	5.00	Red	
56 (b)	Connection Wire from battery to electric pump	5.00	Red	
56 (c)	“+” connection wire of battery	5.00	Red	
56 (d)	“+” pole wire of battery	5.00	Red	
57	Power cut-off Signal wires of computer box	0.85		
58	Signal wires of computer box backing	0.85		
59	Signal wires of starting of computer box	0.85	Light pink	
60	Connection Wire from Electrical Lock to start Switch	0.85	Yellow	
61	Connection Wire of preheating indicating lamp	0.85	Blue/black	
62	Wire From medium relay to solenoid valve(Boom)	0.85	Brown/white	
63	Wire From medium relay to solenoid valve(Bucket)	0.85	Brown/ Yellow	
64	Wire of reproaching switch(Boom)	0.85	Green/black	
65	Wire of reproaching switch(Bucket)	0.85	Green/black	
69	Charging warming lamp wire	0.85		
70	Neutral relay connection wire	1.25		
71	Wire of rear light	0.85		
72	Wire of warning light	0.85		
73	Wire of timer	0.85	White/orange	
76	Power Wire of power cut-off, backing, start relay	0.85		
77	Power Wire of spare plugs	1.25	Red	
80	Power Wire of gauge lights	0.85	Red/ Blue	
82	Signal Wire of coarse filter warning	0.85		
92	Reversed Signal Wire(Starting of electrical lock)	1.25	Green/white	
96	Signal Wire of emergency turning	0.85		
121	Power Wire of from fuse box to electrical lock	1.25	Gray/Red	
142	Power Wire of reproaching switch	0.85		
2a/2b	Engine charging wire	5.00	Black	

1.7.2 LG958L/LG959 Related Parameters

No.	Name	Section	Color	Remar
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		Area (mm ²)		k
0	Grounding Line	5.00	Black	
0	Grounding Line	2.00	Black	
2	Upper Connection wire on fuse box	5.00	Red	
2	Connection wire from battery relay to fuse box	5.00	Red	
3	Power Line of Whole Vehicle Line	2.00		
4	Connection wire from rear Rear light High Beam	1.25	Brown/black	
4	Connection wire from Prying Plate to Rear Headlight High Beam	1.25		
5	Connection wire of low beam of rear light	1.25	Brown/black	
5	Connection wire of low beam of rear light	1.25		
6	Right Turn Lamp wire	0.85	White/ Purple	
7	Left Turn Lamp wire	0.85	Green/ Orange	
8	Brake Lamp switch Wire	0.85	Yellow/Brown	
8	Brake Lamp Wire	0.85	Yellow/Brown	
9	Reversing Buzzer, Reversing Lamp Connection wire	0.85	Blue/Yellow	
10	Front Headlight High Beam Connection wire	0.85	Brown/green	
11	Front Headlight Low Beam Connection wire	1.25	Brown/ Blue	
12	Horn Button Connection wire	1.25	Yellow/ green	
12	Electric Horn Control Wire	0.85	Yellow/ green	
13	Connection wire of Hand Brake Indicator Lamp	0.85	White/ Yellow	
14	Engine Water Temperature Sensor Wire	0.85	White/Brown	
15	Torque Converter Oil Temperature Sensor Wire	0.85	White/Brown	
17	Gearbox pressure Sensor Wire	0.85	Purple/Black	
18	Brake Air Pressure Sensor Wire	0.85	Purple/green	
19	Oil level Signal Wire	0.85	Yellow/ Black	
19	Oil level sensor Wire	0.85	Yellow/ Black	
20	Charge Signal Wire	0.85	Purple /White	
20	Charge Alarm Lamp Wire	0.85	Purple /White	
21	Connection wire of the upper end of fuse box	2.00	Red/Yellow	
22	Connection wire from Electric Lock to Starting	0.85	Yellow/ White	

	Relay			
22	Connection wire from Electric Lock to Starting Relay and oil cut-off valve relay	0.85		
23	Wire of Water Sprayer motor	0.85	Purple	
24	Scraper Reposition Wire	0.85	Yellow/ Blue	
25	Scraper Low Speed Connection	1.25	Brown/ Yellow	
26	Scraper High Speed Connection	1.25	Green/Black	
28	Battery relay coil wire	0.85	White/blue	
28	Battery relay coil “+” pole	0.85	White/blue	
29	Connection wire from cut-off valve relay to cut-off valve	2.00		
30	Wire of Indicating Width Lamp	0.85	Green/ Brown	
30	Indicating Width Lamp and connection wire	0.85	Green/ Brown	
31	Wire of Engine Oil Pressure Alarm Lamp	0.85	White/Black	
31	Wire of Engine Oil Pressure Alarm	0.85	White/Black	
32	Wire of Brake Air Pressure Alarm Lamp	0.85	Gray/Black	
33	Wire of Flasher Signal Output	0.85	Purple/Yellow	
34	Wire of Front Headlight	1.25	Brown/White	
35	Output wire of headlight and backlight	1.25	Red/Black	
36	Wire of warm wind and air conditioning	3.00	Red	
37	Power wire of Scraper	1.25	Orange/Red	
38	Reserved Power wire	1.25	White/Red	
39	Power wire of headlight	1.25	Blake/red	
40	Power wire of Brake lamp and backing lamp	0.85	Red/black	
40	Power wire of radio	0.85	Red/black	
40	Outlet wire of fuse box	0.85	Red/black	
41	Power wire of radio	0.85	Brown/Red	
42	Fuse output wire	1.25	Red	
43	Power wire of timer	0.85	Red/ Brown	
44	Power wire of combination switch	1.25		
45	Power wire of rear light	1.25	Green/Red	
46	Power wire of brake solenoid valve	0.85	Red/green	
47	Power wire of rear light	1.25	Red/gray	
48	Power wire of computer box	0.85		

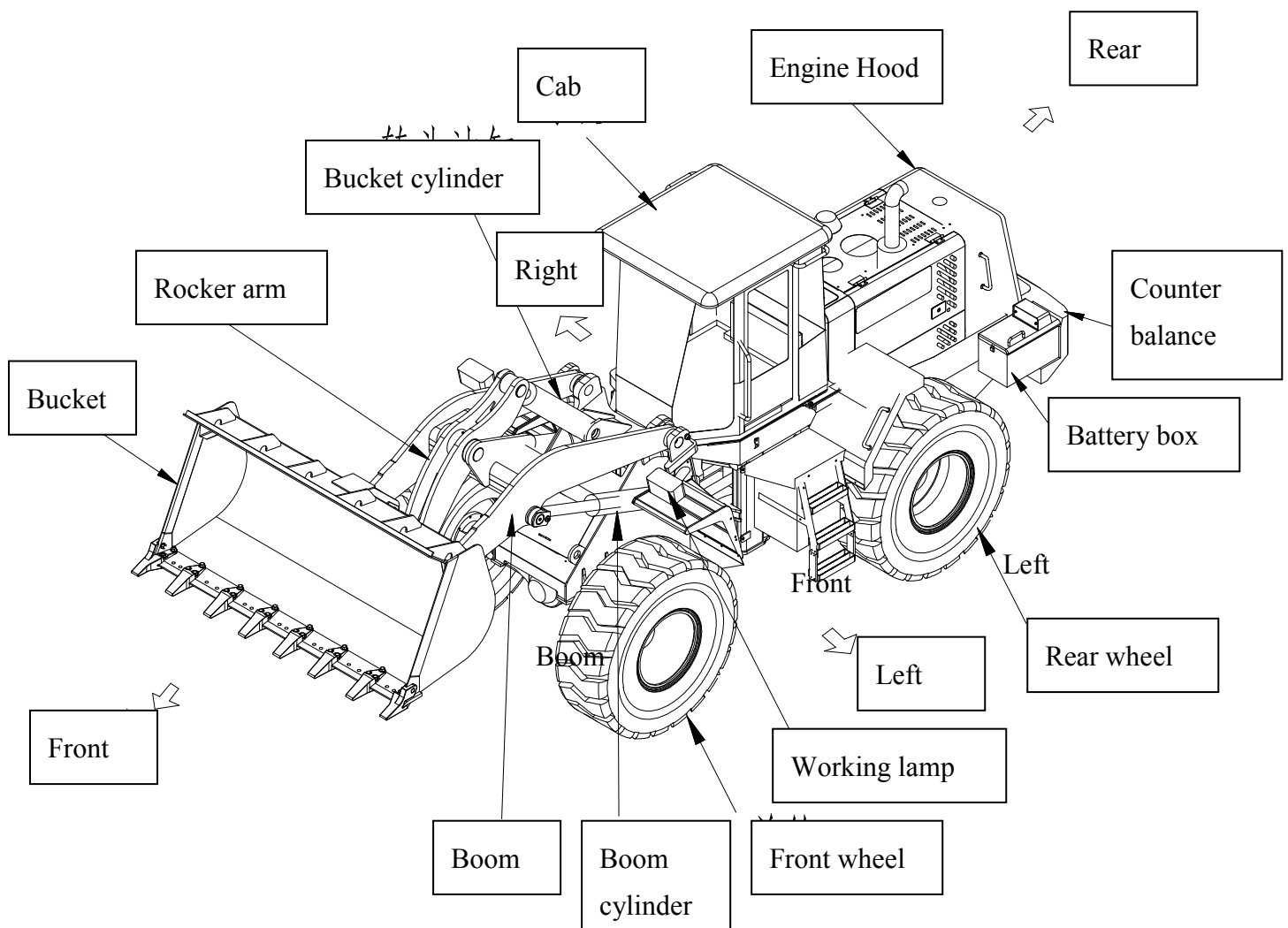
49	Connection Wire from combination switch to medium relay	0.85	Gray/Yellow	
50	Connection Wire from combination switch to medium relay	0.85		
52	Wire of computer box indicating lamp	0.85		
53	Connection Wire of wind heater	0.85	Green/blue	
54	Connection Wire from emergency brake to hand brake	0.85	Brown/green	
55	Connection Wire from brake solenoid valve to hand brake	0.85	Brown/blue	
56	“+” connection wire of battery	5.00	Red	
56 (a)	“+” connection wire of battery	5.00	Red	
56 (b)	Connection Wire from battery to electric pump	5.00	Red	
56 (c)	“+” connection wire of battery	5.00	Red	
56 (d)	“+” pole wire of battery	5.00	Red	
57	Power cut-off Signal wires of computer box	0.85		
58	Signal wires of computer box backing	0.85		
59	Signal wires of starting of computer box	0.85	Light pink	
60	Connection Wire from Electrical Lock to start Switch	0.85	Yellow	
61	Connection Wire of preheating indicating lamp	0.85	Blue/black	
62	Wire From medium relay to solenoid valve(Boom)	0.85	Brown/white	
63	Wire From medium relay to solenoid valve(Bucket)	0.85	Brown/ Yellow	
64	Wire of reproaching switch(Boom)	0.85	Green/black	
65	Wire of reproaching switch(Bucket)	0.85	Green/black	
69	Charging warming lamp wire	0.85		
70	Neutral relay connection wire	1.25		
71	Wire of rear light	0.85		
72	Wire of warning light	0.85		
73	Wire of timer	0.85	White/orange	
76	Power Wire of power cut-off, backing, start relay	0.85		

77	Power Wire of spare plugs	1. 25	Red	
80	Power Wire of gauge lights	0. 85	Red/ Blue	
82	Signal Wire of coarse filter warning	0. 85		
92	Reversed Signal Wire(Starting of electrical lock)	1. 25	Green/white	
96	Signal Wire of emergency turning	0. 85		
121	Power Wire of from fuse box to electrical lock	1. 25	Gray/Red	
142	Power Wire of reproaching switch	0. 85		
2a/2b	Engine charging wire	5. 00	Black	

CHAPTER II

STRUCTURE AND WORKING PRINCIPLE OF LOADER

2.1 General View



2.2 Complete Appliance

Performance and Parameter

			LG956L	LG958L	LG959
Bucket Capacity m ³			3.0	3.0	3.0
Rated Loading Capacity N			5000	5000	5000
Lifting time (full load) S			6.4	6.4	6.4
Lowering time (empty bucket) S			3.6	3.6	3.6
Dumping time (empty bucket) S			1.3	1.3	1.3
Travel speed km/h	Forward	Gear I	12.3	6.5	6.5
		Gear II	40.5	11.5	11.5
		Gear III		23	23
		Gear IV		38	36
	Backward	Gear I	16.1	6.5	6.5
		Gear II		11.5	11.5
		Gear III		23	23
Max. Breakout force kN			≥180	≥180	≥180
Max. Traction (rim-pull) force (supplied by engine) kN			≥160	≥150	≥150
Max. Tipping load kN			≥110	≥110	≥110
Max. climbing ability			30°	30°	30°

Min. turning radius (outside of the rear wheel) mm		6036	6036	6036
Level passing radius (outside of bucket) mm		6746	6746	6746
Max. Angle of rotation		38°	38°	38°
Wheel tire inflation pressure MPa	Front wheel	0.39 ± 0.01	0.39 ± 0.01	0.39 ± 0.01
	Rear wheel	0.33 ± 0.01	0.33 ± 0.01	0.33 ± 0.01
The length of machine (The bucket keeps flat on ground) mm		8079	8079	8017
The width of machine (Outer flank of wheel) mm		2785	2785	2799
The width of bucket mm		3024	3024	3024
The height of vehicle mm		3382	3382	3382
Tread mm		2190	2190	2204
Wheel base mm		3200	3200	3179
Min. ground clearance mm		457	457	457
Max. unloading height (-45°Unloading angle) mm		3120	3120	3120
Unloading distance (-45°Unloading angle) mm		1130	1130	1130
Unloading angle		$\geq 45^\circ$	$\geq 45^\circ$	$\geq 45^\circ$
Complete vehicle operation weight kg		16900	16600	16600

2.3 General View

Unit: mm

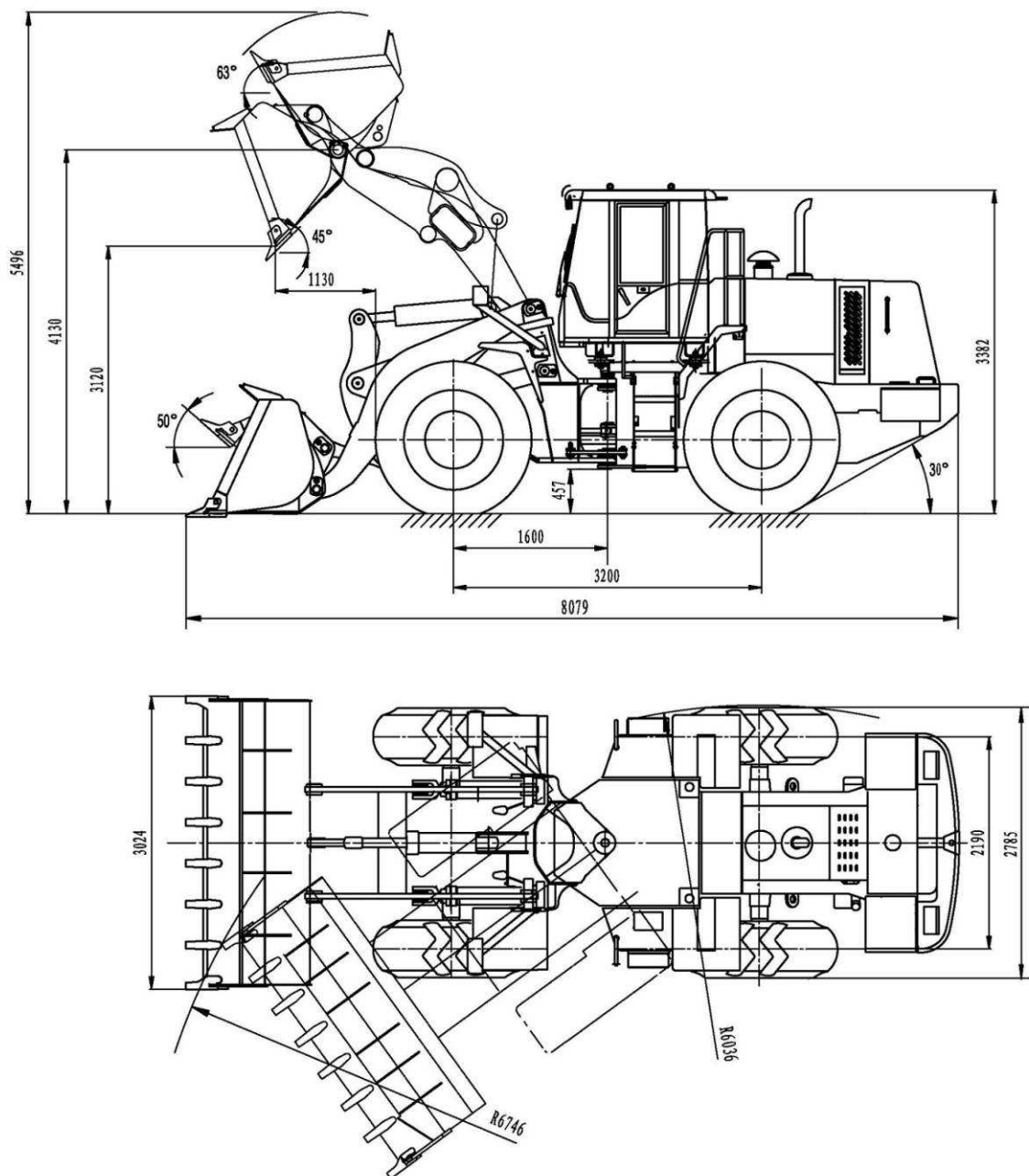


Fig.2-1 Overview of LG956L equipped with standard boom

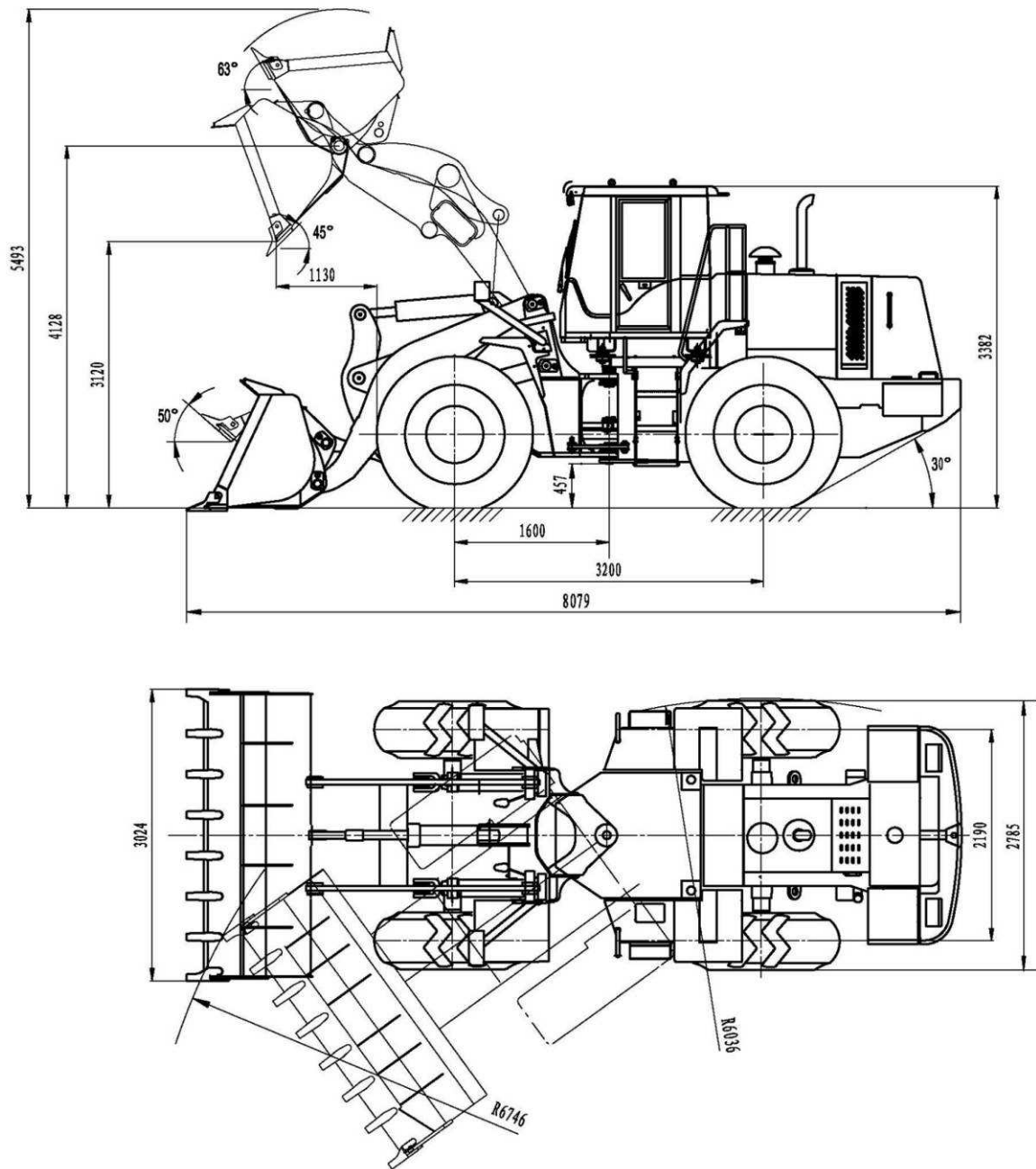


Fig.2-2 Overview of LG958L equipped with standard boom

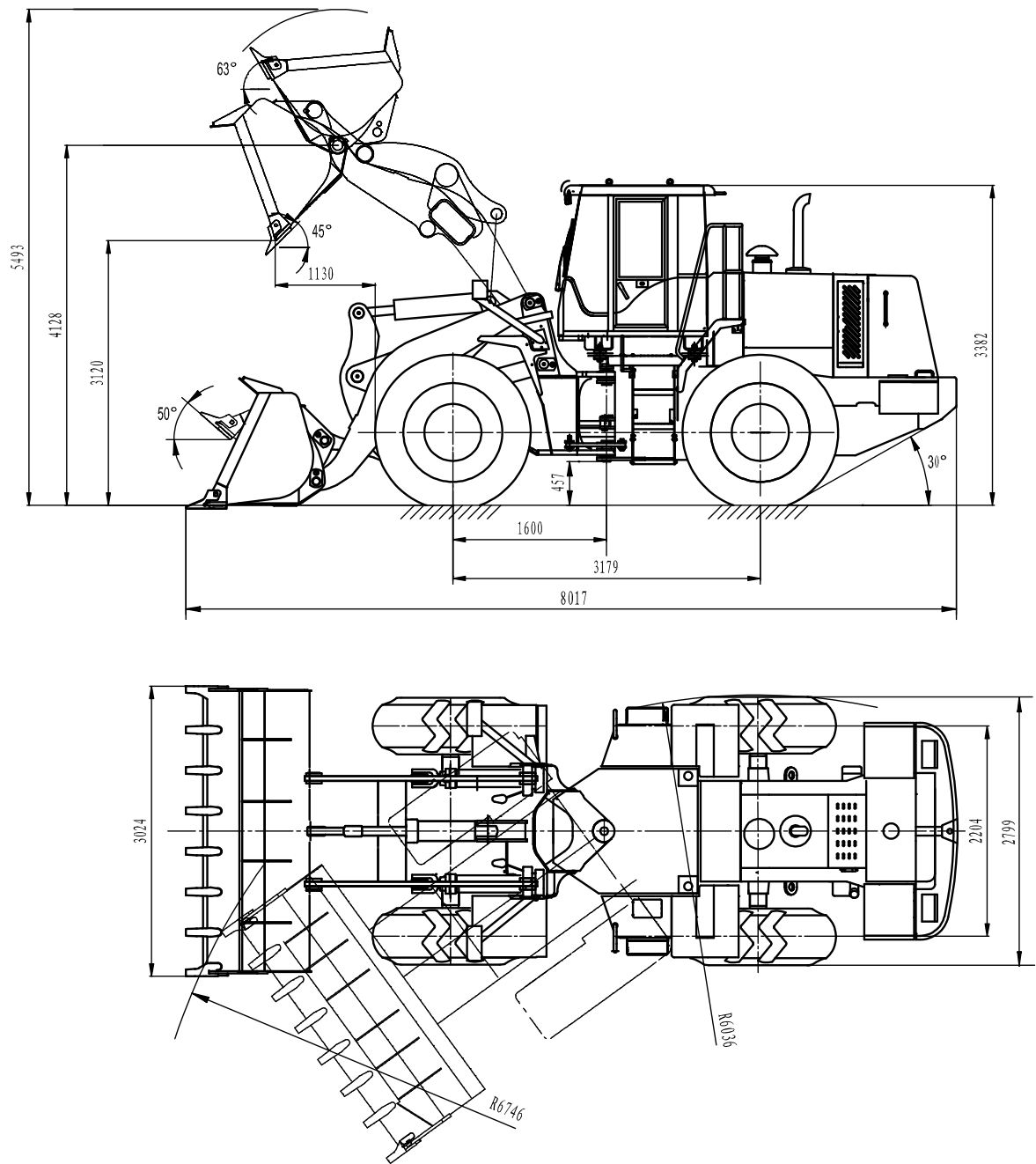


Fig.2-3 Overview of LG969 equipped with standard boom

2.4 Working Principles

2.4.1 Transmission System

The transmission mode of LG956L、LG958L、LG959 wheel loader is hydro-mechanical transmission, whose working parts are hydraulic torque converter. This kind of transmission has the following advantages:

1. Improve good automatic adaptability to the loader: Because of the use of hydraulic torque converter, it's possible that the traction force can change with the external resistance. This ensures that the engine can often work in the rated condition and avoid the flameout caused by the break of external resistance.
2. Lengthen the life of loader: The working medium of hydraulic transmission is liquid, which can improve the lubrication and damping effect to the parts, so the lives of corresponding parts are lengthened.
3. Improve the passing ability of the loader: The loader with hydraulic transmission device has good low speed stability and good passing ability. This kind of loader can be operated and driven in soft road, such as slob land, sandlot and snow land, and non-hard soil road.
4. Simplify the operation and improve the comfort of operation: The loader with hydraulic torque converter has the advantages of starting stably and accelerating rapidly. Hydraulic transmission makes the continuously variable to be possible in a large range, which brings advantages of reducing the

number of changing gears, simplifies the operation, releases the driver's tiredness. In the process of driving, the hydraulic parts also could absorb and reduce the vibration, which improves the comfort of driving.

Generally, transmission system is made up of hydraulic torque converter, transmission, transmission shaft, front/ rear driving axle and wheel. The power of transmission system is supplied by engine. Power is passed by the connection between engine flywheel and elastic plate stud-bolt of the hydraulic torque converter. The transmission process of whole appliance can be described as followed: When the loader is working, Power is transferred from engine flywheel to hydraulic torque converter. Then, it is from hydraulic torque converter to transmission. By the front and rear flanges, the power from transmission transmits to the front and back driving axle to drive the axle and then to drive the wheel forward. The figure of transmission system principle is shown in Fig.2.3-2.5.

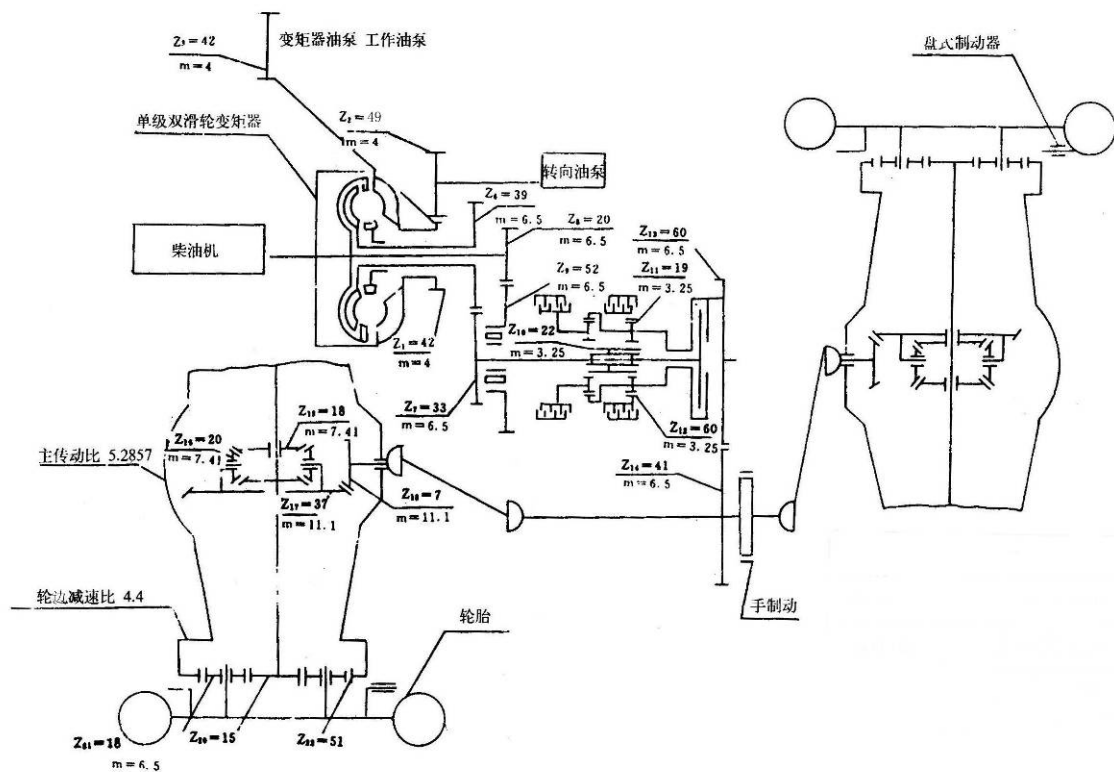
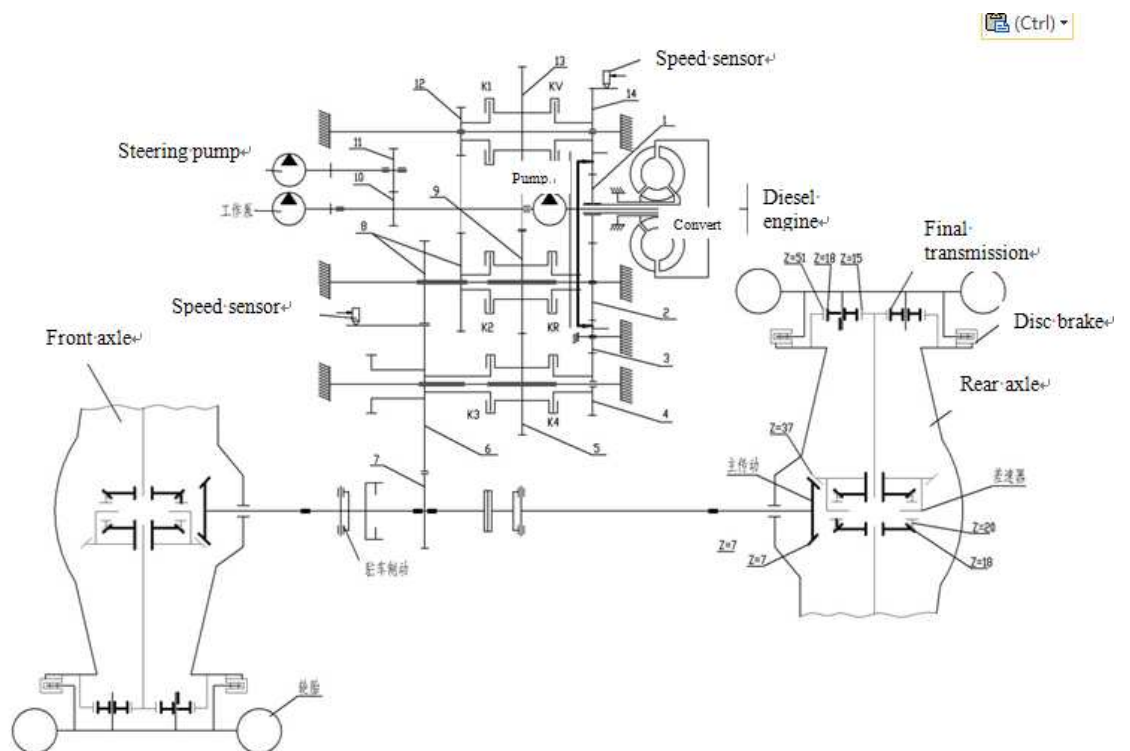


Fig.2-3 Principle diagram of LG956L Transmission System

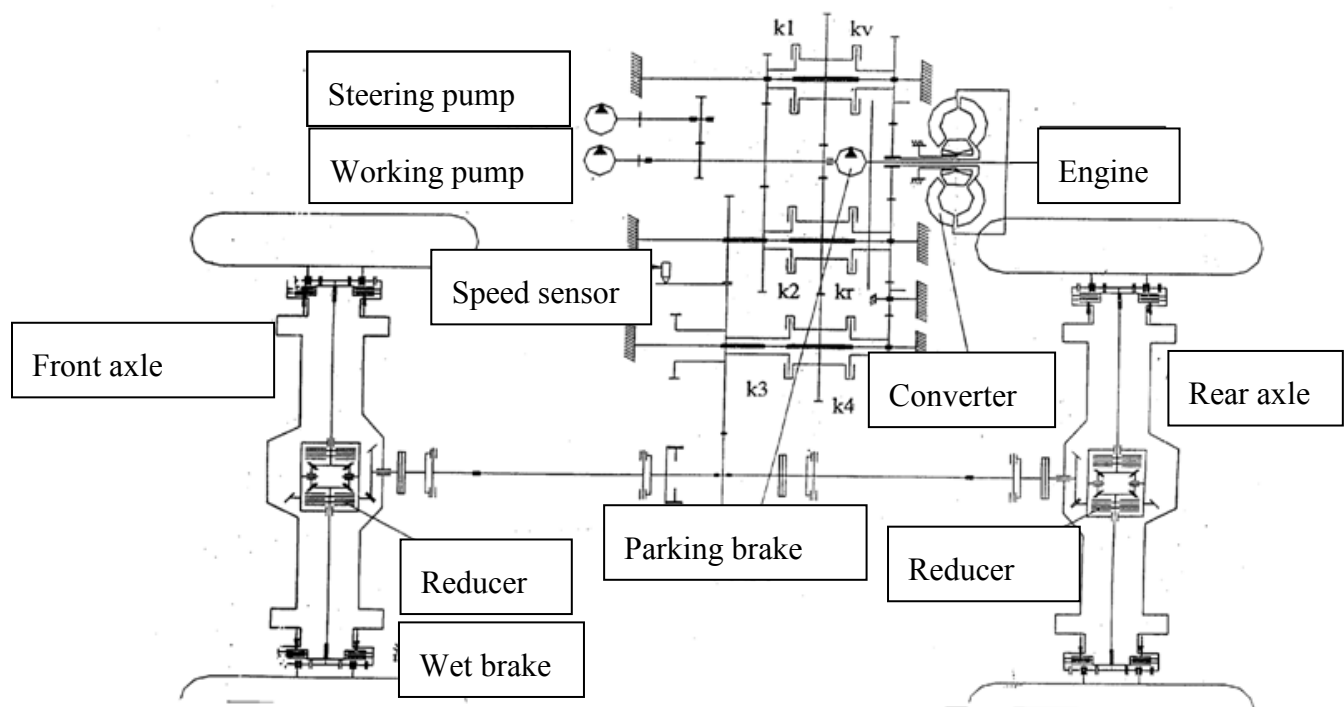


1.Input gear

2.KR steering gear

- 3.Middle shaft gear 4. 4-shift gear
- 5.K34 gear ring 6. 3-shift gear
- 7. Output gear
- 8. 2-shift gear big/small gear assembly
- 9.KR2 gear 10.Drive gear of working pump
- 11. Drive gear of steering pump
- 12. 1-shift gear 13.KV1gear
- 14.KV steering gear

**Fig. 2-4 Principle diagram of LG958L
Transmission System**



**Fig. 2-5 Principle diagram of LG969
Transmission System**

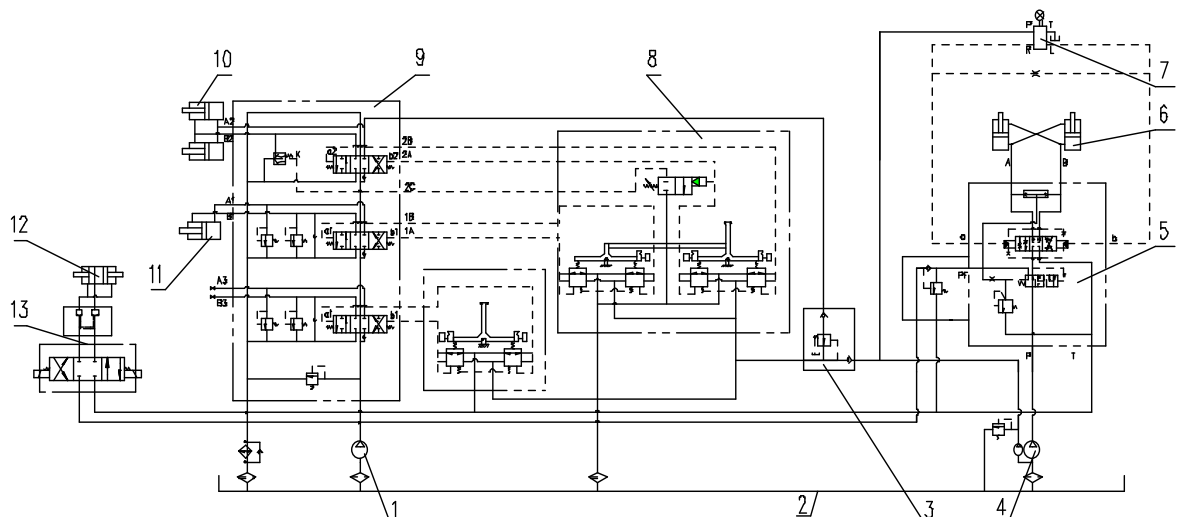
2.4.2 Hydraulic System

Hydraulic system includes working device hydraulic system and steering hydraulic system, and the working device hydraulic system is made

up of working pump, multiple valve, pilot valve, pressure choosing valve, boom cylinder, turning bucket oil cylinder, hydraulic oil tank and pipeline accessory, as show in Fig.2-5.

Hydraulic operation system is controlled by hydraulic pilot and the operation is convenient and flexible. Bucket unit includes three positions: dumping, neutral, withdrawing; Boom unit includes four positions: floating, lower, neutral and lifting. The safety adjustment pressure of hydraulic system safety valve is 18~18.5 MPa. The overloading pressure of turning bucket bigger cavity is 20.5 MPa and that of the small cavity is 12 MPa.

The steering system includes hydraulic pump, flow magnifying valve, steering device and steering cylinder. Oil circuit consists of pilot circuit and main circuit. Change of oil supply in pilot circuit is proportional to that from main circuit to steering cylinder. Safety valve is installed on the priority valve and the adjustment pressure of system is 16 Mpa.



1. Working pump 2. Hydraulic tank
3. Pressure selecting valve 4. Double pump

- 5. Priority valve 6. Steering cylinder
- 7. Steering device 8. Pilot valve
- 9. Multiple valve 10. Boom cylinder
- 11. Bucket cylinder 12. Rapid change cylinder 13. Soneid valve

Fig. 2-6 Principle diagram of LG956L、 LG958L、 LG959 Hydraulic System

2.4.3 Brake system

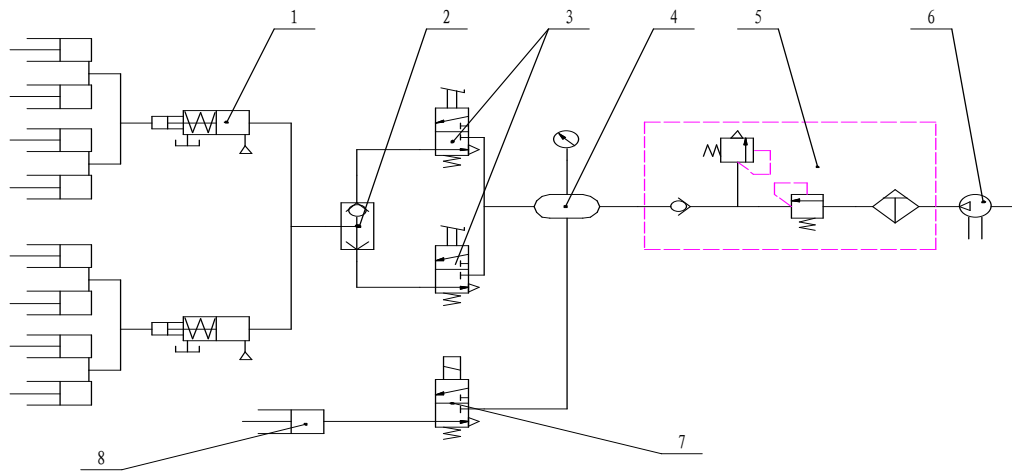
The brake system of wheel loader is the device to apply resistance to the driving loader for lowering it or stopping it, and, after loader stopping, to keep it in the original position, avoiding the movement caused by the road incline or effect from other outside forces.

Generally, wheel loader has two independence brake system: traveling brake system, emergency and parking brake system. Travelling brake system is used to speed up or decelerate during driving, which is controlled by brake padel; Parking brake is used to brake in case of emergency so that the loader stops at one place after parking and can not be moved due to external force or the tilted road.

Our products' brake system contains traveling brake system, emergency and parking brake system.

The driving brake system is used to slow down or stop when driving, which is similar with wheel loader's driving brake system. It can be divided to single pipeline or double pipeline according to the applied hydraulic circuit; It also can be divided into dry brake and wet brake, disc brake belongs to dry brake. (LG956L、 LG958L applies the dry brake and LG959 applies wet brake) .

1). Travelling brake system



1. Air intensifier pump 2. Shuttle valve
 3. Air brake valve 4. Gasholder
 5. Oil and water separator combination valve
 6. Air compressor 7. Brake solenoid valve
 8. Parking brake air cavity

Fig 2-7 LG956L Brake Principle diagram of double brake pedals

Traveling brake system is made up of double braking pedal and air-pushing-oil four wheels clamp-disc brake system, which uses four rear, four rear, 8 groups of brake forceps to improve the safety of the complete machine, shown in Fig.2-7.

In traveling, press the left pedal, the compressed air in the gasholder 4 enters into the air cavity of air intensifier pump 1 by brake valve 3 and shuttle valve 2. Then, it pushes the piston of air intensifier pump and transmits to the oil pipeline (oil pressure is about 14MPa). Brake oil pushes the piston of the pliers disc brake to press the friction plate to brake plate to brake the wheels, achieving the aim of deceleration or stop. At the same time the air

pressure signal is sent out and the power of the gear box is cut off.

In traveling, after treading the right pedal, the principle of braking is the same as the left pedal.

But the power of the gear box will not be cut off.

Loosen the brake plate, and the compressed air in the intensifier pump is discharged to the atmosphere by the brake valve. Then the brake relieves.

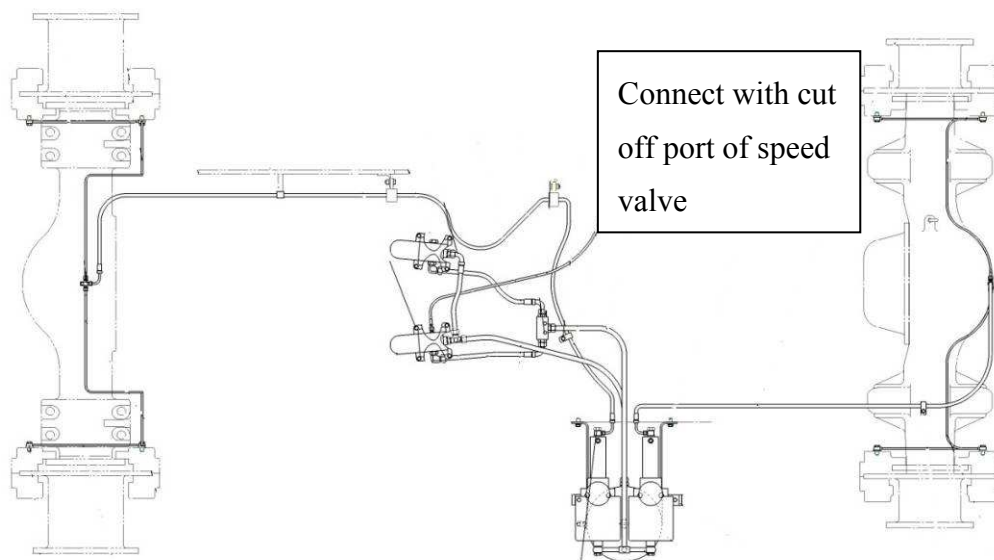


Fig 2-8 LG956L Brake Principle diagram of double brake pedals

Brake principle of LG958L is similar to LG956L, and the distinction is that when pressing the brake pedal, there is no pressure signal used to cut off the gearbox power.

The distinction between LG 956L and LG959 is that LG959 applied wet brake and brake friction plates are inside the driving axle. The brake effect to use wet brake is more reliable and more adaptive to more conditions.

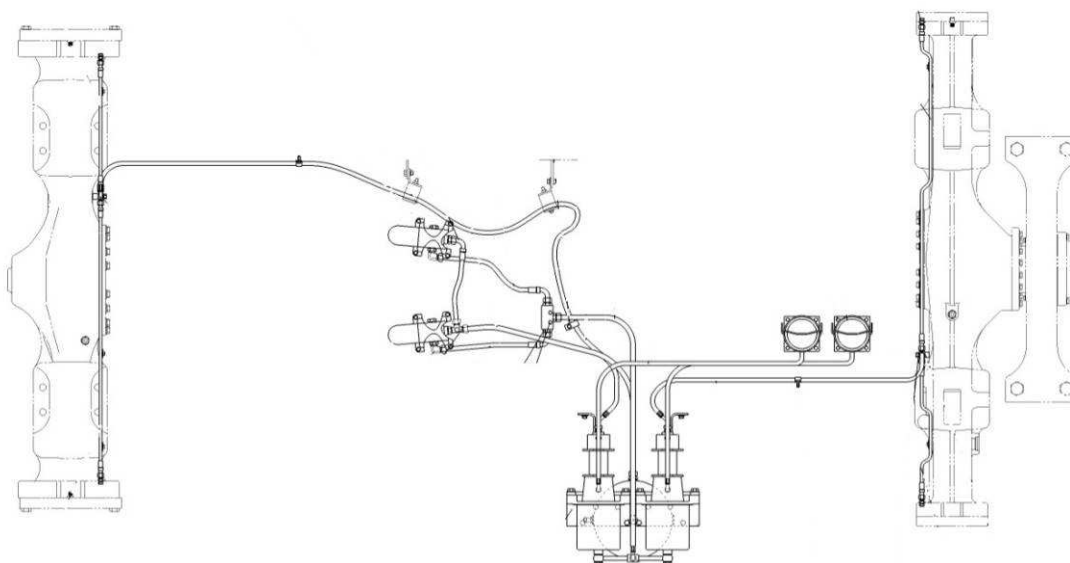


Fig 2-9 LG959 Brake Principle diagram of double brake pedals

2). Parking Brake System:

The parking brake system for the loader is used to brake in case of an emergency or when the air pressure of brake system is too low. But it is primarily used for stopping (parking) brake, so that when the loader stops working, prevent the loader from being tilt or due to external force.

Parking brake system is usually installed in front output shaft of the loader gearbox, manipulate manually or by gas chamber, open or clamp the brake by disc brake in order to achieve the purpose to brake or used to parking brake.

The failure rate of parking brake system is generally not very high, but if not paying attention to maintenance, some problems will happen on the brake system, such as slipping, wear of friction plates and loader that can not travel after the brake is released. The slipping phenomenon is caused by

the wear of friction plate. In general, the amount of wear should not exceed 3.5mm. The main reason causing the wear of the friction plate is that there is oil on the friction plate or moisture caused by the expansion of the friction plate. The reason that the loader can not travel caused by the friction plate after the brake lifting phenomenon expansion, so regularly clean the friction plate and keep it clean and dry. In addition, after the loader is used continuously for a period of time (3-4 months), adjust the clearance between friction plate and brake drum in order to prevent brake failure.

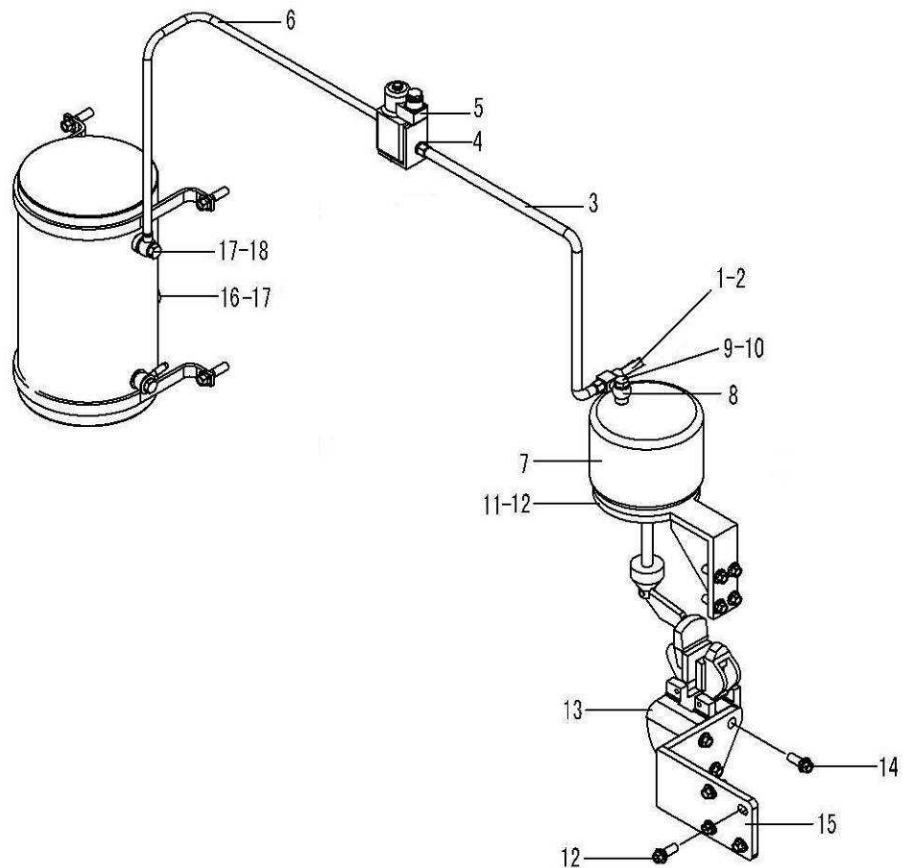


Fig.2-10 LG956L Electric pneumatic controlled clamp disc parking brake diagram

1. Pressure signal lamp switch 2. Washers

3. Parking brake chamber pipe. 4. Connector body.
5. Brake solenoid valve 6. Air inlet pipes of solenoid valve 7. Parking brake chamber.
8. “T” links block. 9. Bolts 10 Washer
11. Bracket 12. Bolt 13. Hand brake 14 Bolt
15 Bracket 16. Pressure switch 17 Washer 18. Bolts

Electric pneumatic clamp disc type parking brake system is manual operation button solenoid valve for braking and releasing functions. At this time, the system is equipped with automatic pressure control and electronic control device. The working principle summarized as follows:

a) Manual parking releasing and braking

When the pressure of the compressed air in braking system is used in normal range, rotate brake control button and the button automatically pop up to provide electrical signals to the brake solenoid valve. Compressed air from the gas tank goes into the parking brake chamber through brake solenoid valve to make the piston compress the spring, release the caliper disc brake and remove the brake.

b) Pneumatic automatic protection control

During the operation, if the gas tank pressure is below the required safety pressure (0.4MPa) due to system leakage, etc., the brake pressure switch automatically cut off the power of brake solenoid valve, the spring brake chamber reset to original position, to ensure safe operation. If such situations occurs in the operation, stop and examine the gas circuit again before starting.

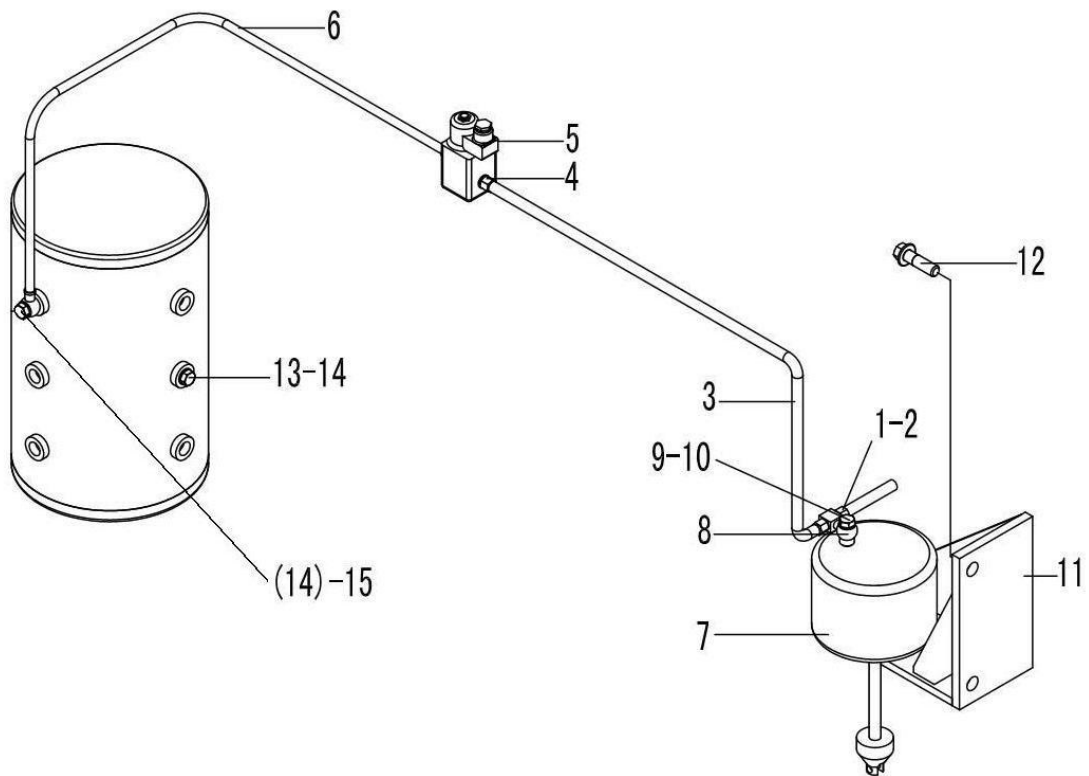


Fig.2-11 LG958L, LG959 Electric pneumatic controlled clamp disc parking brake diagram

1. Pressure signal lamp switch 2. Washers
3. Air outlet pipes of solenoid valve
- 4.Connector body. 5. Brake solenoid valve
6. Air inlet pipes of solenoid valve
7. Parking brake chamber. 8. “T” links block.
9. Bolts 10 Washer 11. Bracket 12. Bolt
13. Pressure switch 14. Washer 15. Bolts

Electric pneumatic control drum type parking brake system and the electric-pneumatic control caliper disc type parking brake system are similar, and the difference lies in different brakes. The former is the drum type parking brake system, connected with it through by 7.

2.4.4 Electric System

Electric system includes accumulator, starting motor, charging generator, instruments, switch, lamps, air conditioner circuit and other electric devices.

The complete appliance system pressure is DC 24V. The cathode connects iron. Circuit is single lead type. The relationship and working principle of each electric device would be found in Fig. 2-12、2-13 (Principle diagram of Electric system).



LG956L/LG958L/LG959 Complete Appliance Service Manual

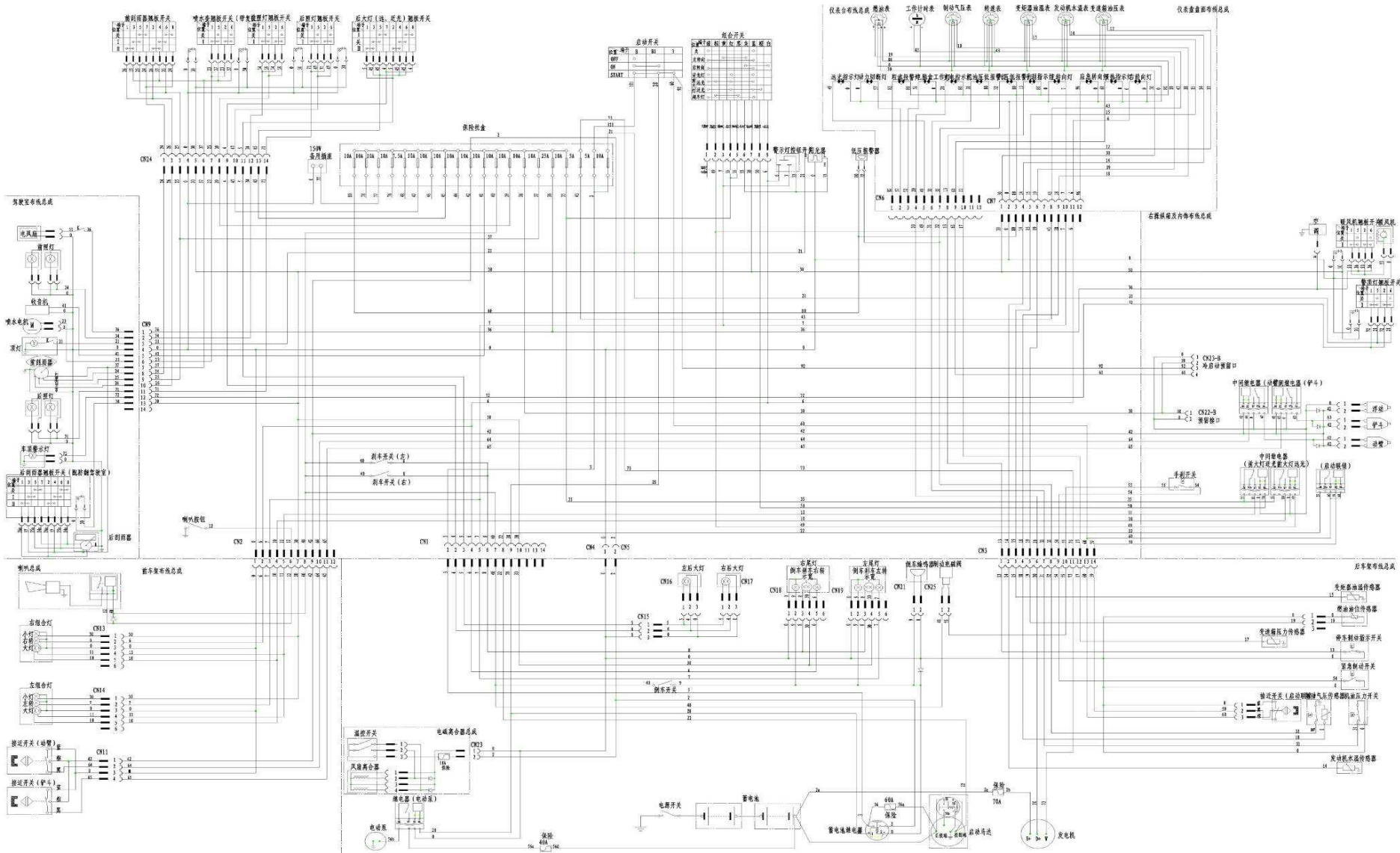


Fig2-12 Principle diagram of Electric system



LG956L/LG958L/LG959 Complete Appliance Service Manual

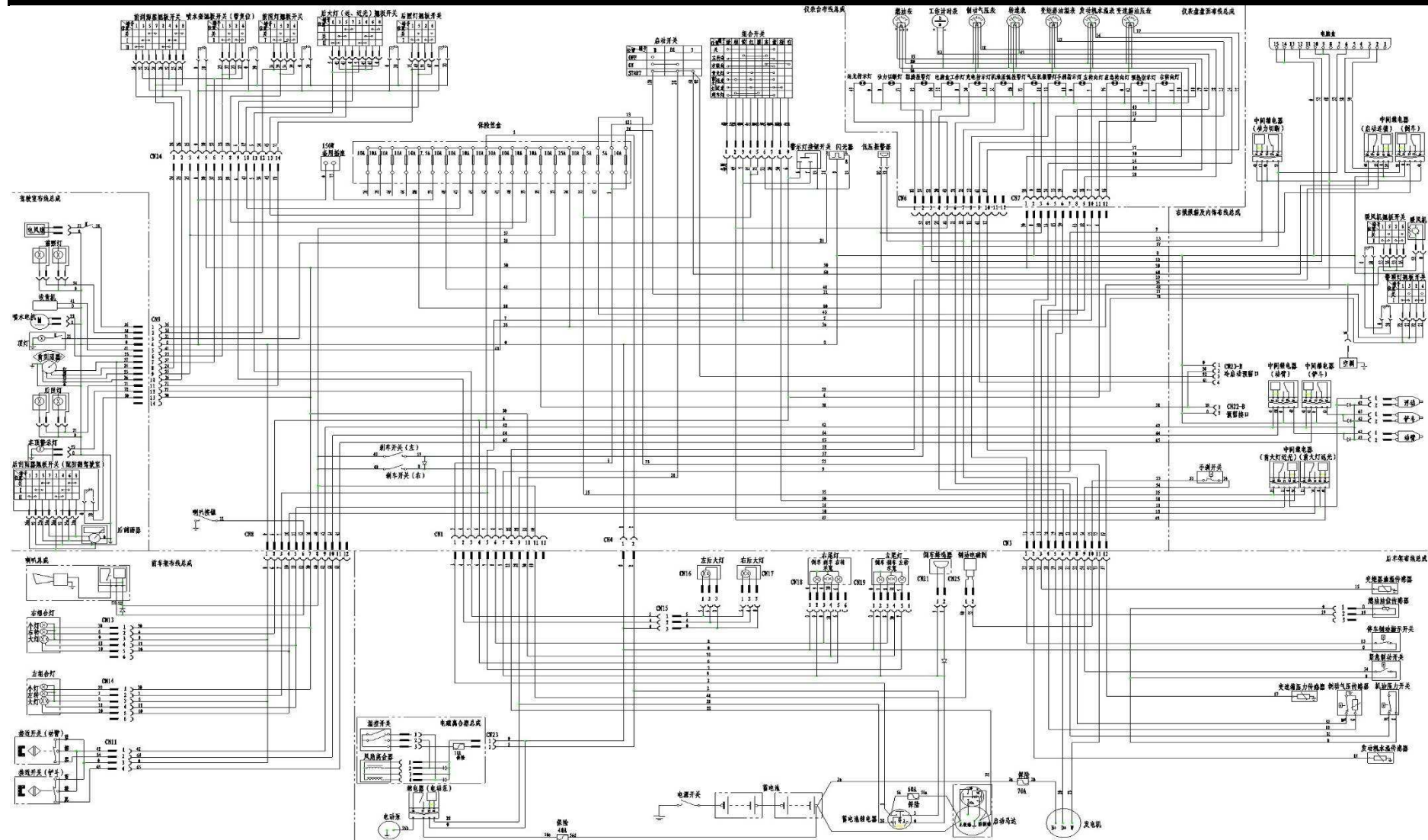


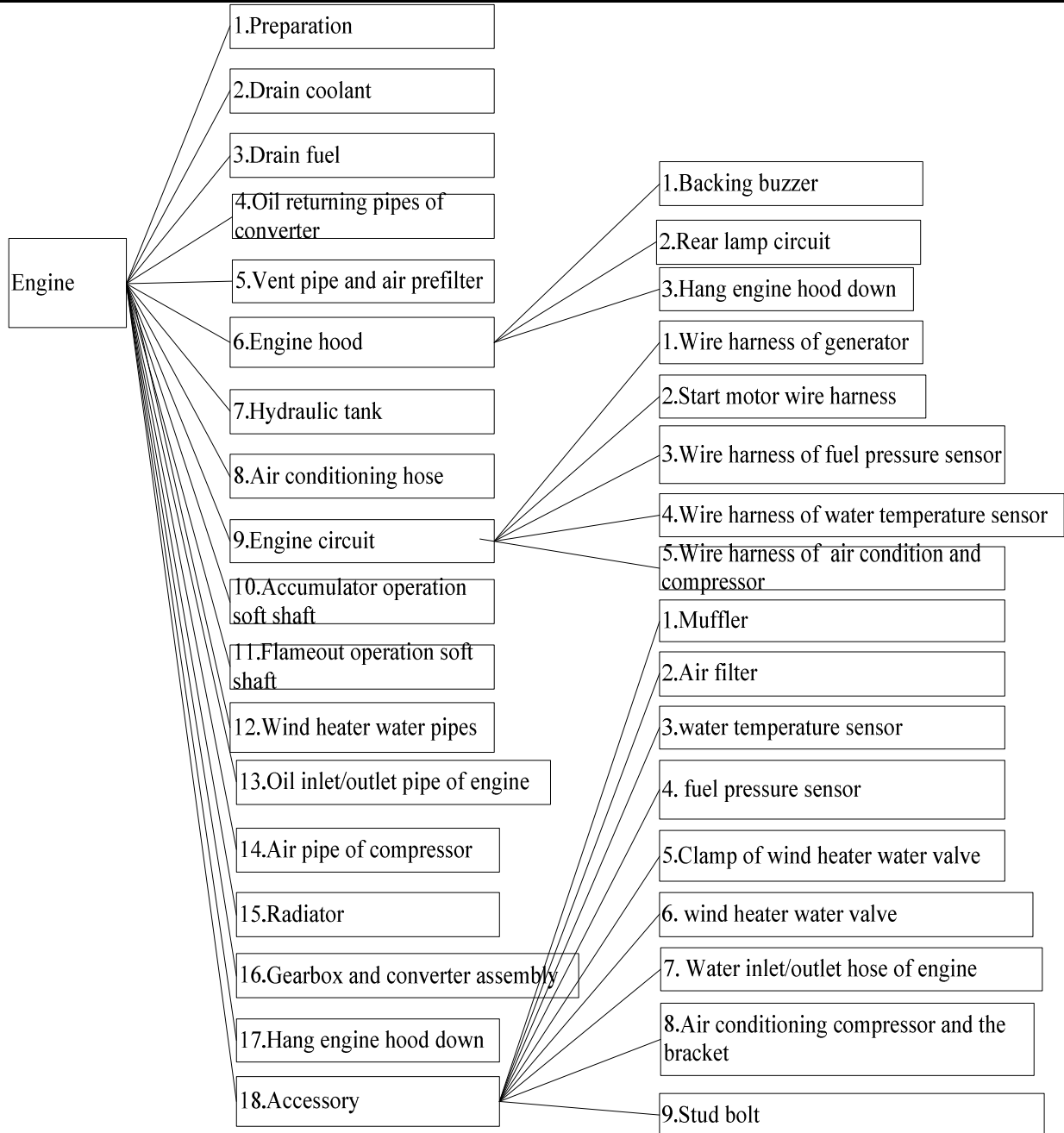
Fig.2-13 Principle diagram of Electric system

CHAPTER III

DISASSEMBLY AND ASSEMBLY OF ENGINE SYSTEM

3.1 Disassembly and Assembly of Engine

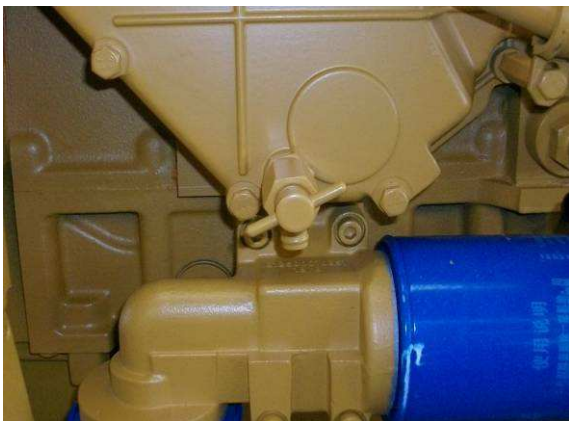
I Disassembly of Engine (These following steps could be referred to changing engine, examining and repairing the interior of engine and disassembling the engine from complete appliance.)



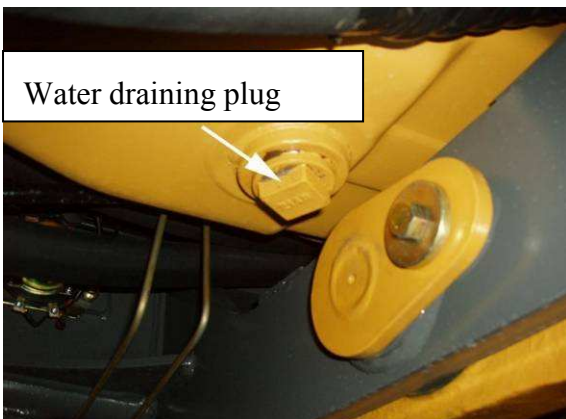


1. Start the complete appliance and drive it to the servicing place. Keep the bucket flat on ground. Press the parking brake switch on the operation box (red and mushroom head appearance). Rotate the key of the electrical lock one level anticlockwise to turn of the electrical power of the whole machine. Fix the front and back wheels with chocks stability.

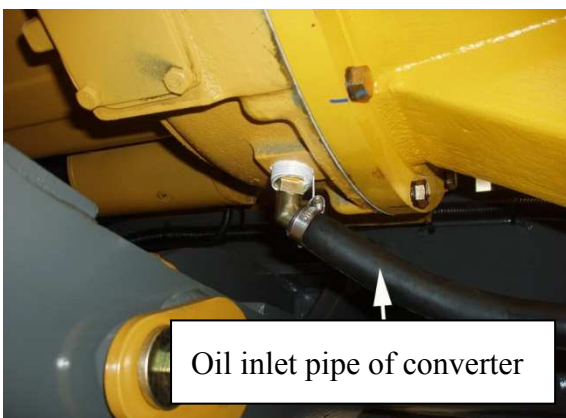
★Remark: Do the operation after the loader to be cooling. In the process of disassembly, the joints of each pipeline should be band up to avoid the sundries entering into the pipeline.



2. Open the outlet valves on the water tank and the engine. Drain the coolant and get them with clean vessel.



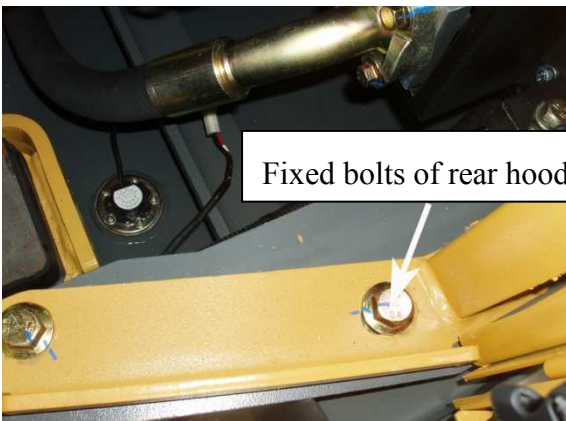
3. Open the oil outlet screw of engine oil bottom tank and drain the engine oil, being gotten with clean vessel.



4. Lossen the fixing clamps on the oil returning pipes of converter and engine flywheel housing and remove the pipe connectors (LG956L)

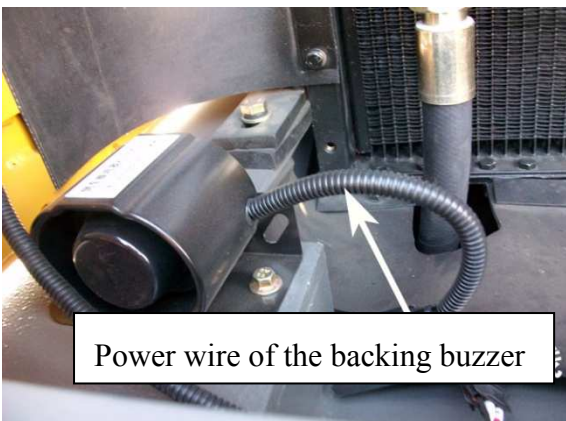


5. Loosen the tightening bolts connect the engine exhaust pipe and the cap of engine air filter. And get it off from the engine.



Fixed bolts of rear hood

6. Loosen the tightening bolts of the engine hood.



Power wire of the backing buzzer

1) Cut off the connection of the reverse buzzer circuit.



Power wire of the rear light

2) Cut off the connection of the rear light circuit.



3) Hang the engine hood off.

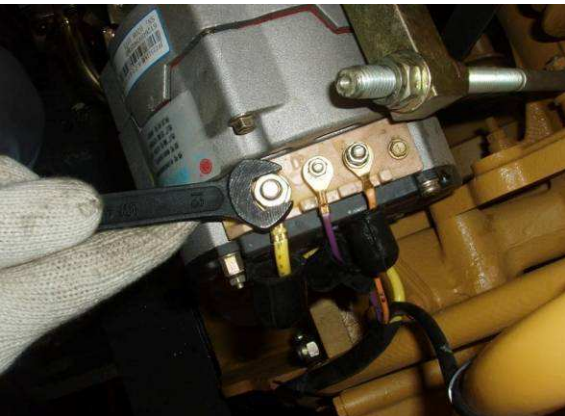


7. Disassemble the hydraulic oil tank (refer to the disassembling and assembling of the hydraulic oil tank).



8. Cut off the connecting of the soft shaft of air-condition and the compressor.

★ Keep the aeration of the maintain place. The workers please keep away when the refrigerant is released.

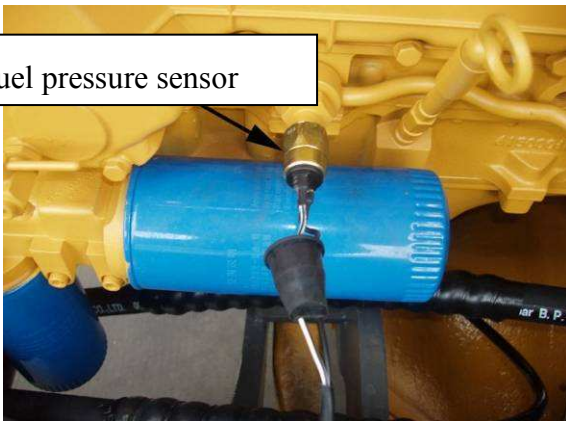


9. Disconnect the connection of the engine and the circuits.

1) Disconnect the connection of the engine and the circuits.

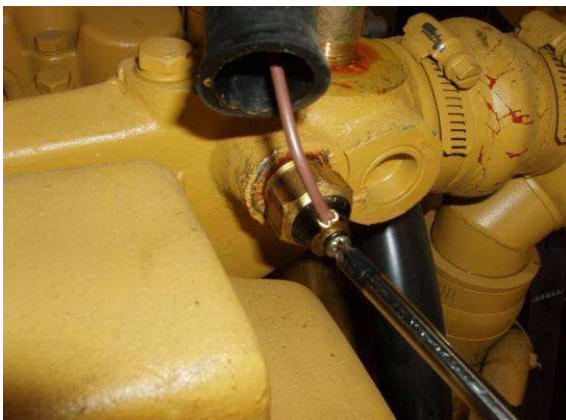


2) Disconnect the connection of the starting motor and the circuits.



Fuel pressure sensor

3) Disconnect the connection of the engine oil pressure sensor and the circuits.



4) Disconnect the connection of the water temperature sensor and the circuits.

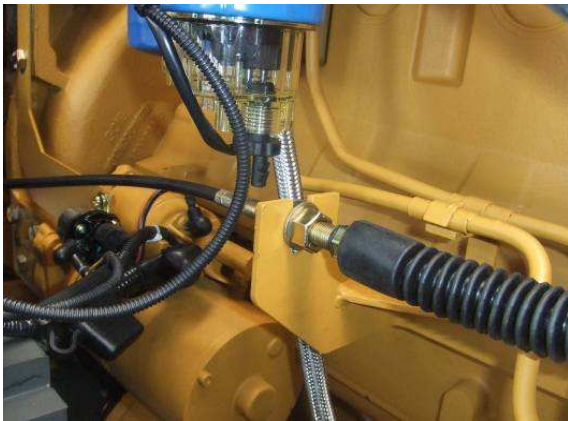


5) Disconnect the connection of the air compressor and the circuits.



10. Disconnect the connection of the gun operation soft shaft and the engine.

1) Loosen the tightening bolts of the accumulator operation soft shaft



2) Loosen the back-tighten nuts of the soft shaft. Get the soft shaft off from the bracket.



11. Disconnect the connection of the flameout operation soft shaft and the engine.

1) Loosen the tightening bolts of the flameout operation soft shaft

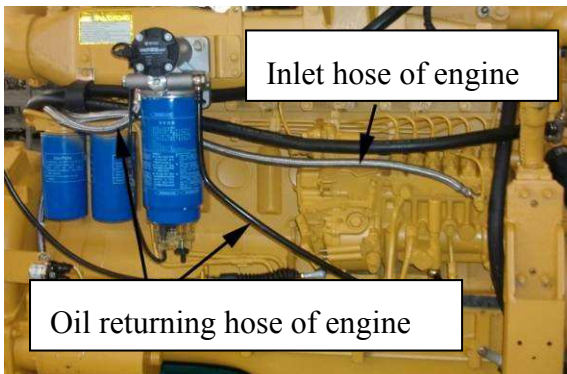


2) Loosen the back-tighten nuts of the soft shaft. Get the soft shaft off from the bracket.



12. Disconnect the connection of the unit heater water pipe and the engine.

Loose off the tightening clamp of the unit heater water pipe on the engine end and get off the water pipe.



13. Loosen the connection bolts of the engine inlet and outlet pipes and disconnect them.

1) Disconnect the connection of the inlet hose and oil-water separator.

2) Disconnect the connection of the oil returning hose and engine.



14. Disconnect the connection of the oil and water separator and the air compressor. (LG956L、LG958L)

15. Dismount the water tank. (Refer to the disassembling of the water and oil tank)

16. Lift engine with rope and open the cover plate of torque converter. Then loosen the nuts and gaskets connecting the flywheel plate and torque converter elastic plate.

★ **Notice:** Before opening the torque converter, the cable pin of the computer control box must be pulled out. (Cut off the circuit to the computer control box)

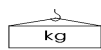




17. Loosen the engine fixed bolts.



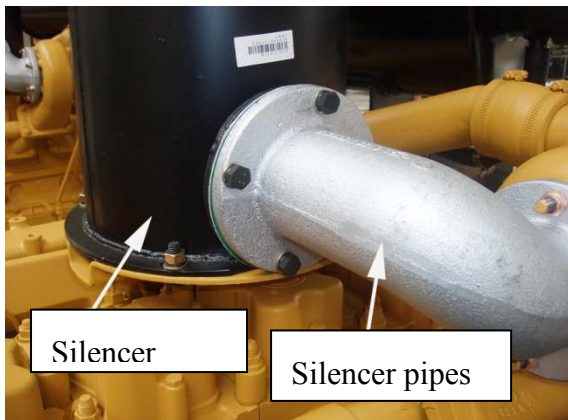
Lift off the engine.



Engine

18. Disassembly of engine other accessory.

1) Disassemble the bolts which connect muffler pipe and engine, muffler pipe and muffler, muffler and frame independence. Then get off muffler and muffler pipe.



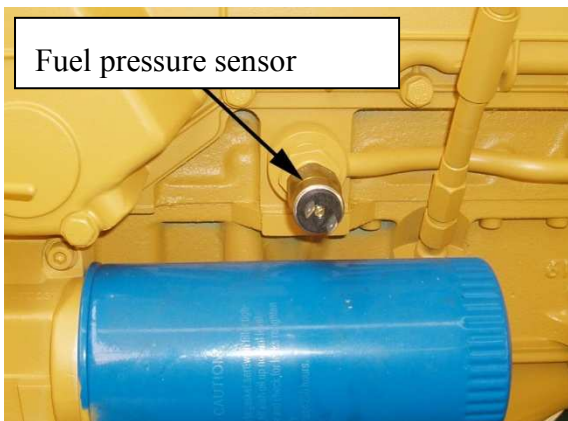
2) Loosen the fastening clamp hoop connect the air filter and compressor rubber hose, the air filter and engine air entering rubber hose. Remove the bolts connect air filter and frame and get off air filter.





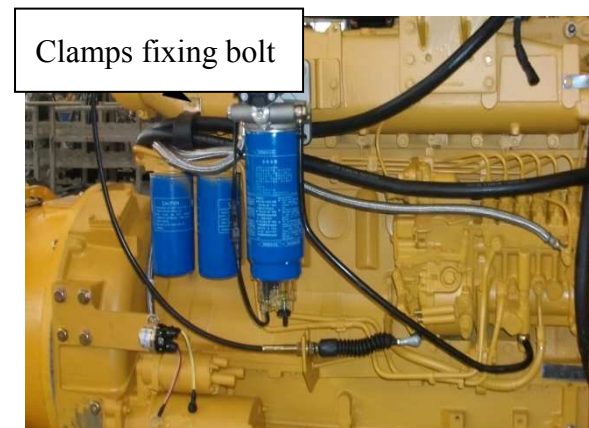
Water temperature sensor

3) Remove Water temperature sensor.



Fuel pressure sensor

4) Remove fuel pressure sensor



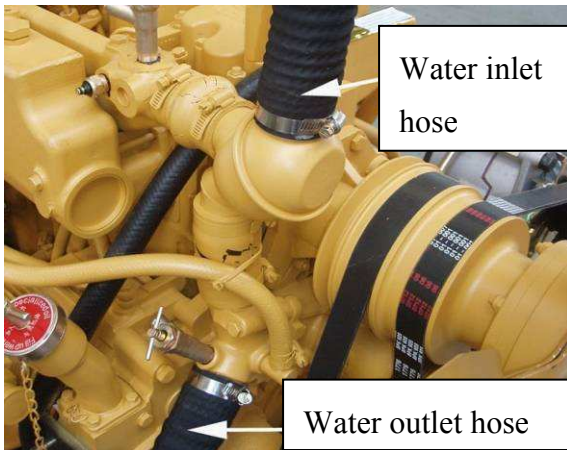
Clamps fixing bolt

5) Disassemble the water pipe clamps of heater.



Water valve of wind warmer

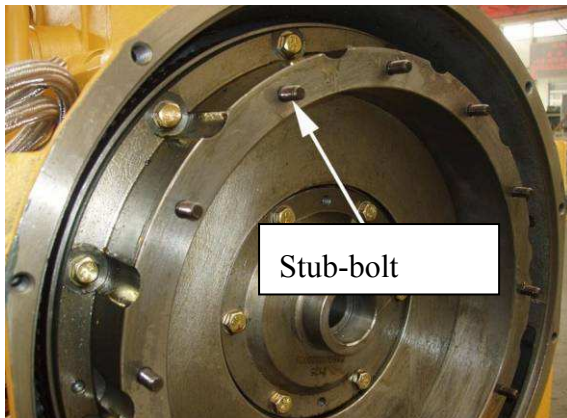
6) Remove water valve of heater.



7) Loosen the fixing loops on the inlet/outlet water pipes and remove the water pipes.



8) Disassemble the compressor and its bracket

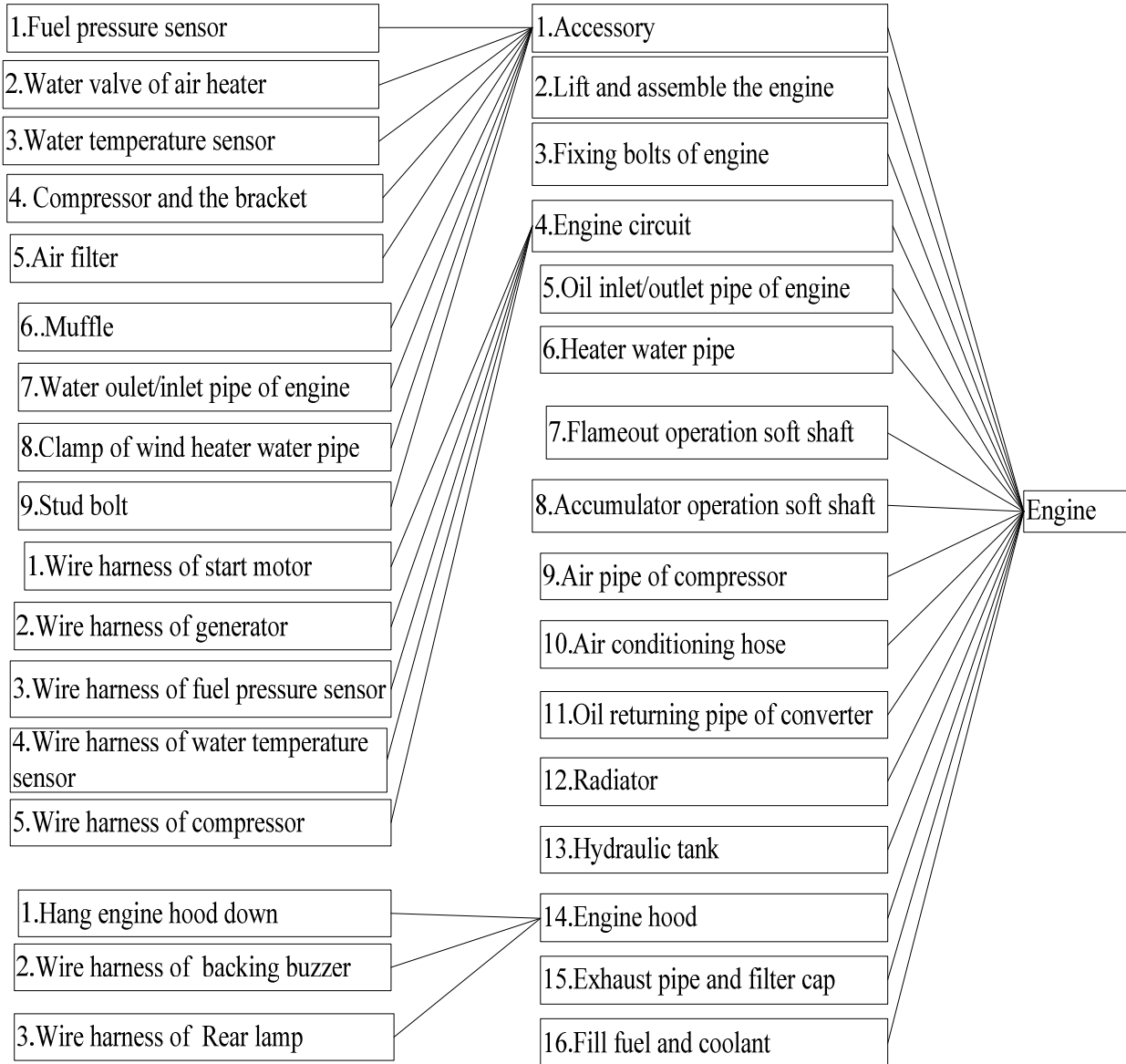


9) Loosen stud-bolt.

★**Notice:** The pliers are forbidden during loosening.

Loosen the two nuts comparatively. Remove the internal nuts with wrench.

I Assembly of Engine (These following steps could be referred to changing engine, after examining and repairing the interior of engine, and assembling the engine to complete appliance.)

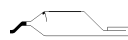


1. Assembly of engine accessory.

Coating process of 1545 oxygen-weary pipe screw sealant should be followed as these:

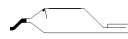
- 1) Clean the foreign body on the screw with no hair-falling towel.
- 2) Coat the sealant on the outside screw about one circle. The width of it is about 3~5 circles screw. The sealant should be full of the teeth of screw. The beginning circle could not be coated sealant. Coat it while you will assemble. After the assembling, there should be a whole circle of sealant.
- 3) The coated part should be tightened with hand wrench but not impact wrench.

1.1 Assembling of the engine oil pressure sensor. Coat AT545 sealant on the connection position of engine oil pressure sensor and assemble it on the correspond position of engine.

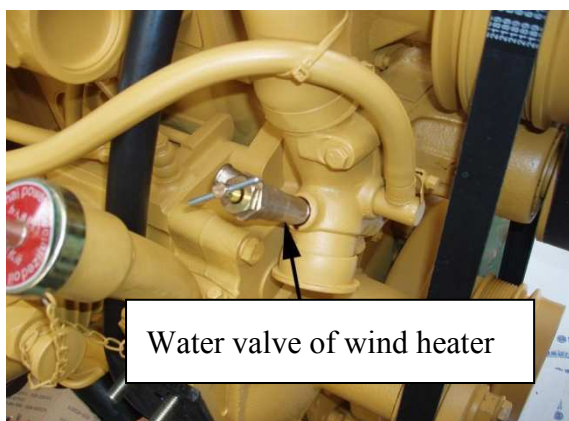
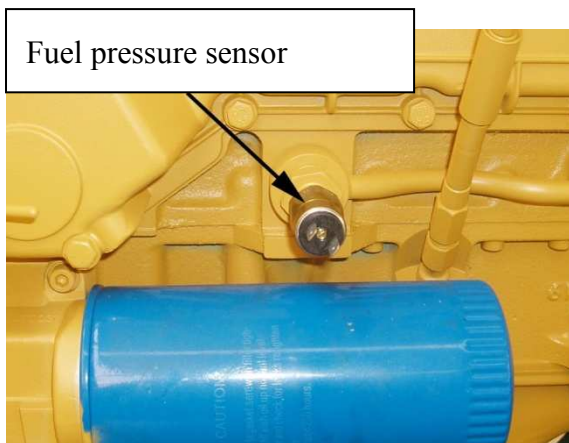


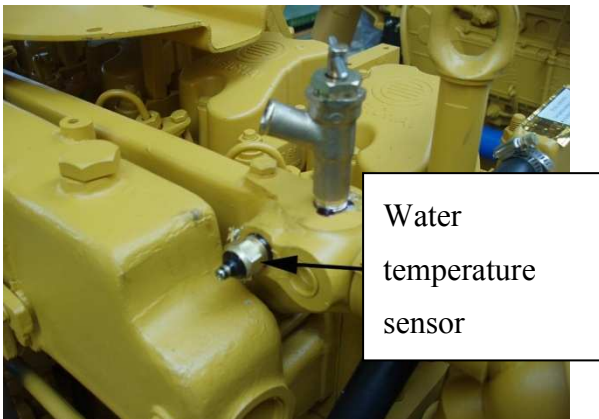
AT545 sealant

1.2 Assembling of heater unit valve. Coat AT545 oxygen-weary pipe screw sealant on the heater unit valve and assemble it on the correspond position of engine.

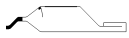


AT545 sealant





1.3 Assembling of the water temperature sensor. Coat AT545 sealant on the water temperature sensor and assemble it on the correspond position of engine.

 AT545 sealant



1.4 Assemble the compressor

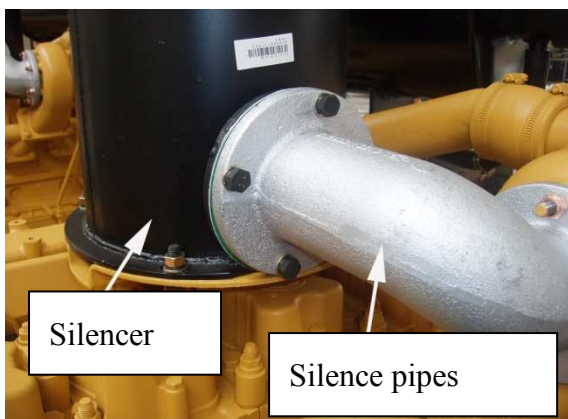
Fix the compressor bracket and the grounding line on the engine with the bolt taken by the engine. Fix the splint on the compressor bracket. Connect the two transmission wheels of the engine and compressor with triangle zone. Fix them with bolts.

★Notice: 1. The belt grooves of the compressor clutch and the engine should be in the same plane. The elasticity of the belt should be suitable that, when the 98N force loaded on it, the belt will lower 10-12mm.
2. The hexagon head end of the bolt should be forwarded outside.

1.5 Assemble the air filter

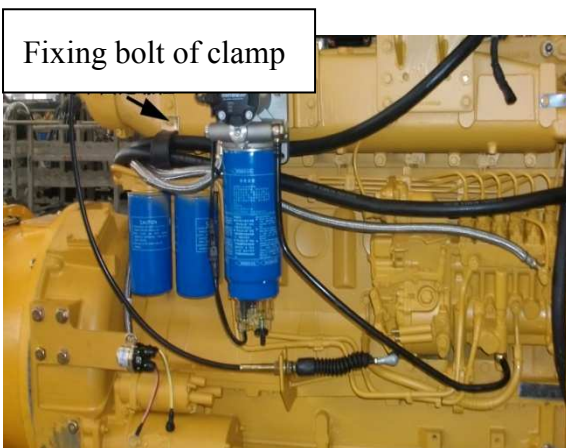
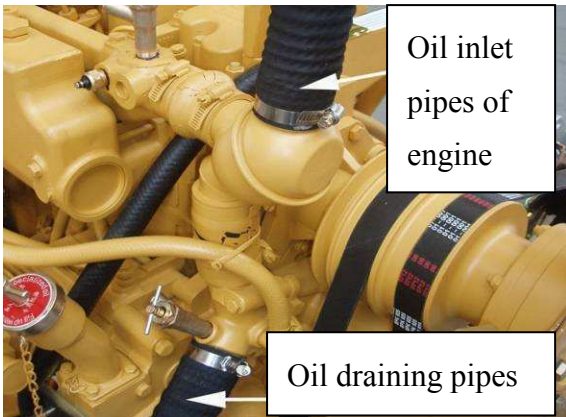
Fix the air filter on the bracket and fix them with bolts. Fix the turbocharger inlet air pipe on the air filter interface with T shape hoop. The other end fixes on the engine interface with T shape hoop.

 Tightening torque 45~59 Nm.



1.6 Assemble the muffler

Fix the muffler bracket on the engine. Fix the muffler assembly on the bracket. Fix the bellow on the interface of the muffler and the engine with two hoop.



1.7 Assemble the water in and out hose of engine. Assemble the water in and out rubber hose on engine and fix them with laryngeal hoop.

1.8 Assemble the heater water pipes clamps and fix it on the engine.

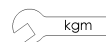
1.9 Assemble stub-bolts.

Screw the stub-bolts on the engine flywheel plate and fix them with been coated diesel engine oil.

★Screw in the thin screw end

★Assemble them with hand pliers and tighten them comparatively. Tighten them by rotating the outside nuts with wrench.

2 Lift the engine to rear frame.



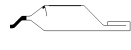
kgm Engine

1) Take apart the engine top cover and hang the assembly of engine and torque converter. Connect duplex-transmission and engine flywheel shell with bolts and washers. Pay attention to that the connection face must be separated by seal gasket. Screw nuts and washers on the stub-bolts to connect the engine flywheel and elastic plate of torque converter together.



Tighten the nuts and the connection bolts connecting engine flywheel and gearbox assembly.

2) Check out and install the top window cover of torque converter and tighten it. Coat the sealant around the window.

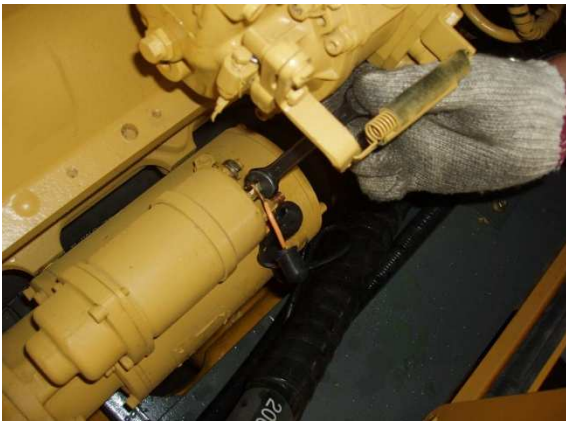
 609 sealant

★ Remark: Tighten the bolts in the method of circle grouping bolts. While connecting the elastic plate, sundries could not be into the torque converter.

 kgm Tightening torque: M10: 45~59 Nm.

M12: 78~104 Nm.

3. Install and tighten the fixing bolt of engine.



4. The connection of starting motor electric circuit.

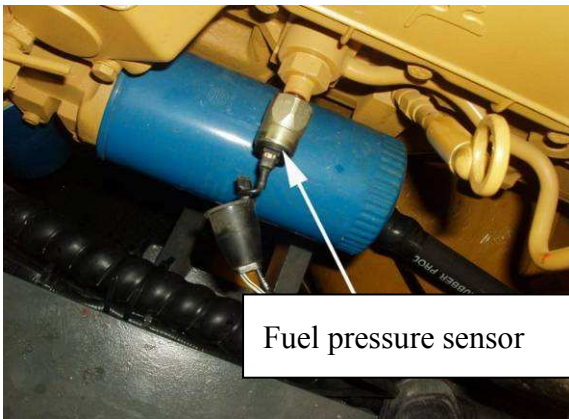
1) Connection of starting motor circuit.

Connect the wire of rear frame wires to the starting motor loop and the starting relay.

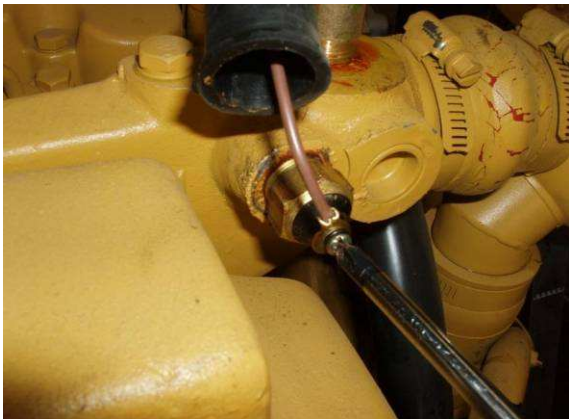


2) Connect engine electric circuit.

3) Connect electric circuit of engine oil pressure sensor.



4) Connect electric circuit of water temperature sensor.

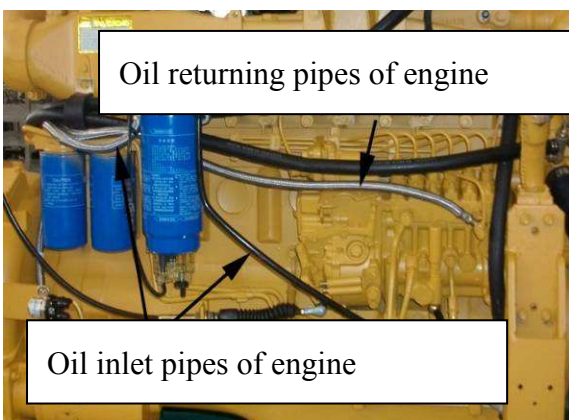


5) Connection of the compressor circuit.



5. Connection of engine oil in and out pipes.

★Notice: When disassemble or assemble the oil bolts of oil absorbing and out hoses, the oil absorbing transition joint, on the engine, should be fixed with wrench. It should be tightened again if it is flexible. The washers, on the two ends of oil absorbing hose joint, should be replaced by the new ones taken by engine.





6. Connection of heater unit water pipe.

Arrange the rubber pipe and put it through the clamp and connect it on the heater water valve.



7. Connection of engine flameout operation soft shaft.



8. Connection of engine accumulator operation soft axis.

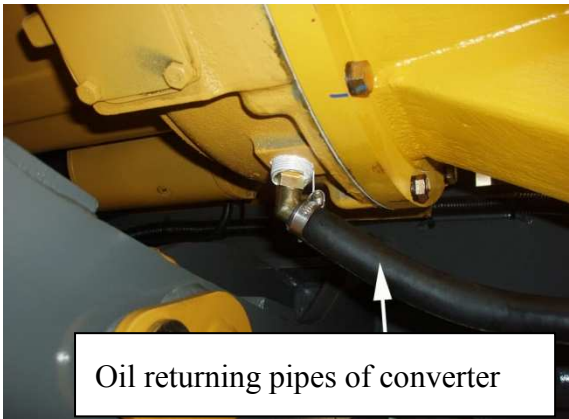


9. Connection of metal soft pipe between oil-water separator and air compressor.

 AT272 screw locking sealant.



10. Connection of air conditioning hose.



11. Connection of converter oil returning hose (LG956L)

Wrap the threads with right amount of raw material belt, and keep the raw materials flat and aligned with threaded end for 3 to 5 circles. The wrapping direction of raw material should face the threaded end clockwise. After the belt is wrapped, install the oil returning connectors on the the flywheel housing. Install the oil returning hose on the oil returning connector, and tighten them with the clamps.

12. Assemble the radiator assembly. (Refer to the “assembly of radiator assembly”)

13 Assemble the hydraulic tank. (Refer to the “Assembly of hydraulic tank”)



14. Assemble the engine hood.

1) Hang the engine hood

Hang engine hood assembly above the engine. Lower it to the rear frame gently. Pay attention to avoid it bumping engine and water tank in the lowering process. And install it to be as backable as possible to avoiding influencing insert draught pin.



Engine cover

Notice: When tightening the bolts of the engine hood assembly, the engine hood assembly should be symmetry to the center line of the frame. After adjusting each clearance of the engine hood assembly, tighten the bolts by 2-3 times.

2). Connection of the reverse buzzer circuit.



3). Connection of the rear headlight circuit.



15. Install the caps of engine vent-pipe and air filter. Install cap on the air filter with pipe clip and install chimney on the muffler with pipe clip too.

16. Add engine oil into the engine. Add coolant into the water tank. Check whether the oil level is enough. Add it when it is lack.

3.2 Disassembly and Assembly of Fuel Oil Tank

I Disassembly of fuel oil tank (Replacing oil tank or disassembling it from complete appliance could be referred the following steps)

1. Start the complete appliance and drive it to the capacious place. Keep the bucket flat on ground. Pull the stop brake. Fix the front and back wheel with chocks stability.

Remark: Do the operation after the loader to be cooling.



2. Remove the flange on the bottom of tank and drain the oil. Get oil with clean vessel. Cover the vessel to avoid falling sundries.

★Remark: Fuel oil is inflammable. In the process of servicing, the fire is forbidden and the place should be far away from fire. At the same time, prevent the generation of fire, for example: Bumping brings spark.

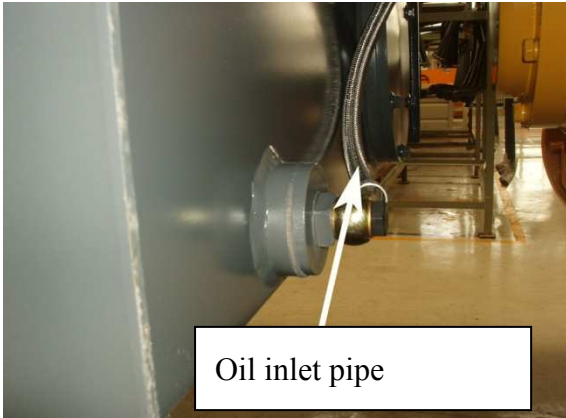


3. Open the side door of engine, unplug the circuit connection of oil level sensor and remove the oil level sensor.



Oil draining plug

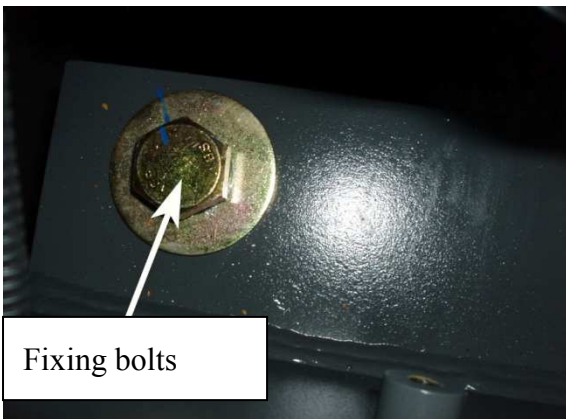
4. Dismount the oil inlet of the fuel tank.



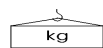
5. Remove the oil returning hose on the fuel tank.



6. Remove the fixing bolts on the fuel tank.



7. Hoist the fuel oil tank off.



Fuel Tank



8. Remove the hose on the top of the fuel tank.



II Assembly of fuel oil tank (Replacing oil tank or disassembling it to complete appliance could be referred the following steps)

1. Assembling of the fuel oil tank

Connect the rubber pipe to the oil tank with hoop.

2. Lifting of oil tank.

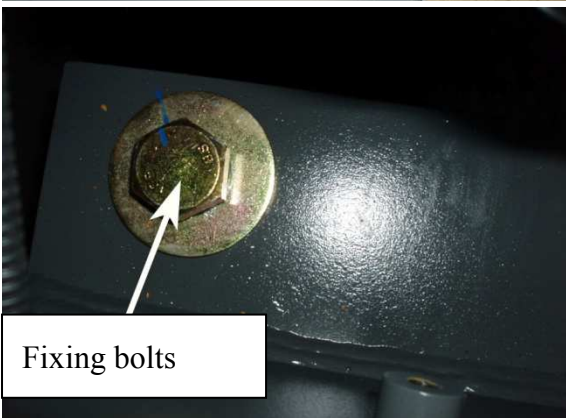
Hang the oil tank assembly to the bottom of rear frame.



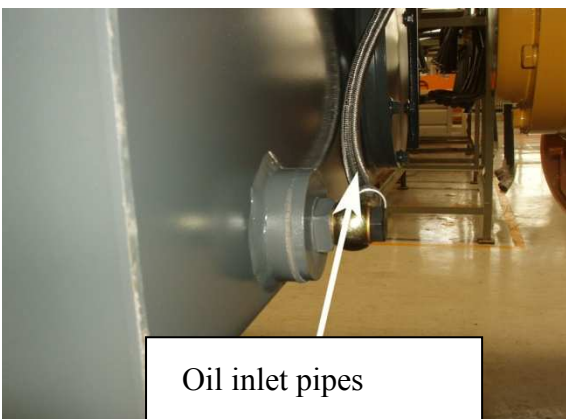
Fuel tank

3. Fixation of the fuel oil tank.

Fix the oil tank on the rear frame with bolts and gaskets.



Fixing bolts



Oil inlet pipes

4. Screw down the engine fuel oil inlet and outlet pipe on the fuel oil tank with bolts and gaskets.



5. Fix the oil level sensor on the fuel tank and insert the connection-peg into the interface of the rear frame.



6. Install the oil level sensor on the fuel tank, and connect the plug with the harness wire of rear frame.

7. Add fuel oil into the oil tank.

Add light diesel oil (GB252-2000) 120L into the oil tank.

Ambient Temperature $\geq 4^{\circ}\text{C}$

0#Light Diesel Oil

Ambient Temperature $\geq -5^{\circ}\text{C}$

-10#Light Diesel Oil

Ambient Temperature $\geq -14^{\circ}\text{C}$

-20#Light Diesel Oil

Ambient Temperature $\geq -29^{\circ}\text{C}$

-35#Light Diesel Oil

3.3 Disassembly and Assembly of Water Tank and Oil Radiator



I : Disassembly of water and oil radiator

(Replacing water and oil tank or disassemble them from complete appliance could be referred the following steps)

1. Start the complete appliance and drive it to the capacious, hard and plane place. Keep the bucket flat on ground. Pull the stop brake. Make sure that all the levers are in the mid position. Pull the parking brake lever and make the engine flameout. Fix the front and back wheel with chocks stability.

★**Notice:** 1) Do the operation after the loader to be cooling.

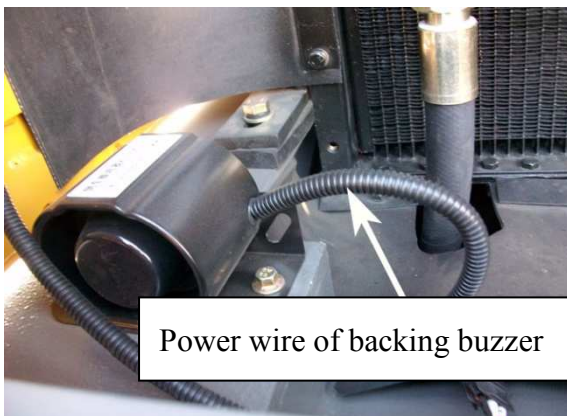
2) In the process of disassembly, the joints of each pipeline should be band up to avoid the sundries entering into the pipeline.

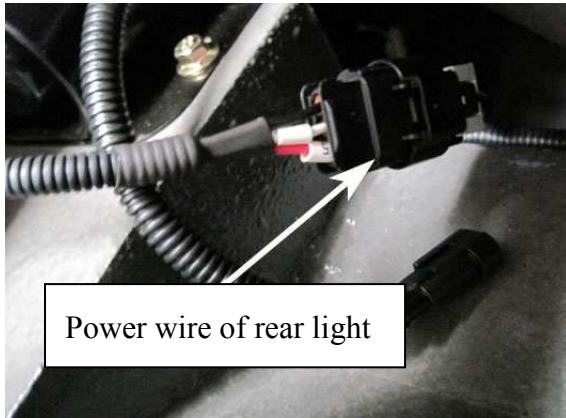
2. Open the draining valve on the bottom of water tank. Drain out the coolant and get them with clean vessel.



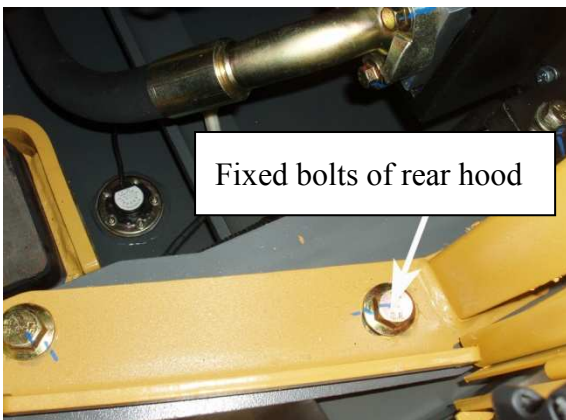
3. Disassemble the engine rear hood.

1) Disconnect the connection of the rear hood circuit.





2) Disassemble the fixed bolts on the bottom and fixing the hydraulic oil tank.



3) Remove the fixing bolts between bottom and hydraulic tank



4) Hang away the engine rear hood assembly.



kg Engine rear hood

★Remark: In the process of hanging, do not bump the handrail on the engine hood. Make the stability of the hood and prevent the accident caused by incline of hanged hood.



4. Disconnect the connections of the oil pipe and the and the transmission radiator. Get the hydraulic oil and the transmission oil with clean vessel.

LG958L、 LG959 refer to the diagrams.



LG956L transmission oil radiator is under the water radiator, refer to the picture.



5. Disconnect the connections of the oil pipe and the hydraulic oil radiator and the transmission oil radiator. Get the hydraulic oil and the transmission oil with clean vessel.

★ **Notice:** When disassembling the hydraulic connection, do not loosen the connection bolts or the flange fixed bolts completely to avoid the oil bursting out. Loosen them off a little while the oil overflowing, and then disconnect them completely. LG956L refers to the diagrams.



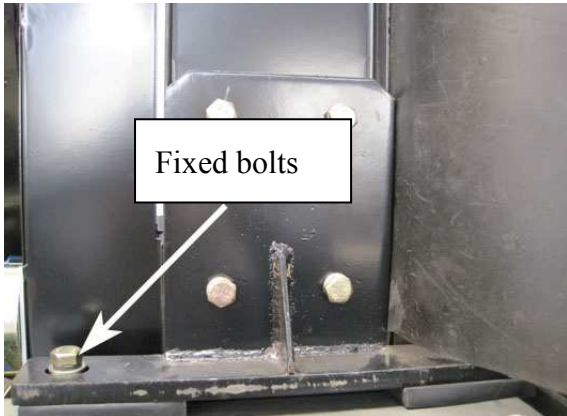
6. Loosen the fixing clamps between water tank and outlet pipe of engine. Cut off the connection.



7. Loosen the fixing clamps between water tank and inlet pipe of engine. Cut off the connection.



8. Remove the fixing bolts of fan hood and take the fan hood down.



9. Hang the radiator assembly and remove the fixing bolts of water tank.

10. Lift the radiator assembly down and remove the guard plate of water tank and oil radiator.

★**Notice:** When hanging the radiator assembly, move the radiator assembly backward for some distance, in case that guard plate collides with the engine fan. radiator assembly

II Assembly of water tank and oil radiator

(When replacing the water tank and oil radiator, or assembling it to complete appliance, please refer to the following steps)

1. Loosen the bolts of the wind guide cover. Assemble the water radiator and oil radiator together.
2. Fix the radiator on the rear frame.

★**Notice:** Do not tighten the bolts first. Adjust the position. Make sure that the distance between engine fan and water tank wind guide cover is the same as $\frac{1}{3} \sim \frac{1}{2}$ of the fan thickness. Adjust the radial distance of the wind guide cover and the fan to be equal and tighten the bolts.

3. Assemble the fan hood on the radiator assembly.





4. Fix one end of the engine water inlet pipe to the lower draining port of the radiator with hoop.



5. Fix one end water outlet pipe of the engine to the upper returning port of the radiator with hoop.



6. Fix the oil returning pipes of the hydraulic oil on the corresponding oil ports of the transmission and hydraulic oil radiator and tighten them.

LG958L、 LG959 refer to the diagrams.



LG956L refer to the diagrams.



7. Fix the oil inlet pipes of the transmission oil on the corresponding oil ports of the transmission and hydraulic oil radiator and tighten them.

LG958L、LG959 refer to the diagrams.



LG956L transmission oil radiator is under the water radiator refer to the picture.



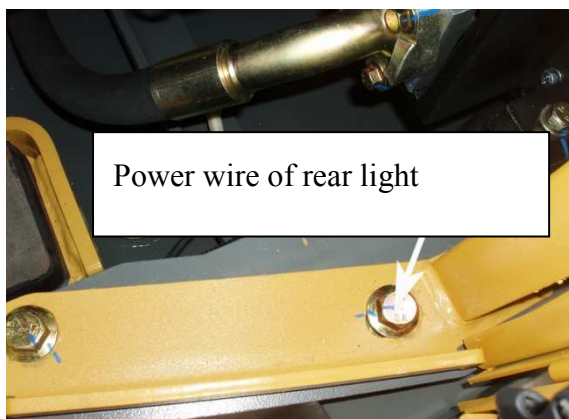
8. Assemble the engine rear hood.

1) Lift the rear hood to the corresponding position and fix it with bolts.

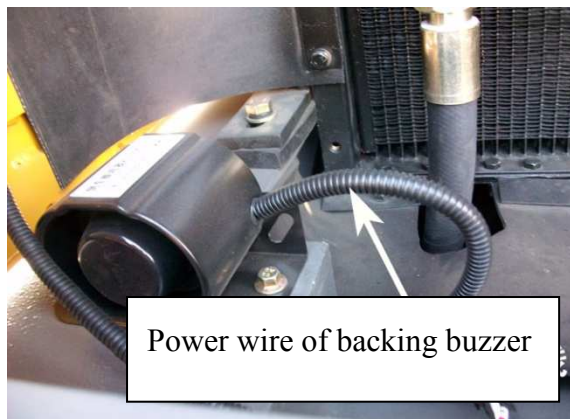


The rear engine hood

★**Notice:** Pay attention to the stability of the cover in the hanging process. Do not touch the connection part of rear cover and cover in the lowering process.



2) Connect the rear headlight wire with the rear frame wire.



3) Connect the buzzer wire with the rear hood wire.

9. Add coolant into the water tank. Check the hydraulic oil level. Add oil if it is lack.

1) Add glycol coolant ($31\pm 2\text{L}$), which is use in the temperature -35°C into the water tank. Add the coolant still the level reaches the lower edge of the inside of the water port.

2) Start the engine and let it work in lower speed for several minutes. Turn it out and check the level of the hydraulic oil tank. While the level does not rise, check whether the level is always between the ± 2 ranges of middle graduation. If the level is lower than the -2 graduation, that to say the oil pressure is in deficiency, add the corresponding hydraulic oil please.

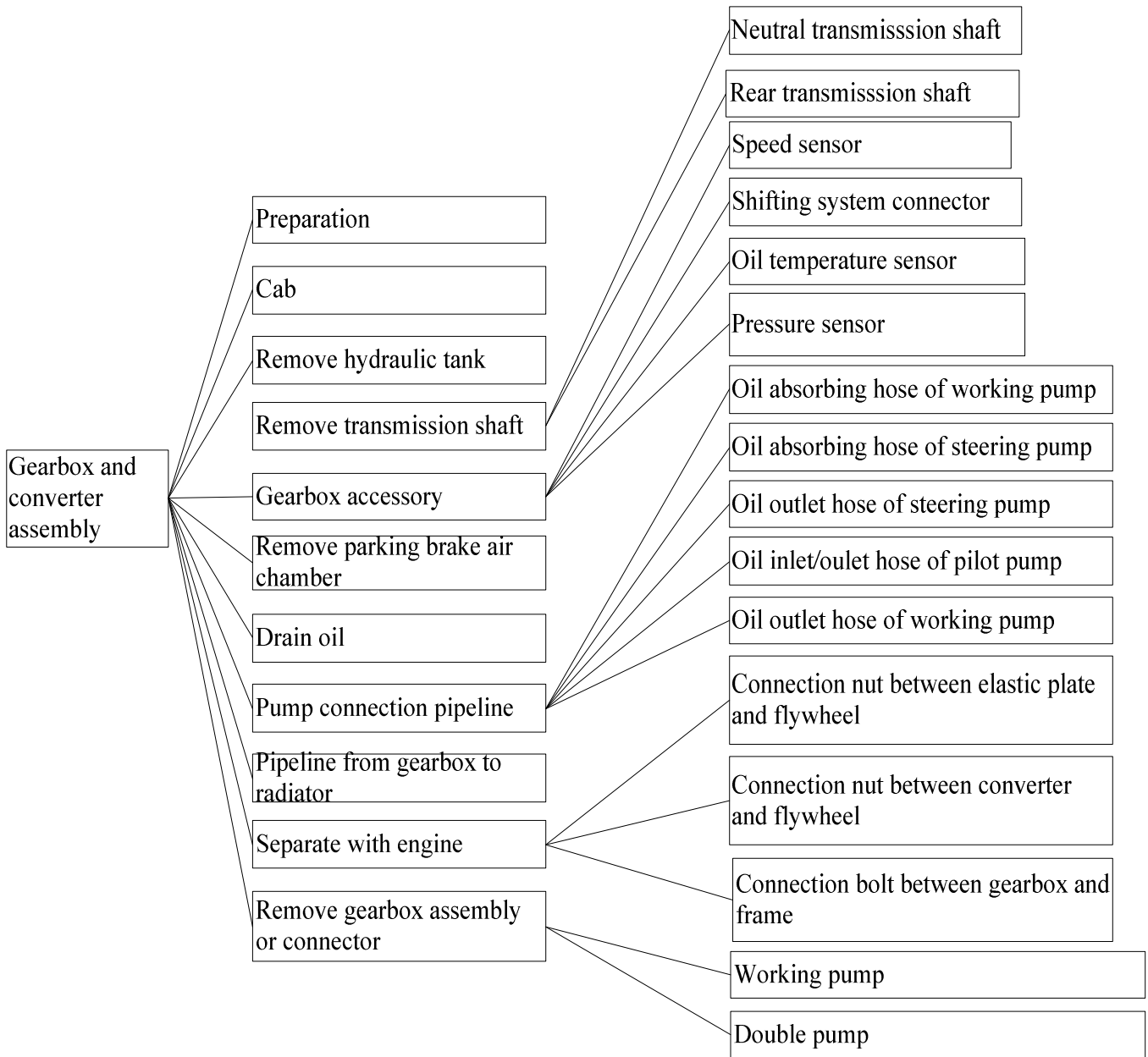
CHAPTER IV DISASSEMBLY AND ASSEMBLY OF TRANSMISSION SYSTEM

4.1 Disassembly and Assembly of LG958L/LG959 Gearbox And Converter

4.1.1 Disassembly and Assembly of LG958L/LG959
Gearbox And Converter

I Disassembly of the Gearbox And Converter

(These following steps could be referred to changing
Gearbox And Converter, examining and repairing the
interior of duplex-transmission and disassembling the
duplex-transmission from complete appliance.)





Unload oil:

Start the complete appliance and drive it to the capacious place. Raise the boom to the highest position. Tilt the bucket backward to the extreme position, and then close the engine.



Pull the bucket operation handle forward (or pull the operation handle by single handle to right). Make the bucket turn forward at the effect of self-weight. So drain the oil in the rotating oil cylinder.



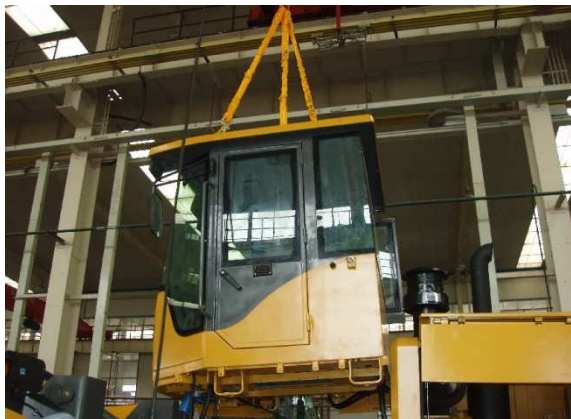
When the bucket rotates to the position, pull the boom lever forward (or operate the handle by single handle). Make the boom turn forward at the effect of self-weight. So drain the oil in the boom oil cylinder. Keep the bucket flat on ground. Then operate the boom lever from the lower position to raise position 5~6 times. Operate the bucket lever from the forward tilt to rear tilt 5~6 times.



Fix the loader wheels with wood chocks stability.

★Remark: 1) Disassemble it after the torque converter becomes cool.

2) In the process of disassembly, the joints of each pipeline should be band up to avoid the sundries entering into the pipeline.



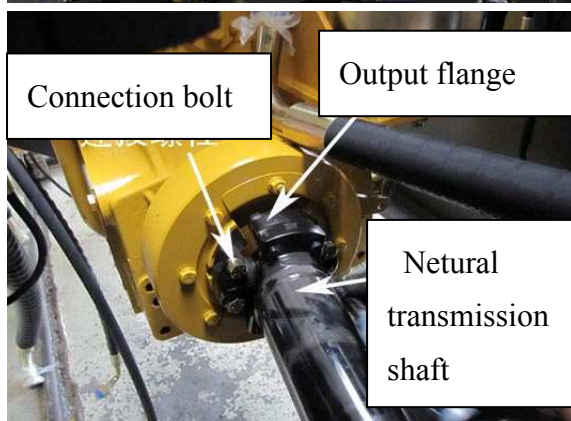
1. Disassemble the cab.

As shown in “Disassembly of cab assembly”.



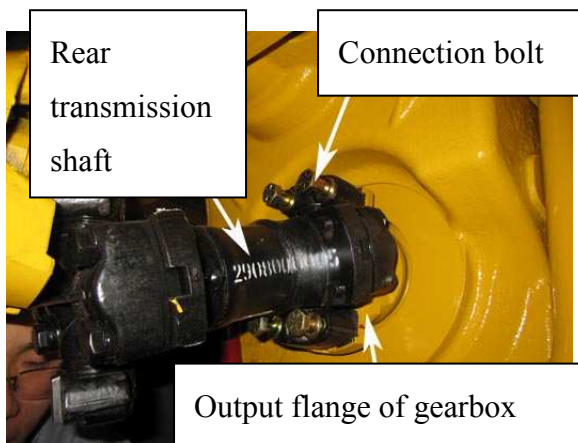
2. Disassemble the hydraulic oil tank.

As shown in “Disassembly of hydraulic oil tank assembly”.



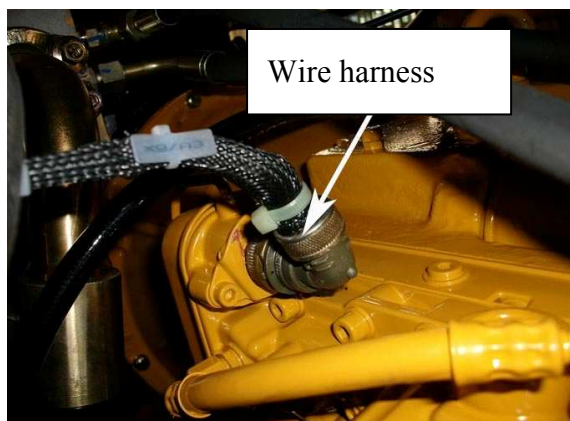
3. Remove the connection bolts between the neutral transmission shaft and gearbox. Cut off the connection between gearbox and neutral transmission shaft.

The connections of the transmission with the middle support and the rear axle should not be disassembled.



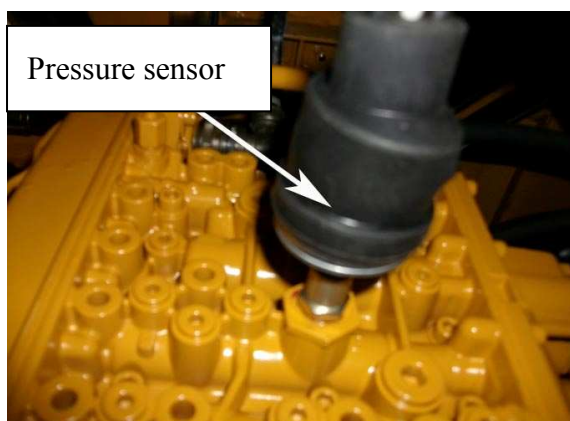
4. Disassemble the connection bolts between the rear transmission shaft and gear box and cut off the connection between the rear transmission shaft and gear box.

The connection between the rear transmission axle and gear box doesn't need to be dissembled.



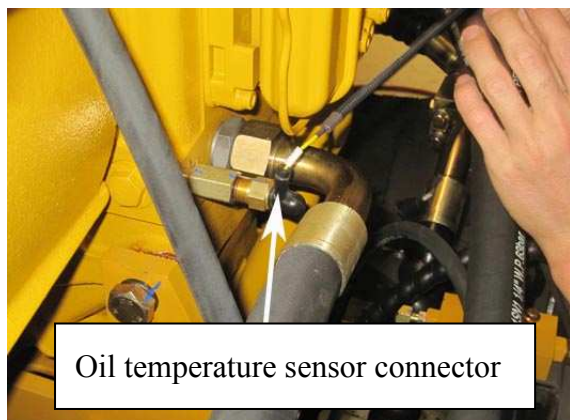
Wire harness

5. Remove the wire connectors of shifting system and cut off the connection between gearbox and wire harness of cab.



Pressure sensor

6. Remove the wire connectors of pressure sensor on the gearbox and cut off the connection between wire harness and sensor.



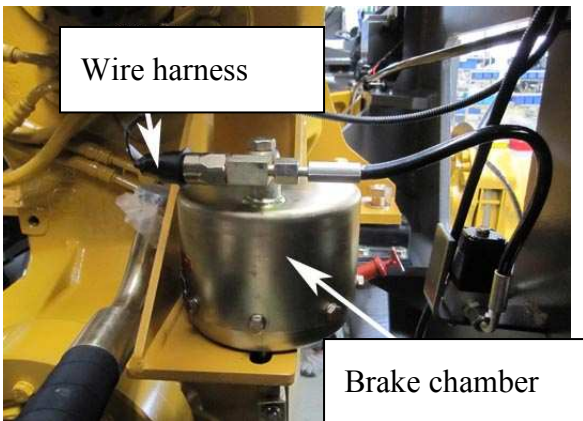
Oil temperature sensor connector

7. Remove the wire connectors of converter oil temperature sensor and cut off the connection between wire harness and oil temperature sensor.

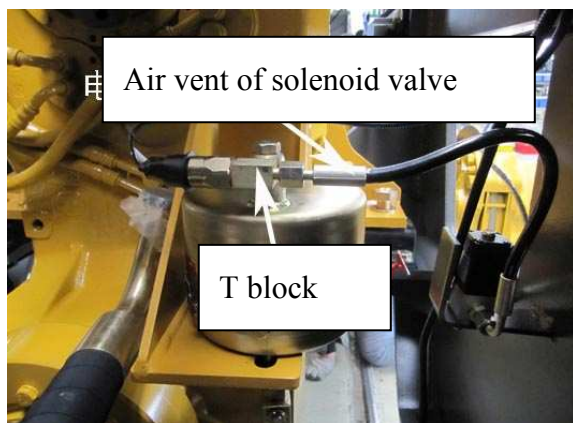


8. Remove the wire connectors of down speed sensor and cut off the connection between wire harness and speed sensor, and remove the sensor

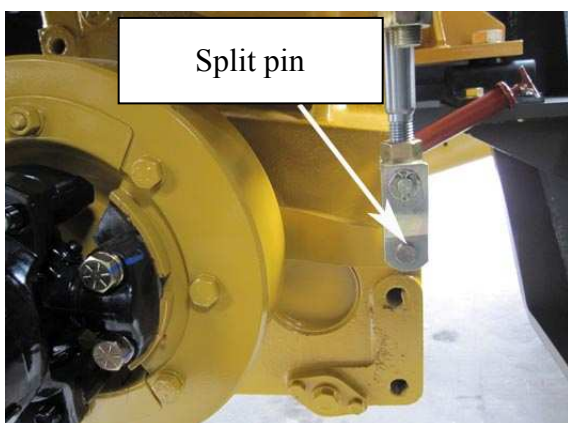
★ Note the guard of the port of sensor.



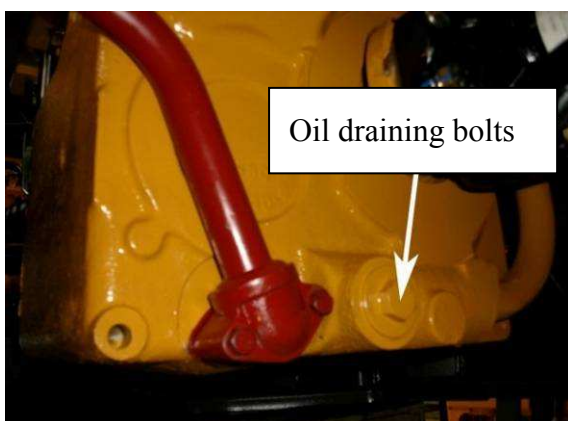
9. Turn off the parking brake switch in the cab. Remove wire connectors of parking brake switch and the parking brake chamber. Cut off the connection between wire harness and brake switch.



10. Loosen the connection nut between air outlet hose of solenoid valve and the triple- block on brake chamber. Cut off the connection between brake chamber and air outlet hose of solenoid valve.

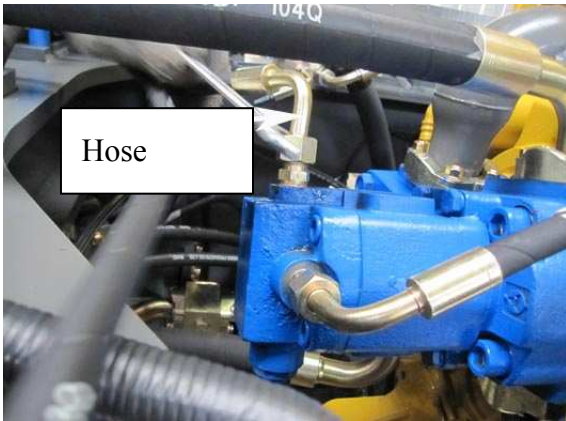


11. Remove the split pin of parking brake.

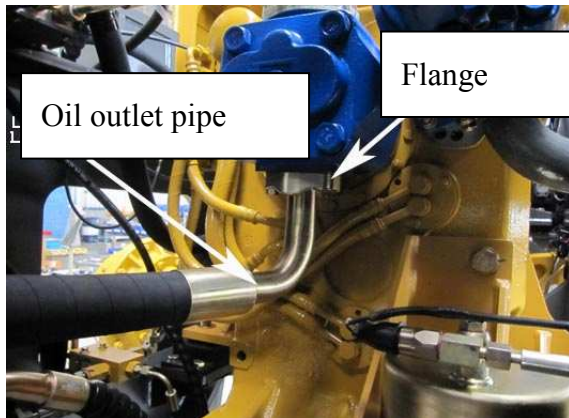


12. Remove the oil draining plug on the left of gearbox to drain the hydraulic transmission oil.

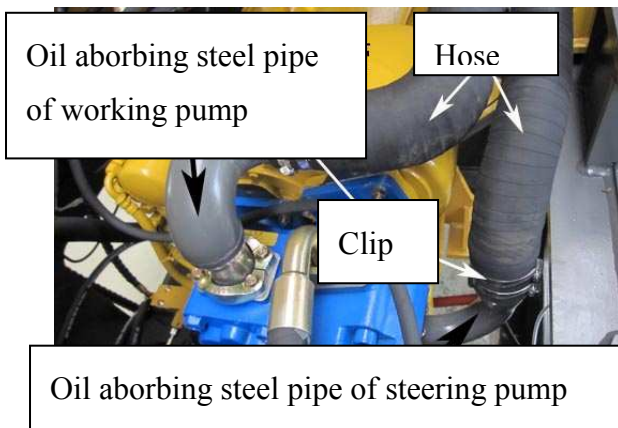
★ **Notice:** 1) Choose the suitable size of wood block. Prevent impurities from mixing
2) Be careful of the spoiled oil.



13. Remove the nut on the oil returning hose of pilot pump. Cut off the connection between the hose and double pump.

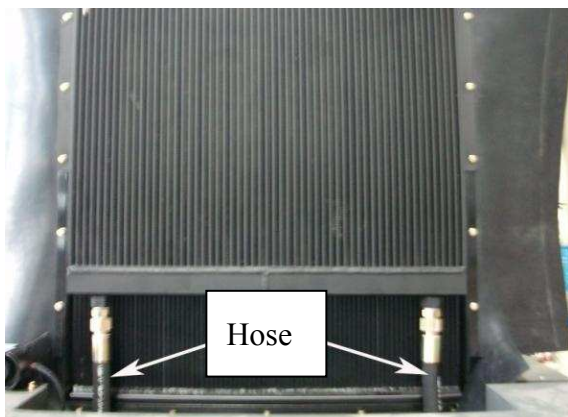


14. Remove the bolts on the oil outlet hose of working pump and take down the flange. Cut off the connection between the oil outlet hose and working pump.

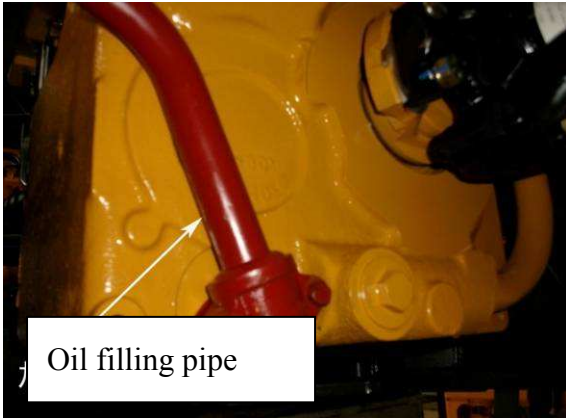


15. Remove the clamps on the hose of pump. Cut off the connection between the oil absorbing steel pipes and the hose.

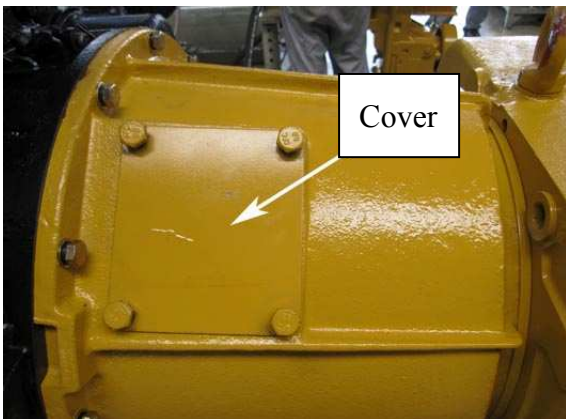
Remove the clamps on the oil absorbing hose of steering pump. Cut off the connection between the oil absorbing steel pipes of steering pump and the hose



16. Remove the hose from converter to radiator and the hose from radiator to converter. Cut off the connection between the hose and the radiator.

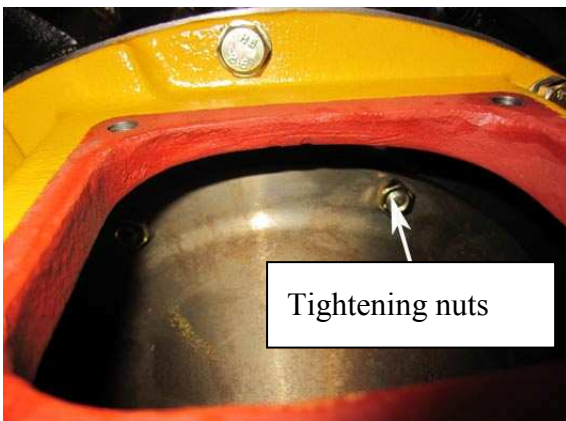


17. Remove the fixing bolts on the oil hose of the gearbox and take down the oil hose of gearbox.

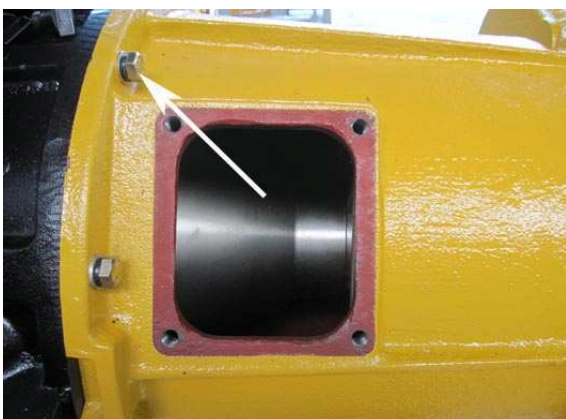


Loosen the support leg of engine and hang the engine a little. Put a wooden block between engine and frame to support the engine.

18. Remove the ceiling cover of converter.



19. Observe the connection nut between elastic plate on the converter from the watch port of the converter.



20. Remove the connection bolts between converter housing and flywheel housing of engine.



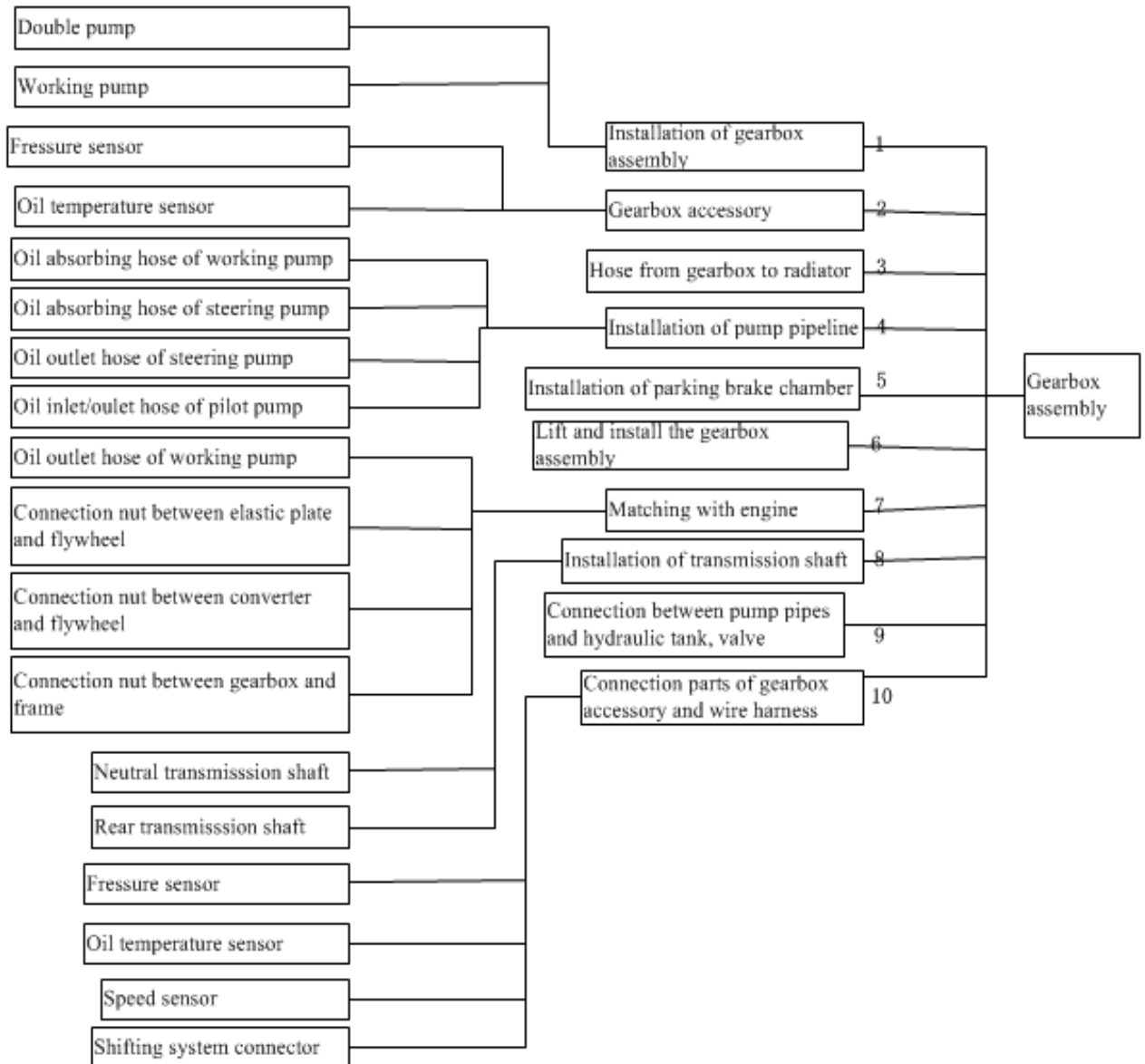
21. Remove the connection bolts between gearbox frame and frame.

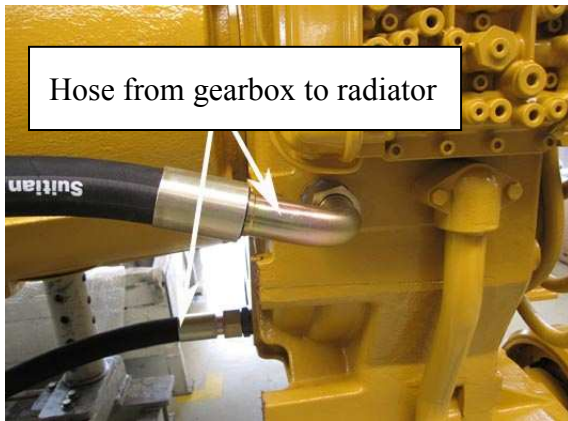
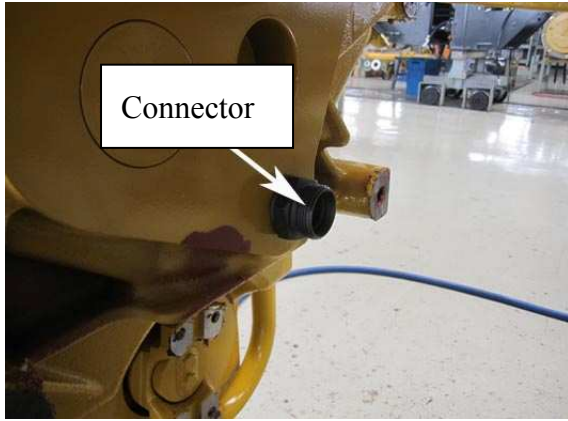


22 .Hang the dual-change and remove it from the engine.Hange it out.

II Assembly of Gearbox and Converter

(These following steps could be referred to changing Gearbox and Converter, examining and repairing the interior of duplex-transmission and assembling the Gearbox and Converter to complete appliance.)





1. Install the pipe connectors on the gearbox.

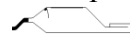
2. Connect the hose from gearbox and radiator with gearbox with connectors.

3. Install the oil temperature sensor and other accessories.

1) Clean the torque converter oil temperature sensor with AT755 high efficient cleaner. And screw the sensor coated with AT545 oxygen-wear pipe screw sealant on the joint of the oil thermometer. Coat technology is as follows:

AT545 oxygen-wear pipe screw sealant

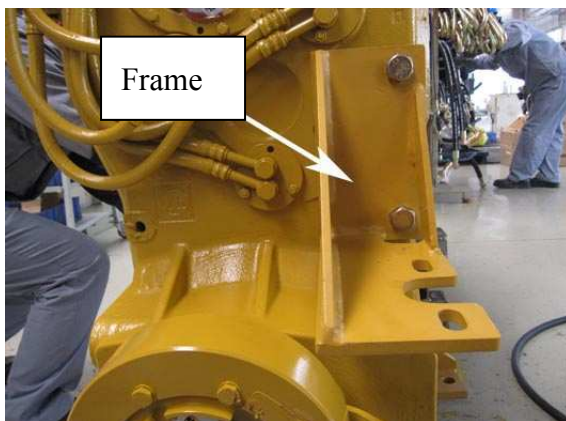
(1) Coat the external screw of parts 1 circle and the coating width is 3~5 screws. The teeth of screw should be full of sealing glue. The first teeth should not be coated with glue and done when assembling. After assembly, there should a complete glue wire on the edges of external screw and screw holes. (2) The parts coated with glue should not be tightened with air wrench. Tighten it with hand wrench. Tighten it to the corresponding port of converter.



AT545 sealing glue



2) Tighten the converter oil temperature sensor to the corresponding port of dual change assembly.



3) Assemble the frame of brake air chamber to the corresponding port of dual change assembly with bolts M20*40



Tighten torque: 78~104Nm。



4. Fix the brake air chamber to the frame of that with bolts.



5. Install the gasket used for pump

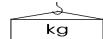


6. Install the double pump.

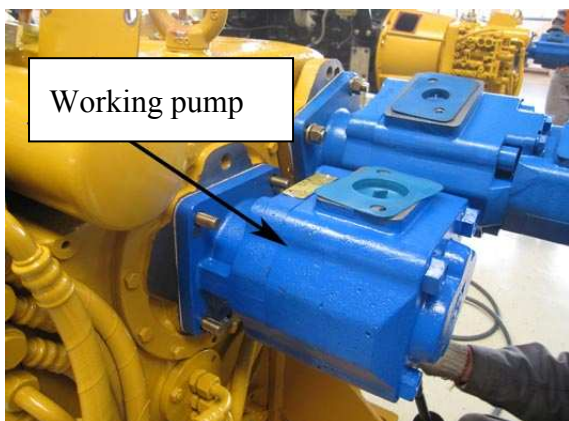
Install the double pump. Tighten it with nut and washer



Tighten torque: 78~104Nm.



Double pump

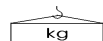


7. Working pump

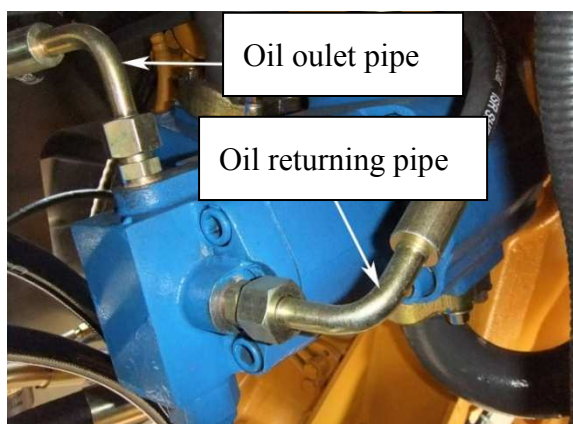
Install the working pump. Tighten it with nut and washer. During the process of assembly, the pump can be installed easily by rotating the elastic plates of converter.



Tighten torque 78~104Nm.



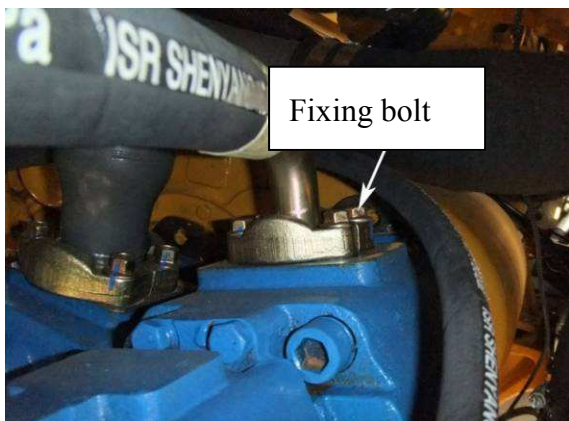
Working pump



8. Install the oil returning steel pipes and oil outlet steel pipes on the corresponding connectors of the pump.



Tighten torque: 30~40Nm

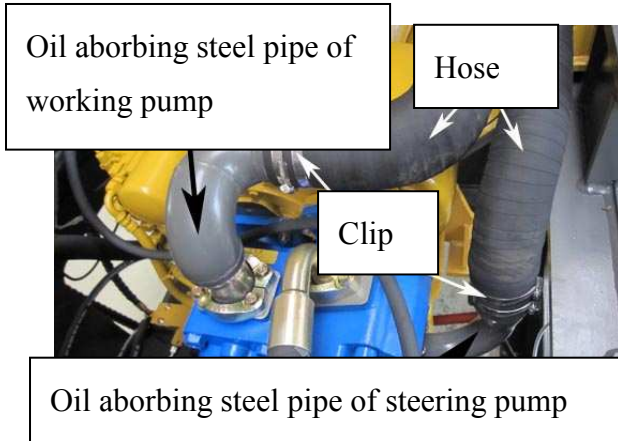


9. Install the O-ring on the port of hose of the steering pump. And install it on the oil inlet port of double pump with 4 bolts(M10×30) and flange.

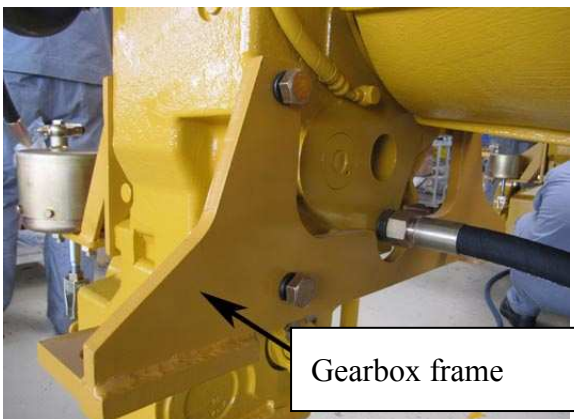


Tighten torque: 45~59Nm

★ Tighten the bolts according to the principle of crossing symmetry.



10. Install O-ring on the port of oil absorbing steel pipe on the double pump. Connect the oil absorbing steel pipe on the working pump and hose. In the same way, connect the the oil outlet steel pipe on the steering pump and the steering pump with bolts, flange and O-ring, and connect the oil outlet steel pipe and hose with clips.



11. Fix the gearbox frame on the corresponding position of gearbox with 4 bolts- M20*50.



Tightening torque: 78~104Nm



12. Lift the gearbox assembly and put in the corresponding position of the frame to make it match with engine.

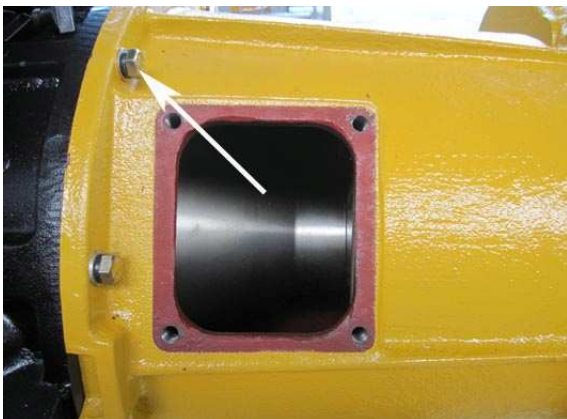
Remove the ceiling cover of converter, note the matching between double nut bolt and elastic plate. Connect the gearbox and the engine.

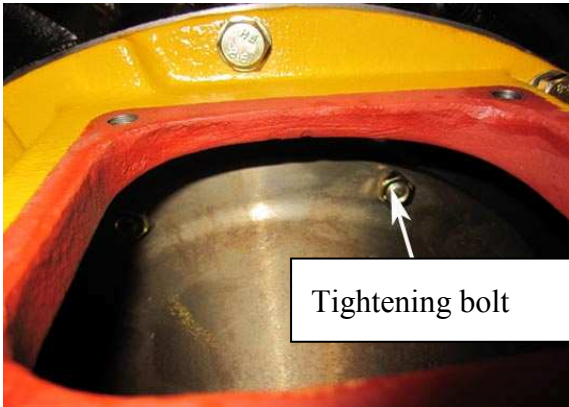
★ Note: 1) Prevent the collision and scratches.

2) Add a seal between engine and gearbox assembly.



Gearbox assembly



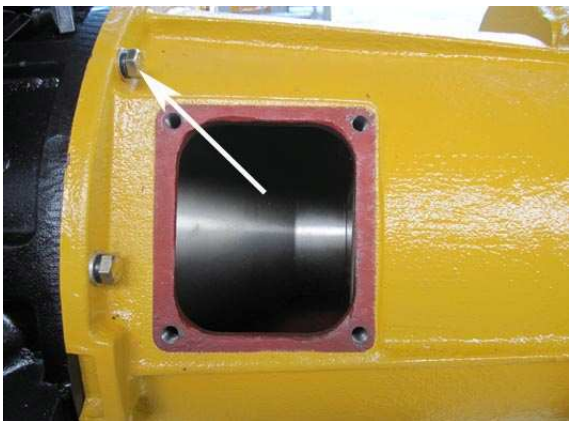


13. Twist the nut and washer on the stud bolt to connect the flywheel of engine and the elastic plate of the converter and tighten the nut.



Tightening Torque :45~59Nm。

Install the nut by rotating the converter.



14. Tighten the connection bolts between flywheel housing of engine and the gearbox assembly.

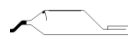


Tightening Torque :78~104Nm。

15. After checking, install the and install the window cover on the converter and tighten it.

★ Notice: 1) Tighten the bolts with the method of circular bolt group. Prevent the impurities from going into the converter when connecting the elastic plates

2) Coat around the window with sealing glue



609 sealing glue



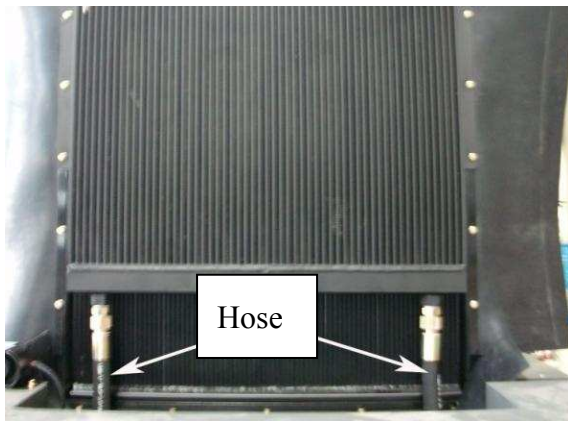
16. Hang the gearbox a little, take down the blocks supporting the engine and put the gearbox down.

17. Install the gearbox on the damper with bolts and washers. Tighten the bolts connecting the engine and frame.

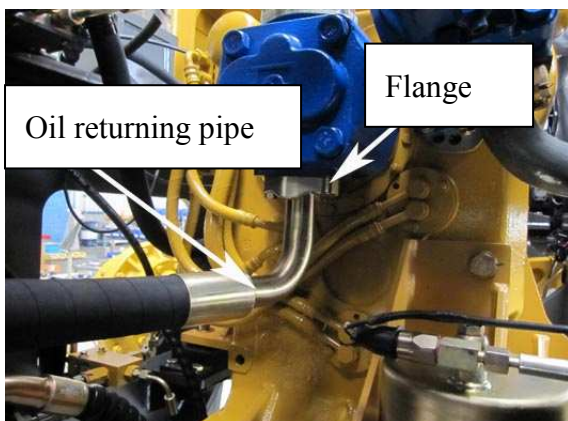


Tightening Torque : Gearbox 480~580Nm,
Engine:120~200Nm。



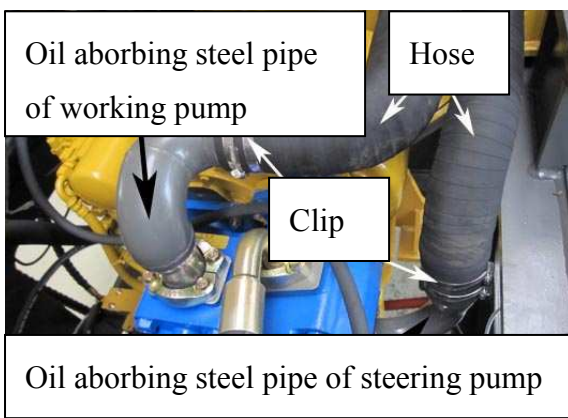


15. Install the pipeline from gearbox to radiator.

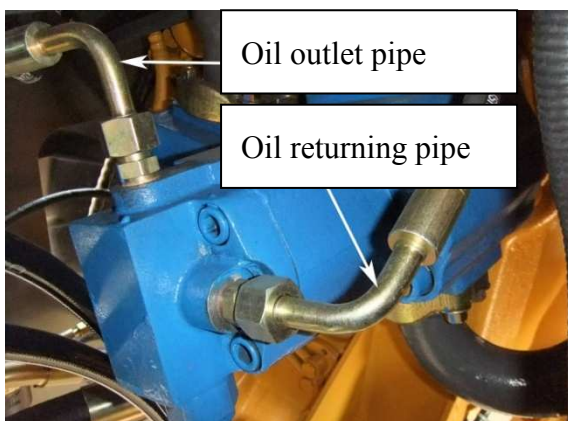


16. Fix the oil outlet steel pipes on the corresponding position of the working pump with bolt, flange and O-ring.

★ Tighten the bolts in principle of crossing symmetry.



17. Coat the inner part of the connector on the hydraulic tank of the oil absorbing hose of steering pump and working pump with some oil. And install them on the port of the hydraulic tank and tighten them with clamps.



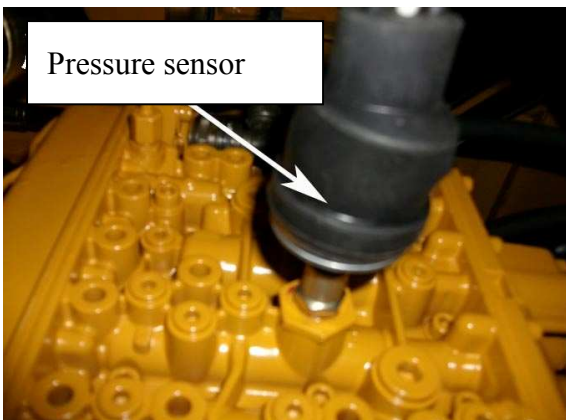
18. Fix the other ends of the upper oil outlet / returning pipes of the pilot pump on the corresponding position.



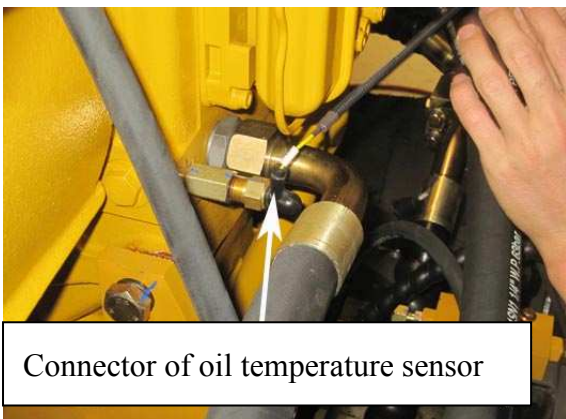
19. Install the oil filling hoses of gearbox.



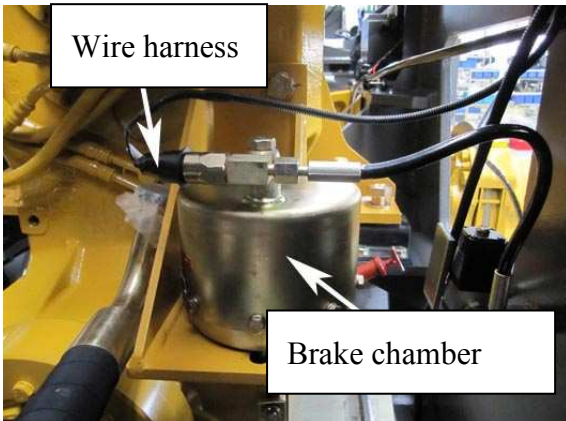
20. Insert the connectors of wire harness on the shifting gear system on the corresponding position of gearbox. Cut off the connection between the wire harness of gearbox and cab.



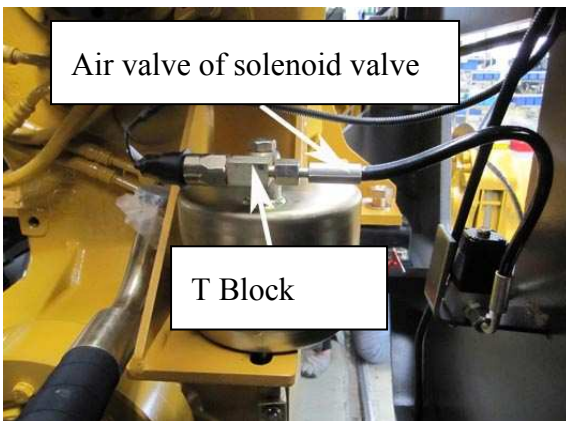
21. Connect the connectors of wire harness on the gearbox pressure sensor with the wire harness of rear frame.



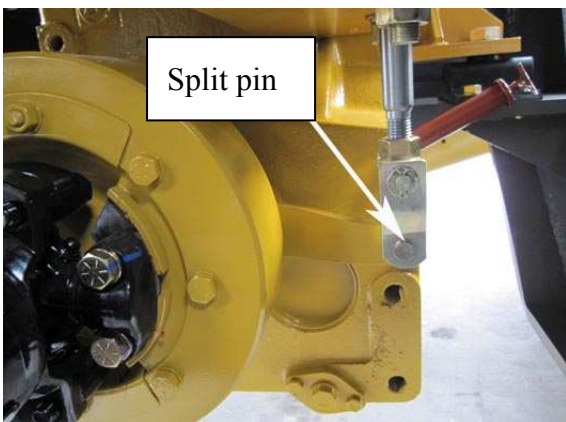
22. Connect the connectors of wire harness of the oil temperature sensor with the wire harness of rear frame.



23. Connect the connectors of wire harness connecting the parking brake chamber and the parking brake switch.



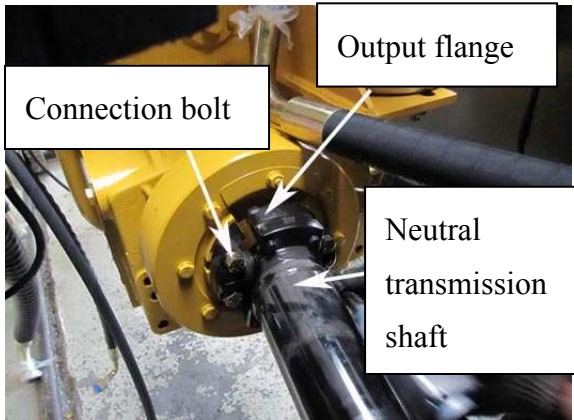
24. Connect the air outlet pipe of solenoid valve with the **triple block** of brake chamber.



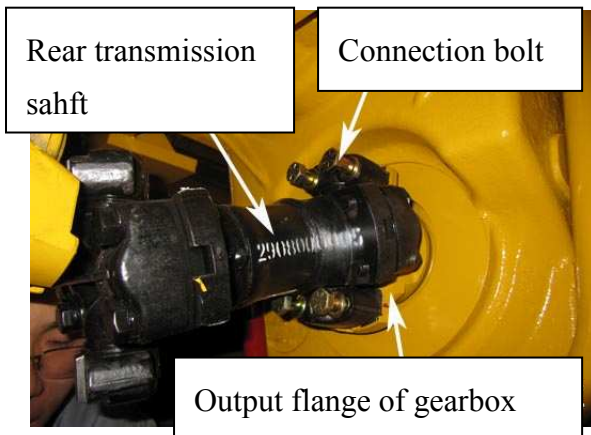
25. Connect the split pins of the parking brake



26. Install the hydraulic tank.
Refer to “Installation of hydraulic tank”



27. Install the neutral transmission shaft on the output flange of gearbox and tighten it with connection bolts.



28. Install the rear transmission shaft on the output flange of gearbox and tighten it with connection bolts.



29. Install the cab.

Refer to " Assembly of cab assembly" .

30.Fill the hydraulic transmission oil

Fill the gearbox with hydraulic transmission oil (38-40L).

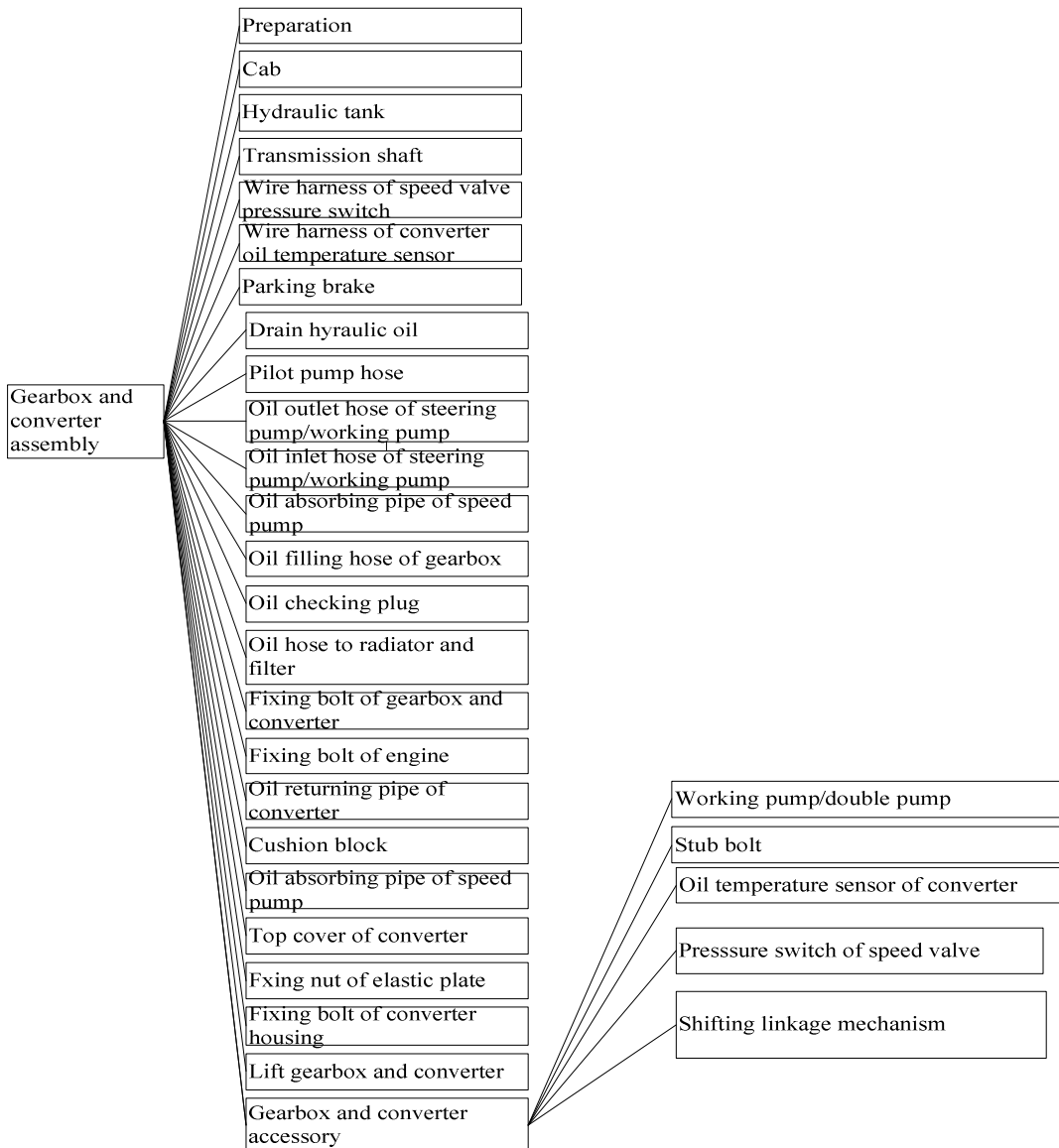
Oil level control: Fill the oil between the two scales.

4.1 .2 Disassembly and Assembly of LG956L

Gearbox And Converter

I Disassembly of the Gearbox And Converter

(These following steps could be referred to changing Gearbox And Converter, examining and repairing the interior of duplex-transmission and disassembling the duplex-transmission from complete appliance.)





Unload oil:

Start the complete appliance and drive it to the capacious place. Raise the boom to the highest position. Tilt the bucket backward to the extreme position, and then close the engine.



Pull the bucket operation handle forward (or pull the operation handle by single handle to right). Make the bucket turn forward at the effect of self-weight. So drain the oil in the rotating oil cylinder.



When the bucket rotates to the position, pull the boom lever forward (or operate the handle by single handle). Make the boom turn forward at the effect of self-weight. So drain the oil in the boom oil cylinder. Keep the bucket flat on ground. Then operate the boom lever from the lower position to raise position 5~6 times. Operate the bucket lever from the forward tilt to rear tilt 5~6 times.



Fix the loader wheels with wood chocks stability.

★Remark: 1) Disassemble it after the torque converter becomes cool.

2) In the process of disassembly, the joints of each pipeline should be band up to avoid the sundries entering into the pipeline.



Disassemble the cab.

As shown in “Disassembly of cab assembly”.



1. Disassemble the hydraulic oil tank.

As shown in “Disassembly of hydraulic oil tank assembly”.



2 Shear off the tightening iron wire of front transmission shaft.



Remove the fixing bolts of front and rear transmission shaft and cut off the connection between transmission and gearbox.

★ Notice: Connection between transmission shaft and front and axles do not remove.



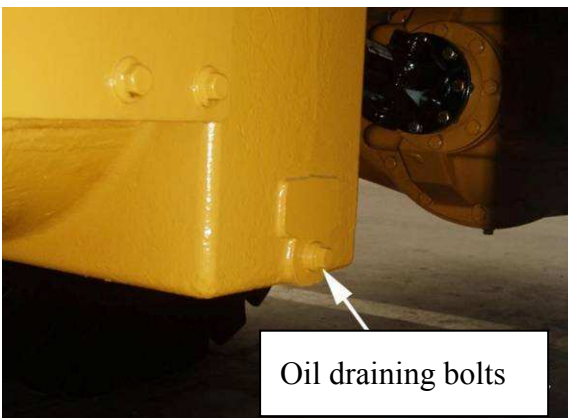
3. Cut off the connection between speed valve pressure switch and wire harness.



4. Cut off the connection between converter oil temperature sensor and wire harness.



5. Cut off the connection between brake air chamber and parking brake.

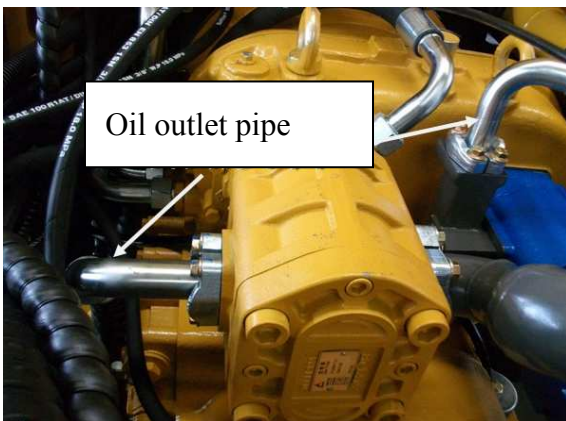


6. Remove the oil draining plug on the left of gearbox to drain the hydraulic transmission oil.

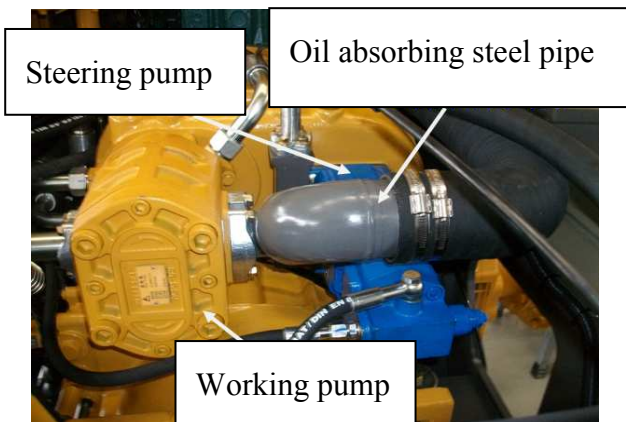
★**Notice:** 1) Choose the suitable size of wood block. Prevent impurities from mixing
2) Be careful of the spoiled oil.



7. Remove the nut on the oil returning hose of pilot pump. Cut off the connection between the hose and double pump.



9. Remove the bolts on the oil outlet hose of working pump and take down the flange. Cut off the connection between the oil outlet hose and working pump.



10. Remove the clamps on the hose of pump. Cut off the connection between the oil absorbing steel pipes and the hose.

Remove the clamps on the oil absorbing hose of steering pump. Cut off the connection between the oil absorbing steel pipes of steering pump and the hose



11. Cut off the connection of oil inlet pipes of speed pump.

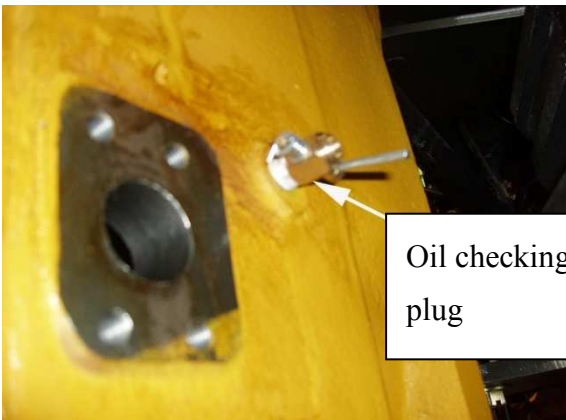
1) Cut off the connection between oil inlet pipes of speed pump and working pump.



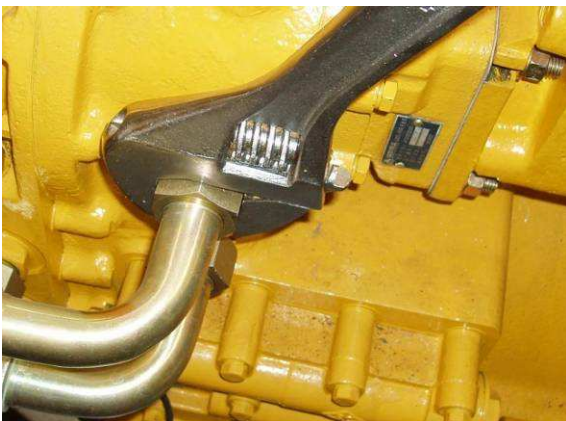
2) Cut off the connection between oil inlet pipes of speed pump and oil outlet port of gearbox oil absorbing flange.



12.Remove the connection flange of speed pump oil filling pipes and cut off the connection of oil filling pipes and gearbox and take down O ring.



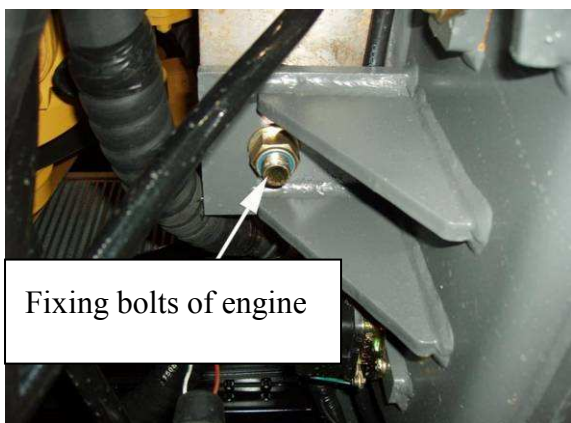
13 Remove the oil checking plug.



14. Cut off the connection between the inlet/outlet hose from converter and radiator to radiator and filter.



15. Cut off the connection bolts between the converter and radiator assembly and frame.



16. Loosen the connection bolts between engine and frame (Don't remove it), and rotate the locking nut to the end of bolts.



17. Loosen the fixing clamps of converter oil returning pipes and cut off the connection between hoses and converter.



18. Hand the gearbox for a distance and put a wooden block between engine and assistant frame to keep the engine steady.

★ Notice: 1) The size of wooden block should be proper to prevent filter cap from colliding with engine hood. There is an angle on the output end of power engine to simplify the installation of gearbox assembly. 2) After the block is put well, keep certain pre-tighten force between ropes and gearbox assembly.



19. Remove the top cover of converter.



20. Observe the connection nut between elastic plate on the converter from the watch port of the converter.



21. Remove the connection bolts between converter housing and flywheel housing of engine.



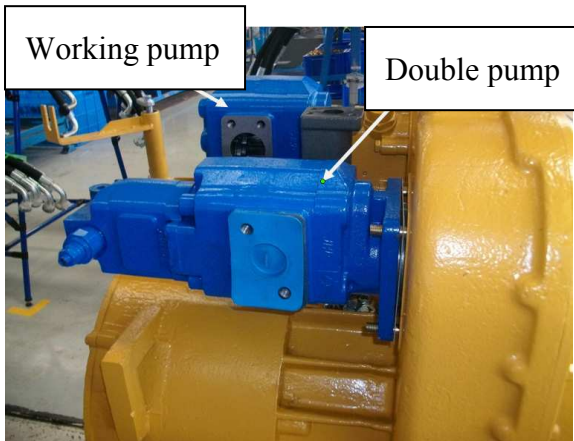
22. Lift the gearbox assembly and put in the corresponding position of the frame to make it match with engine.

Remove the ceiling cover of converter, note the matching between double nut bolt and elastic plate.

Connect the gearbox and the engine. Prevent the collision and scratches. Add a seal between engine and gearbox assembly.



Gearbox assembly



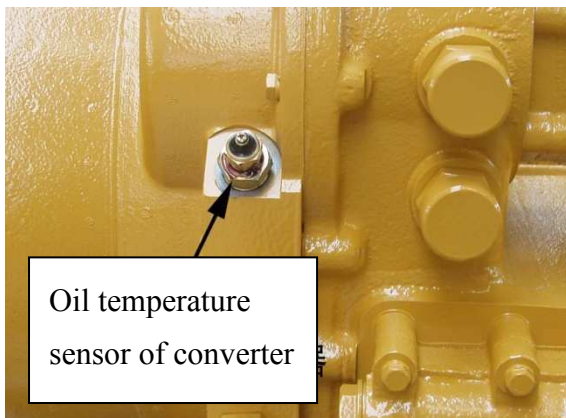
23. Components of gearbox and converter assembly

1) Remove the fixing bolts of working pump and double pump to remove the working pump and double pump and seals.

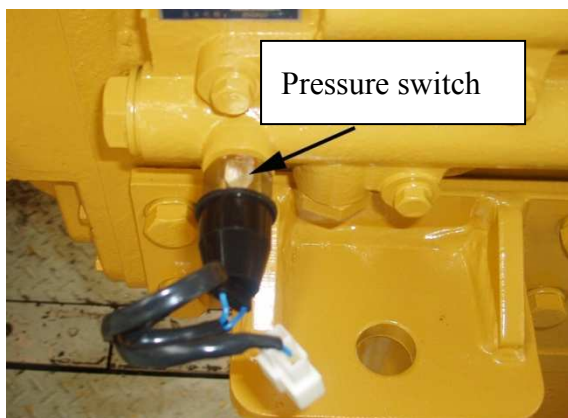


2) Remove the stub-bolt.

★ Note: Don't remove it by hand. Tighten two bolt against with each other and remove them by wrench.



3) Remove the oil temperature sensor.



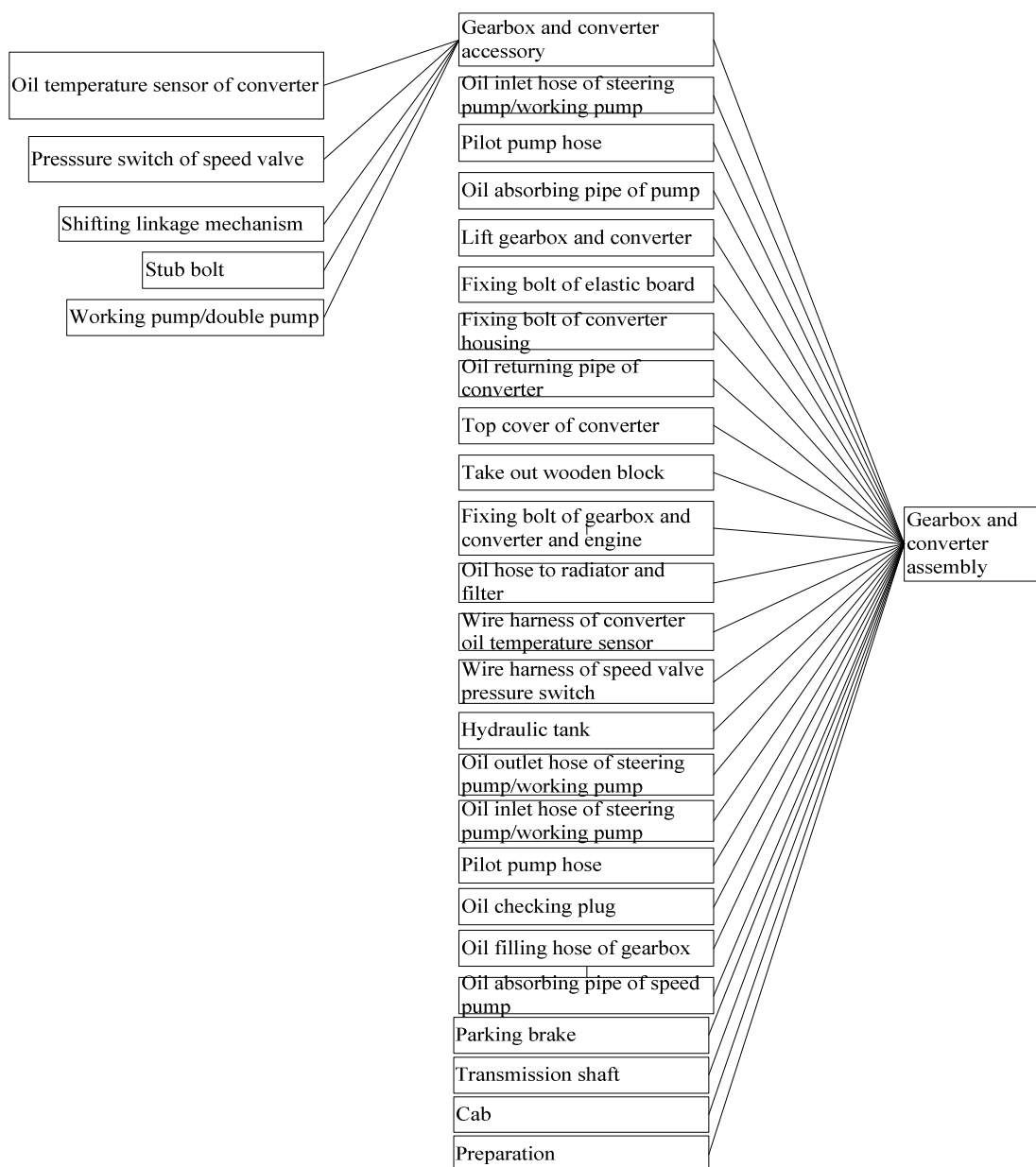
4) Remove the pressure switch

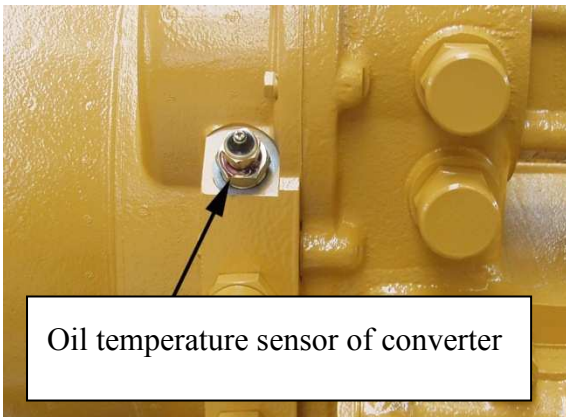


5) Remove the shifting linkage mechanism.

II Assembly of Gearbox and Converter

(These following steps could be referred to changing Gearbox and Converter, examining and repairing the interior of duplex-transmission and assembling the Gearbox and Converter to complete appliance.)





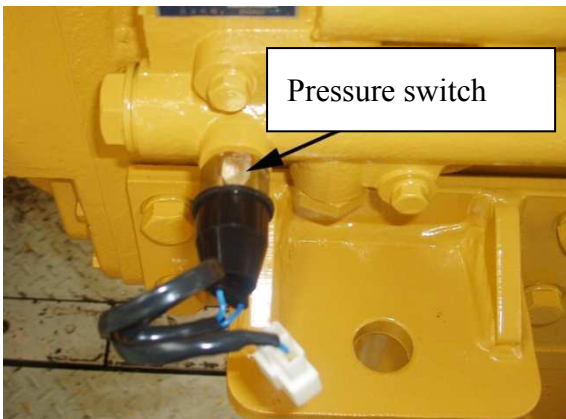
1. Install the components of gearbox and converter assembly.

1) Install the converter oil temperature sensor.

Clean the torque converter oil temperature sensor with clean paper. And spray the screw hole with AT755 high efficient cleaner. And screw the sensor coated with AT455 oxygen-wear pipe screw sealant on the joint of the oil thermometer. Coat technology is as follows: (1) Coat the external screw of parts 1 circle and the coating width is 3~5 screws. The teeth of screw should be full of sealing glue. The first teeth should not be coated with glue and done when assembling. After assembly, there should a complete glue wire on the edges of external screw and screw holes. (2) The parts coated with glue should not be tightened with air wrench. Tighten it with hand wrench. Tighten it to the corresponding port of converter.

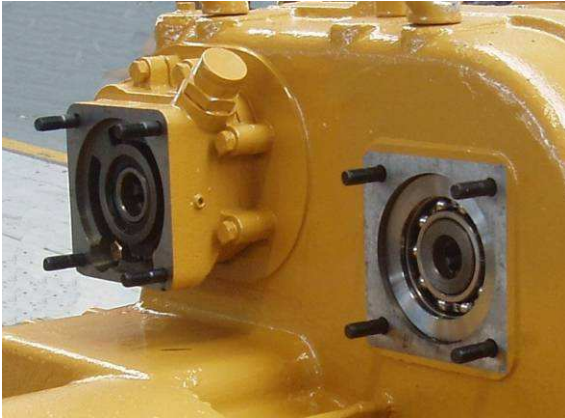
 AT545 sealant

2) Coat the external screw of parts 1 circle and the coating width is 3~5 screws. The teeth of screw should be full of sealing glue. After assembly, tighten them on the corresponding positions of gearbox and converter assembly.



3) Assemble the shifting linkage to the corresponding port of gearbox and converter assembly with bolts

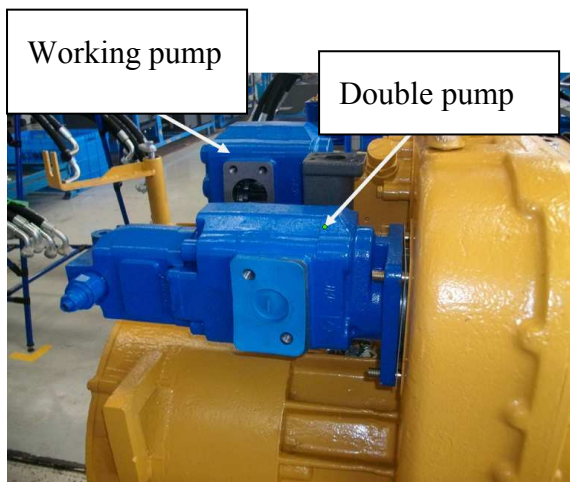




4) Install the stub-bolt and seals for pump.

Tighten the stub bolts on the end surface of pump and installation surface of steering pump.

- ★ Install it from short screw end.
- ★ Don't assemble with hands and tighten two nuts against with each other. And tighten the external nut with wrench



5) Working pump and double pump

Install the working pump with nuts and washers tightening. In the process of assembly, rotate the elastic board of convert to make the pump installed easily.

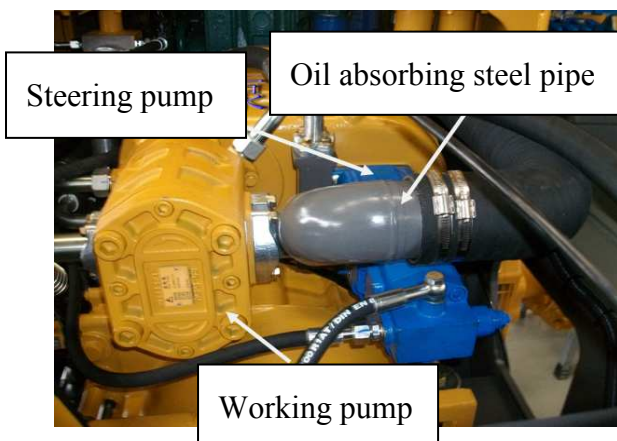


Tightening torque: 78~104Nm.



Working pump and double pump

2. Install O-ring on the port of oil absorbing steel pipe on the double pump. Connect the oil absorbing steel pipe on the working pump and hose. In the same way, connect the the oil outlet steel pipe on the steering pump and the steering pump with bolts, flange and O-ring, and connect the oil outlet steel pipe and hose with clips.





3. Install the oil inlet/outlet pipes on the corresponding connectors of the pilot pump.



Tighten torque: 30~40Nm

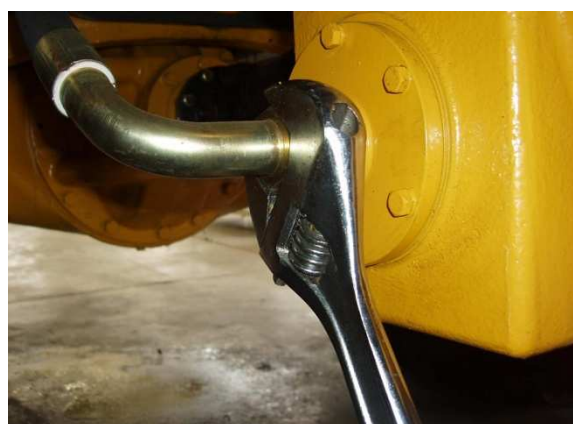
Oil outlet pipe



4. Install the oil inlet hose of the steering pump. And install the other end on the oil inlet port of gearbox and tighten them in case of twisting.



Tighten torque: 130~160Nm



- 5 Lift the gearbox assembly and put in the corresponding position of the frame to make it match with engine.

Remove the ceiling cover of converter, note the matching between double nut bolt and elastic plate. Connect the gearbox and the engine.

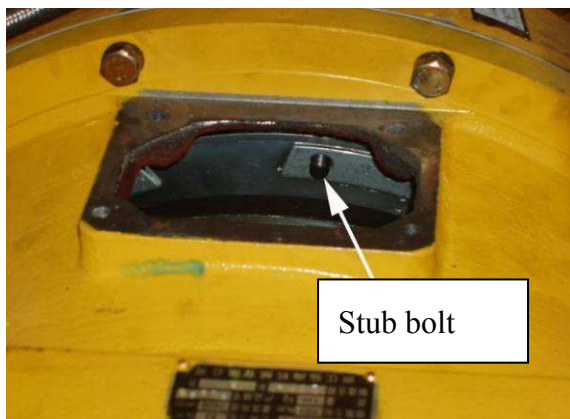
★ Note: 1) Prevent the collision and scratches.

2) Add a seal between engine and gearbox assembly.



Gearbox and converter assemble





6. Twist the nut and washer on the stud bolt to connect the flywheel of engine and the elastic plate of the converter and tighten the nut.



Tightening Torque :45~59Nm。

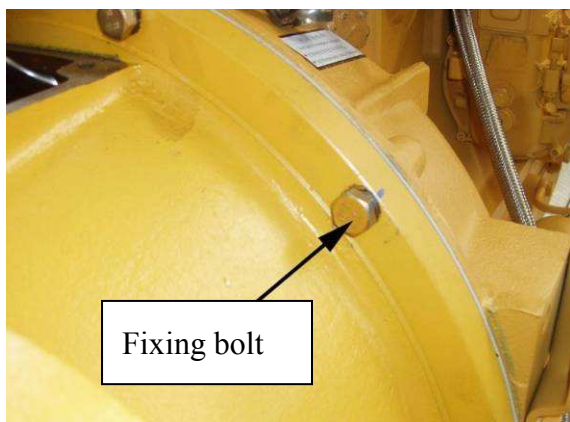
Install the nut by rotating the converter.



7. Tighten the connection bolts between flywheel housing of engine and the gearbox assembly.



Tightening Torque :78~104Nm。



8. After checking, install the and install the window conver on the converter and tighten it.

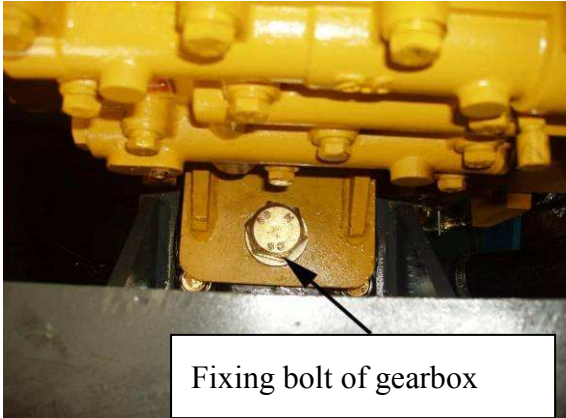
★ Notice: 1) Tighten the bolts with the method of circular bolt group. Prevent the impurities from going into the converter when connecting the elastic plates

2) Coat around the window with sealing glue



609 sealing glue





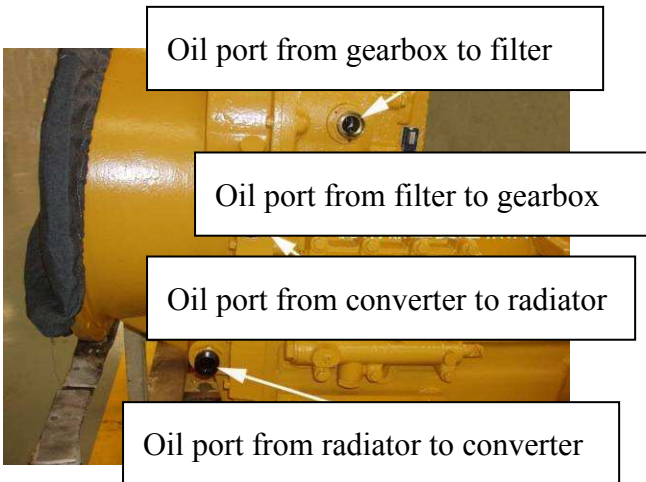
9. Hang the gearbox a little, take down the blocks supporting the engine and put the gearbox down.
10. Install the gearbox on the damper with bolts and washers. Tighten the bolts connecting the engine and frame.



Tightening Torque : Gearbox 480~580Nm,
Engine: 120~200Nm.



11. Install the pipeline from gearbox to radiator. Connect the bent joints from radiator and converter to the corresponding position and then connect the oil inlet/outlet pipes on the gearbox in case that the oil inlet/outlet pipes are twisted.



★Notice: Clean the oil on the gearbox joint with paper before installing the oil inlet/outlet pipes and the hoses from radiator and converter. Clean the screws again after assembly to ensure that there is no oil remaining.



Tightening Torque : 130~160Nm,



12. Connect converter oil temperature sensors wire harness.



13. Connect the wire harness of speed valve switch.



14. Install the hydraulic tank.

Refer to “Assembly of hydraulic tank”



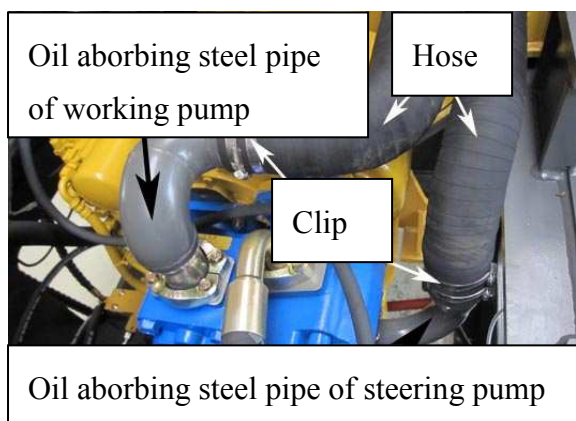
15. Install O-ring of oil outlet hose of working pump and steering pump and install it on oil outlet port of double pump with 4 bolts-M M10×30 and split flange.



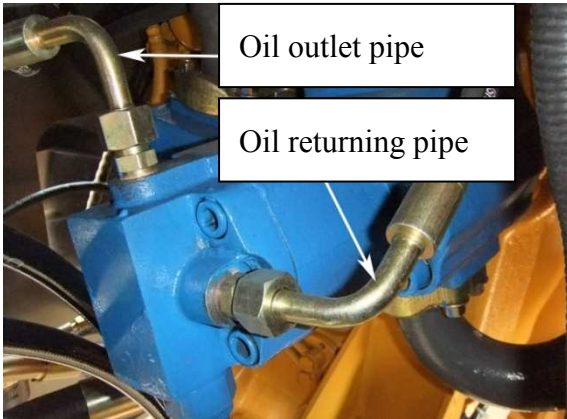
kgm

Tightening Torque : 45~59Nm,

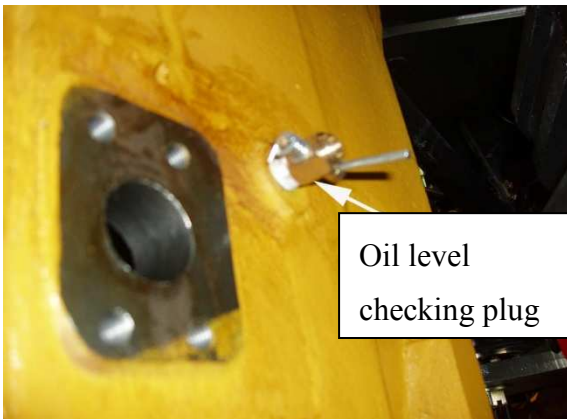
★ Tighten the bolts in principle of crossing symmetry.



16. Coat the inner part of the connector on the hydraulic tank of the oil absorbing hose of steering pump and working pump with some oil. And install them on the port of the hydraulic tank and tighten them with clamps.



17. Fix the other ends of the upper oil outlet / returning pipes of the pilot pump on the corresponding position.

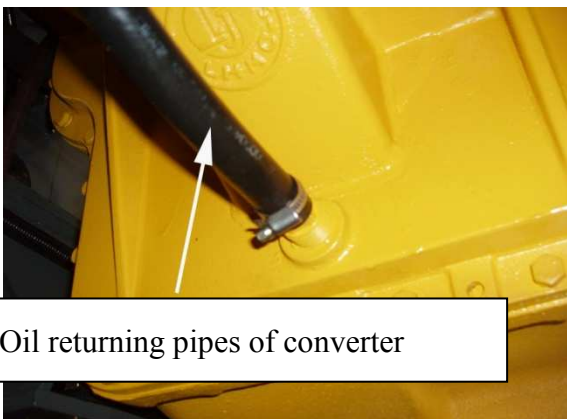


18. Wrap the oil checking plug with some material and tighten it on the corresponding position.

★Notice: When the handle of oil plug is vertical with box, it is closed.



19. Install the oil filling hoses of gearbox.



20. Connect the oil returning pipes of the gearbox with oil returning port of converter and tighten them with clamps.

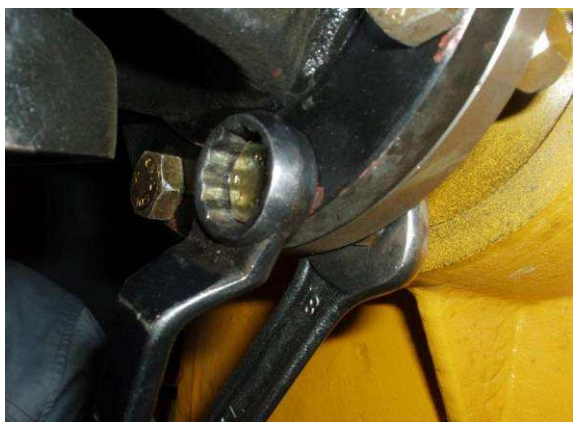


21. Connect the the parking brake chamber and the parking brake switch.



22. Install the transmission shaft

Connect the front transmission shaft with handy brake flange with 8 bolts and washers. Tighten every two bolts with steel wire for “8” shape.



Connect the rear transmission shaft with output flange with 8 bolts and washers.

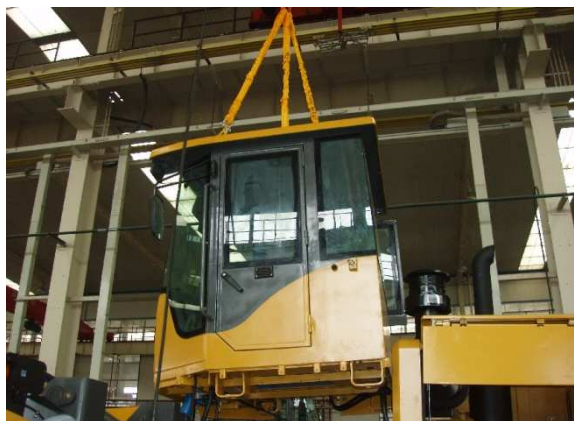


Tightening Torque : 78~104Nm

★Notice: Align the two transmission shaft according to the arrows.

23. Install the cab.

Refer to ” Assembly of cab assembly” .

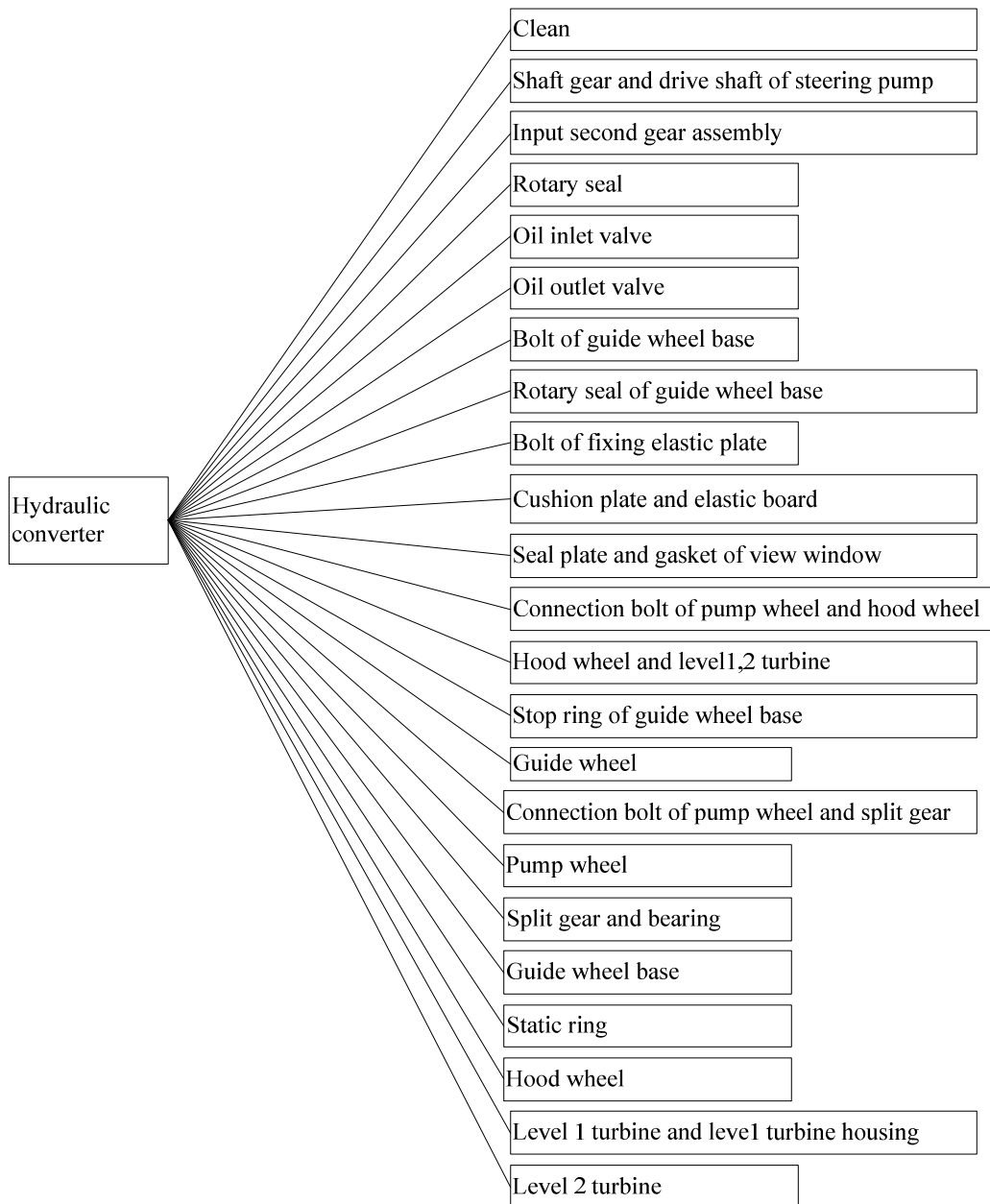


24.Fill the hydraulic transmission oil

Fill the gearbox with hydraulic transmission oil (38-40L).

Oil level control: Fill the oil between the two scales.

4.1.3 Disassembly and Assembly of LG956L Converter



I Disassembly of Converter

1. After the converter is cleaned, put it on the working platform with big head down.



2. Hit the gearbox combination surface. Remove the shaft gear and driving shaft of steering pump.



3. Remove the level 2 gear assembly.



4. Rotate rotary oil seal.





5. Remove the oil valve.



6. Take out the oil valve.



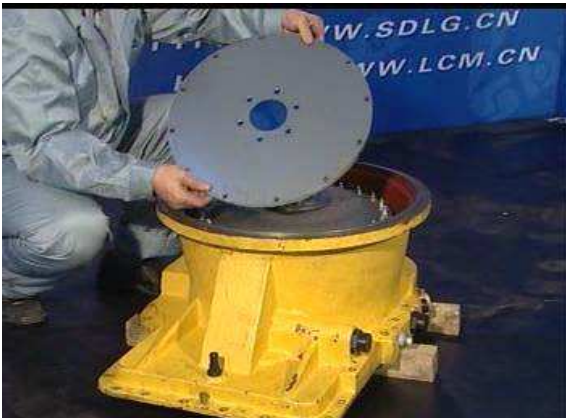
7. Remove the bolts of fixing guide wheel base.



8. Take the rotary seal of guide wheel base.



9. With the connection surface between converter and gearbox downup, put it level on the working platform and loosen the bolts of fixing elastic plate.



10. Take down the round board and elastic plate assembly.



11. Remove the fixing bolts of observation window and take observation window and the washers down.



12. Remove the connection bolts between pump wheel and hood wheel, and take down the bolts, nuts and washers.



13. Take down the hood wheel and level 1/2 turbine assembly with hanging rings. Do not hit them with metal bar.



14. Take down the stop rings on the guide wheel base with stop rings used for shaft.



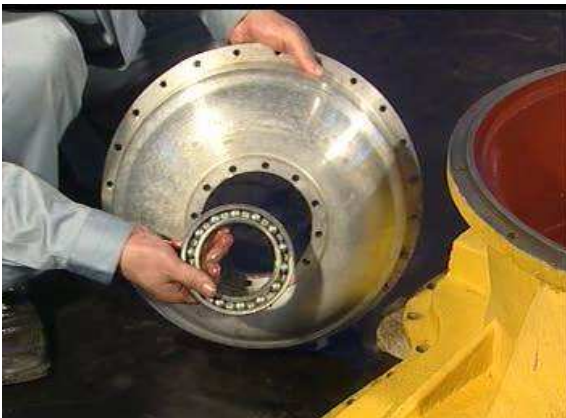
15. Take out the guide wheel.



16. Loosen the connection gear of pump wheel and split gear and take down the bolts and washers.



17. Take out pump wheel. Firstly tip the locking plate level, then loosen the bolts to separate the pump wheel and split gear. Pull out the pump wheel and bearings with press tools.



18. Take down the split gear and bearings and check the wear condition of gear inner hole.



19. Put the converter housing vertically. Hit the guide wheel base out of the housing slightly and take the base out. Check whether the seal rings installed on the base are damaged and the wear condition of seal surface.



20. Loosen the guide base, take down the static ring and spring and stop pin. Check the wear condition of static ring surface.



21. Take down the hood wheel.

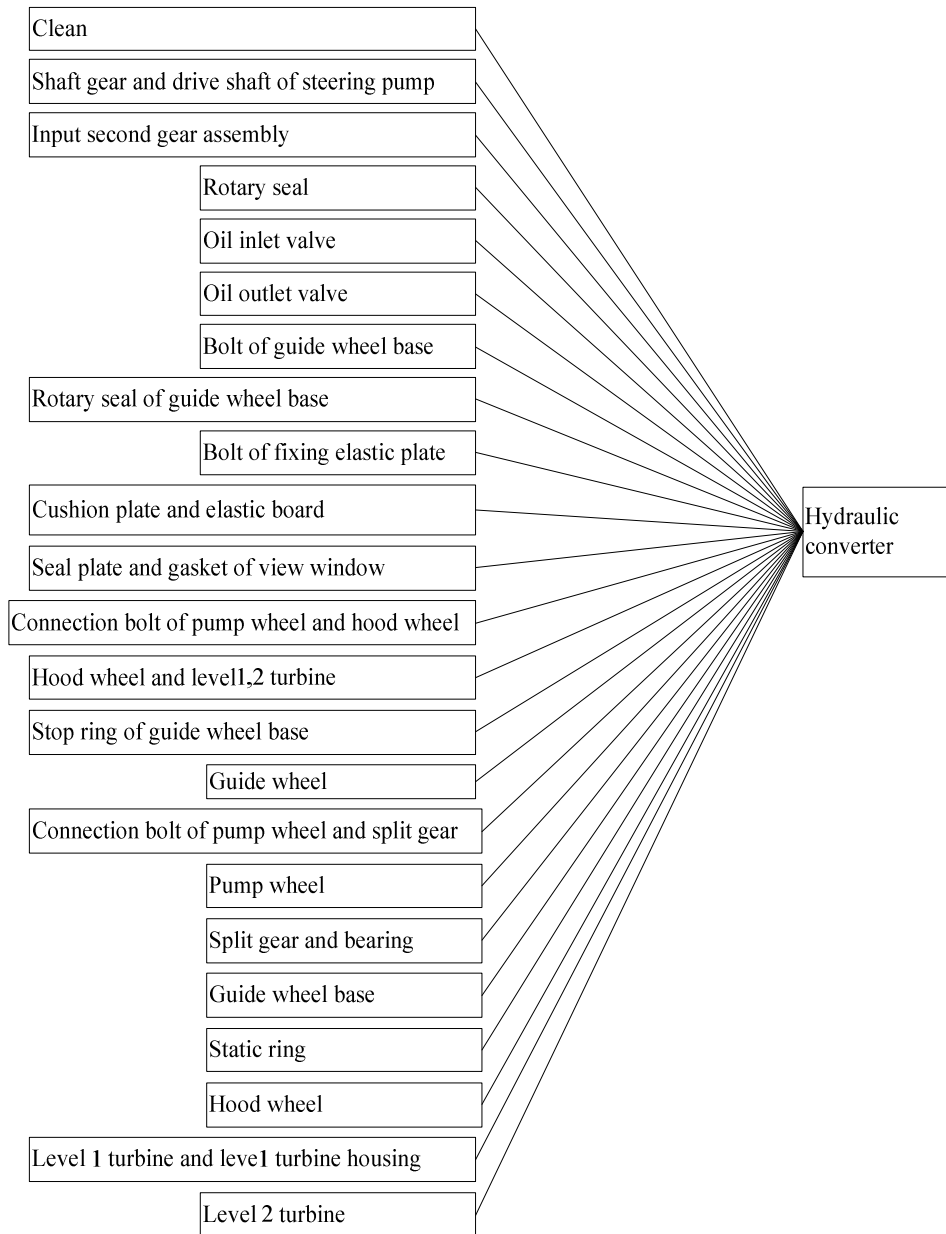


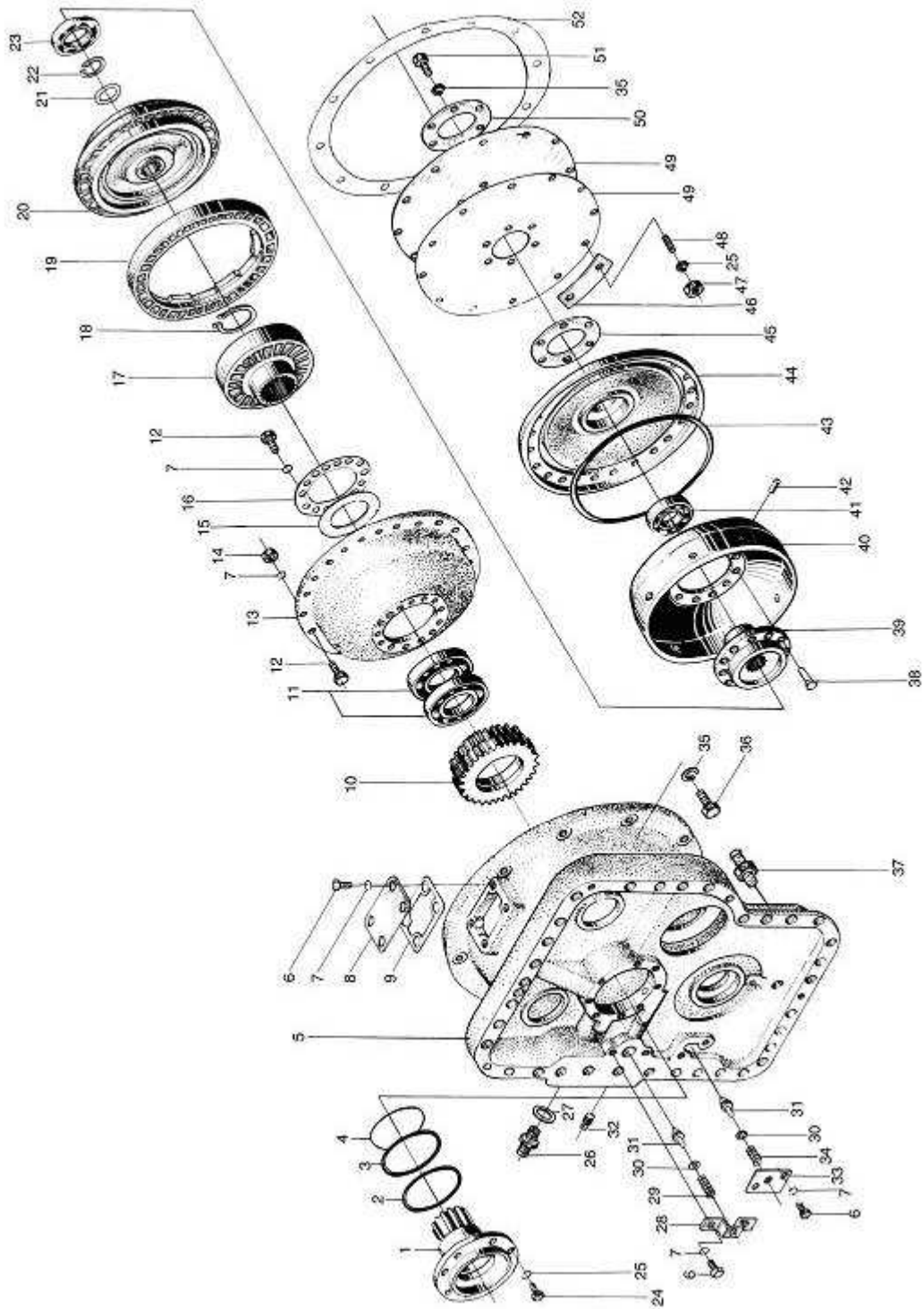
22. Hit out 9 pins between level 1 turbine and level 1 turbine housing and separate the turbine and the housing.



23. Hit the level 2 turbine out of the turbine housing. Check whether the bearing base and bearing are damaged and whether the leaves of level 2 turbine are damaged.

II Assembly of converter





YJSW315型液力变矩器



1. Firstly clean all the components.



2. Fill the bearing hole of level 1 turbine wheel with the grease, and install level 2 turbine into level 1 turbine wheel. Rotate the level 2 turbine wheel to check whether it can be rotated flexibly.



3. Align level 1 turbine pin hole with turbine housing pin hole and then install level 1 turbine into level 1 turbine housing. Hit 9 connection pins inside from inside to outside.



4. Clean the converter housing, put the big surface of the converter on the platform. Check the quality of seal ring, check whether there are burrs on the seal groove of converter housing and install the seals on the guide wheel base.



5. Align the oil inlet/outlet hoses of guide wheel base and oil inlet/ outlet hoses of converter housing, and then hit the guide wheel base into housing slightly.



6. Install the fixing bolts and washers of guide wheel base, and tighten them according to symmetry and crossing principle.



Tightening torque: 45~59Nm



7. Keep the rotary seal port downwards and install the seal in to guide wheel base.



8. Install the quality of oil valve spring. Firstly install the oil valve on the base plates, install the spring, assembly the oil valve assembly on the converter housing and tighten them with bolts.



9. Install the quality of oil inlet valve spring, install the spring base, assembly the oil inlet valve assembly on the converter housing and tighten them with bolts.



10. Rotate the converter housing 180 ° . When rotating, protect the connection surface between oil inlet/outlet valve and converter. Install the quality of oil inlet valve spring, coat the springs with grease, install the spring into static ring and install the stop pin into static ring.



11. Install the static ring into guide wheel base.



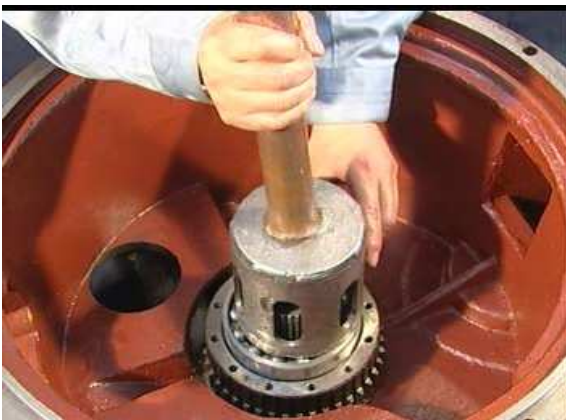
12. Install dynamic ring into split gear.



13. Hit the split gear into guide wheel base and rotate the split gear to check whether it is flexible.



14. Fill the bearing of guide wheel base and split gear with grease, and hit the bearing into split gears.



15. Hit the bearing into split gear and guide wheel base.



16. Coat the split gear surface with sealing glue.



17. Put the washer into pump wheel, and install the pump wheel on the guide wheel base. Tighten the washer and bolts according to symmetry and crossing principle and bent the locking plate in case of loosening.



Tightening torque: 22~30Nm



18. Repair the spline of guide wheel base and the spurs of inner spline and hit the guide wheel into the base slightly.



19. Install the stop ring to prevent the guide wheel from moving along the shaft.



20. Install big O-ring into seal groove of hood wheel, and install level 1 and level 2 turbine assembly into hood wheel.



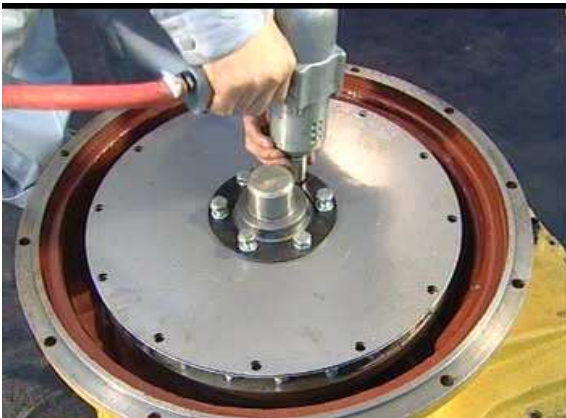
21. Hang the assembled assembly into converter housing.



22. Install the connection bolts and washers by the clearance on the top of housing and window, and tighten the washer and bolts according to symmetry and crossing principle



Tightening torque: 22~30Nm 。



23. Install the elastic board and round cushion plate on the hood wheel with bolts and washers, tighten the washer and bolts according to symmetry and crossing principle



Tightening torque: 78~104Nm 。



24. Install the cushion plate of observation window at last.

4.3 Disassembly and Assembly of Transmission Shaft

I Disassembly of Transmission Shaft

In the chapter, how to change the transmission shaft will be shown. The steps are shown as follow:

Preparing work:

Low the bucket on the ground before disassemble transmission shaft. Push the hand brake to the breaking location.

1. Disassemble the front transmission shafts.

1.1 Loosen the connection bolts and locking nuts of front transmission shaft and the front axle.

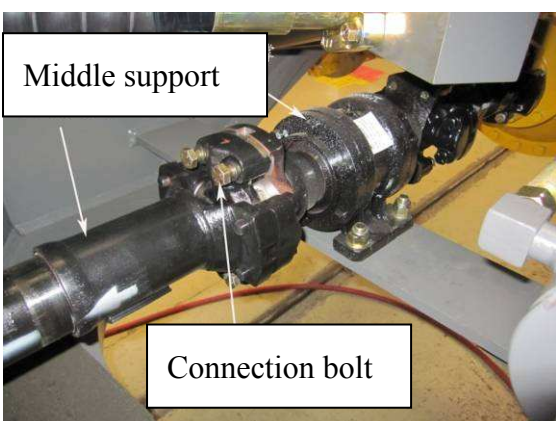
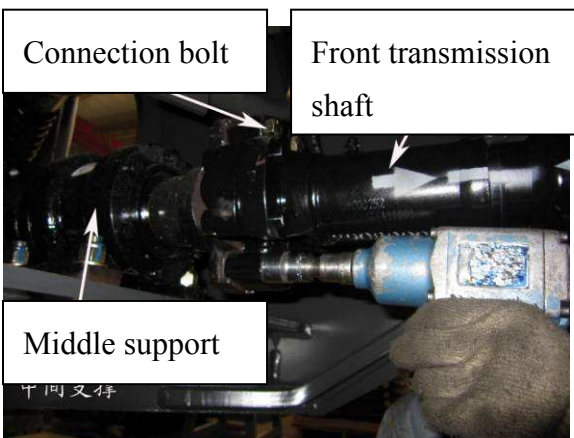
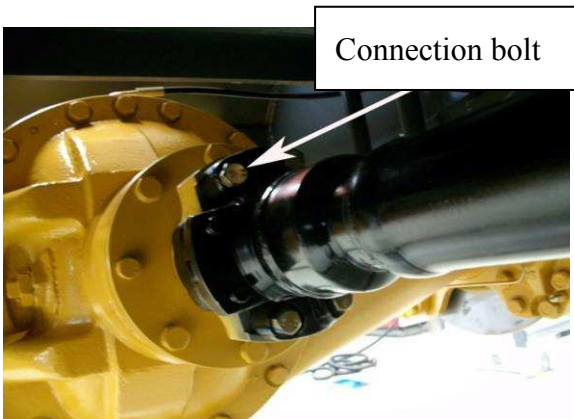
★Remark: Do not get off the bolts when loosen them and do that after the disassembly is complete.

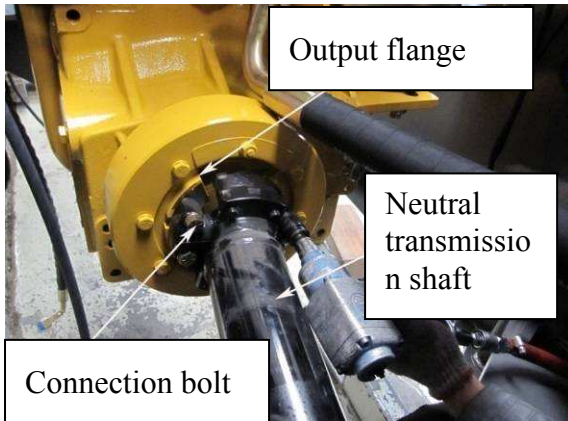
1.2 Get off the bolts and locking nuts between the front transmission shaft and the support and take the bolts down. Get off the front transmission shaft.

2. Disassemble the neutral transmission shafts.

2.1 Remove the bolts and locking nuts between the neutral transmission shaft and the support.

★Notice: When removing the bolts, loosen the bolt firstly and take them down after the parts are disassembled



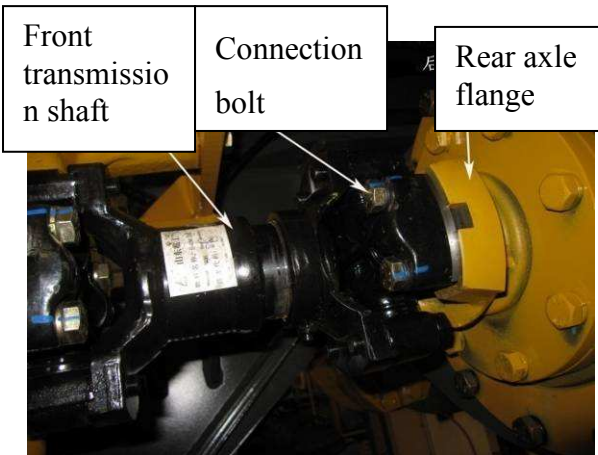


2.2. Remove the connection bolts between neutral transmission shafts and front output flange of gearbox. Take down the connection bolts between neutral transmission shafts and front support, front output flange of gearbox. Finally, take down the neutral transmission shafts.

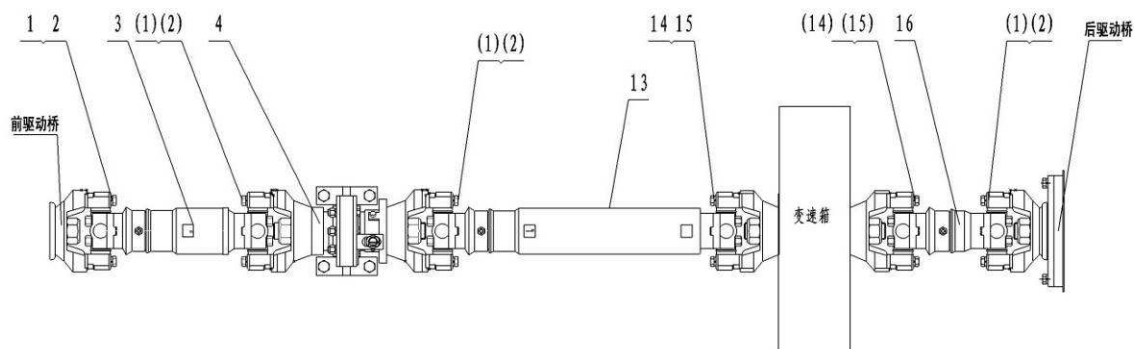
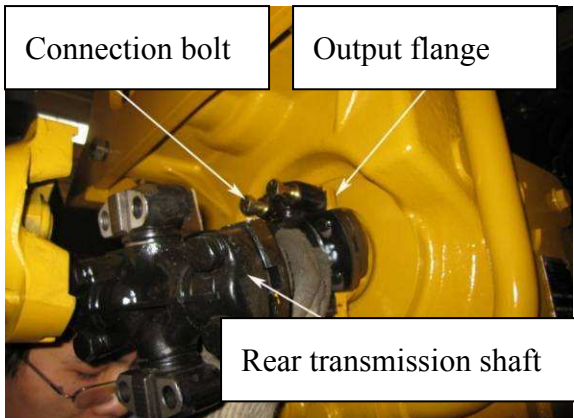
3. Disassemble the rear transmission shaft.

3.1 Loosen the connection bolts and nuts of the rear transmission shaft and the rear axle.

★**Notice:** When disassemble the bolts, loosen them first and get them off after both sides of it have been disassembled.



3.2 Remove the connection bolts between rear transmission shafts and rear output flange of gearbox. Take down the connection bolts of rear transmission shafts and rear output flange of rear axle, rear output flange of gearbox. Finally, take down the rear transmission shafts.



II Assembly of the transmission shaft

 Connect the rear transmission shaft (16) and rear output flange of gearbox with 4 bolts-LG05-LS1/2 " -20UNF (14) and 4 washers-LG05-DQ1/2 " (15) . Connect the rear transmission shaft (16) and rear output flange of rear axle with 4 bolts-GB5785-M12*1.25*50EpZn-8.8 (1) and 4 washers-GB93-12-65Mn (2) . Connect the neutral transmission shaft (16) and front output flange of gearbox with 4 bolts-LG05-LS1/2 " -20UNF (14) and 4 washers-LG05-DQ1/2 " (15) . Connect the neutral transmission shaft and middle support with 4 bolts-GB5785-M12*1.25*50EpZn-8.8 (1) and 4 washers- GB93-12-65Mn (2) . Connect the front transmission shaft (3) and middle support (4) with 4 bolts- GB5785-M12*1.25*50EpZn-8.8 (1) and 4 washers- GB93-12-65Mn (2) .

 Connect the front transmission shaft (3) and flange of front axle with 4 bolts-GB5785-M12*1.25*50EpZn-8.8 (1) and 4 washers GB93-12-65Mn (2) .

 Tightening torque of bolts: $90 \pm 15 \text{ N.m}$

Replacement of transmission is accomplished.

4.4 Disassembly and Assembly of Front Axle

In the chapter, how to change front and rear axles will be shown. The steps are shown as follow:

I Disassembly of Front Axle

1. Start the complete appliance. Operate the handle to raise the boom. Then, lower the bucket on the wood block slowly. (It is better to lay wood block under each tooth)

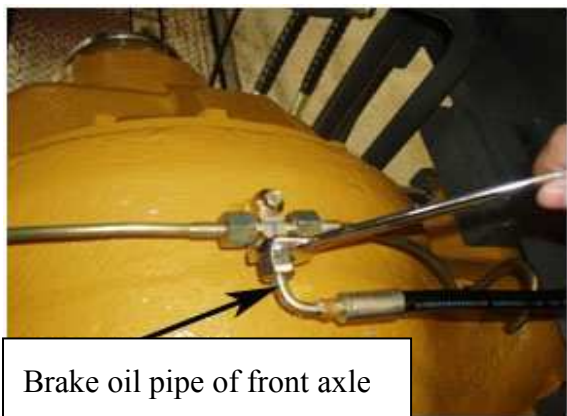
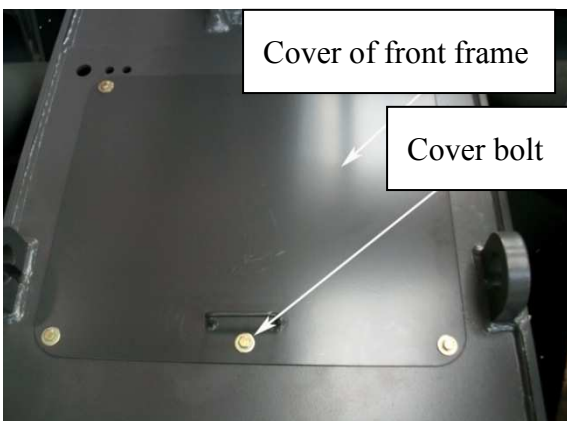
Operate the handle and lift the front wheel away the ground.

Put support frame under the front frame to support the front frame. Let the engine to be flameout.

2. Get off the cover of front frame.

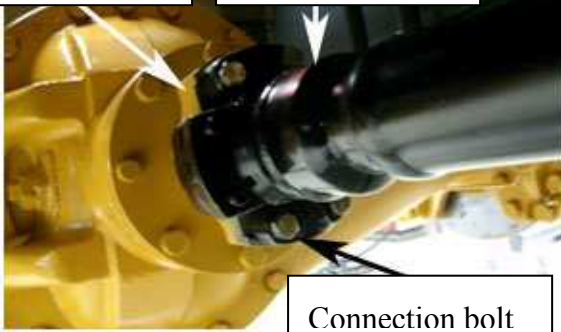
3. Get off the front axle brake oil hose of the T-joint.

★Pay attention to get the brake liquid with vessel under the axle. Protect the disassembled joint.



Front axle flange

Connection bolt

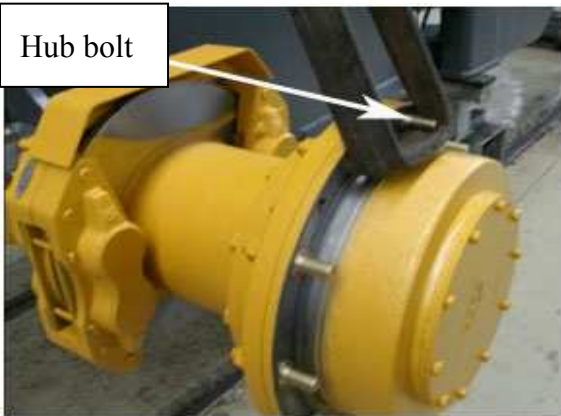


4. Remove the connection bolts of front transmission and front axle.

5. Remove the two wheels of the front axle, as shown in “Disassembly of front wheel”.



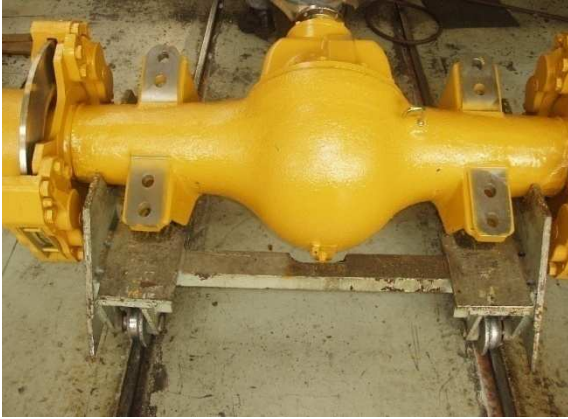
Hub bolt



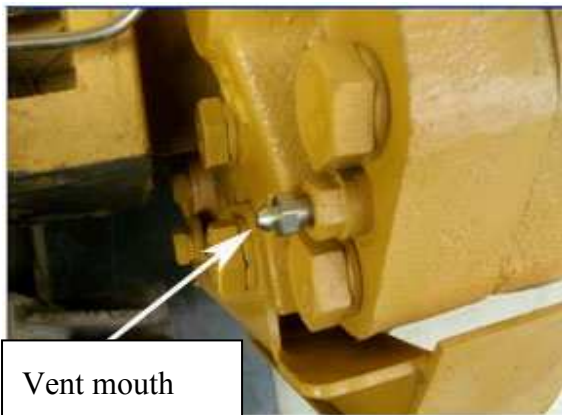
6. Hang the bolts of axle end hub with hanging tool.



7. Remove the bolts and nuts of axle and frame.



8. Lower the hanging rope slowly still the axle achieves the dolly. Get off hanging rope and push out the dolly.



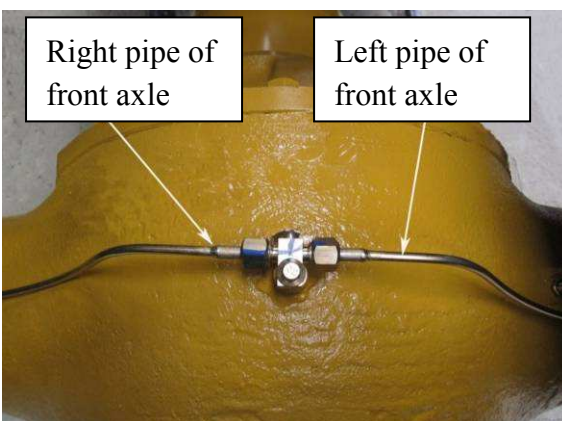
9. Get off the deflating mouth of the axle.

Remark: Pay attention to get the brake liquid with vessel under the axle. Protect the disassembled joint.



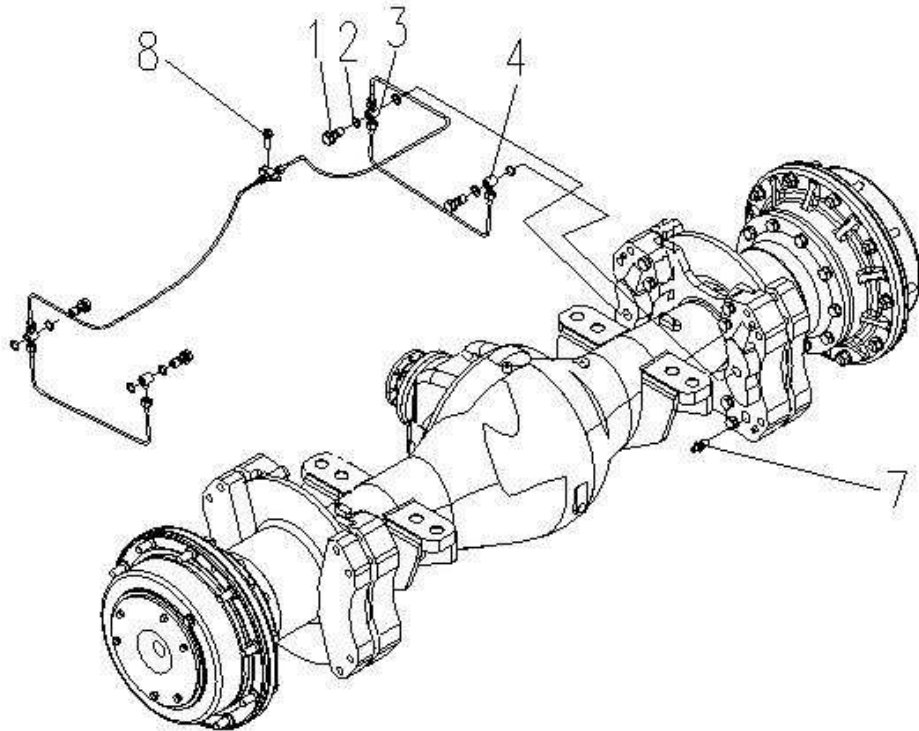
10. Remove the brake oil hose of the axle with brake forceps.

Remark: Pay attention to containing the brake liquid with vessel under the axle. Protect the disassembled connectors.



11. Remove the right and left pipes on the bottom axle.

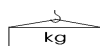
II Assembly of Front Axle



1. Install the right pipes of the front axle. Put the O-rings (2) in the O- grooves of the “T”block (3) of brake and connectors (4) of the brake. Fix Part 3 and 4 on the brake forceps with connectors (1) of brake pipes. Adjust the pipes vertically and tighten the connector (1) of brake and notice the direction of pipes.
2. Connect the left pipe of axle on the brake forceps with connectors. Fix the “T” connector on the front axle with a bolt M8×25 (8).

Make the end of “T” connector that connects with front booster pump forwards.

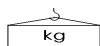
3. Install 8 vent ports (7) on the brake forceps. Don’t tighten the above 4 ports but don’t let them fall. Tighten the under 4 ports.
4. Put the assembled axle on a dolly and transport it under the frame.



Driving axle assembly



5. Hang up the front axle with lifting tool. Adjust the left and right position of the axle still installation holes on the axle and frame are aligned with each other. Tighten the bolts and nuts by hand.



Driving axle assembly



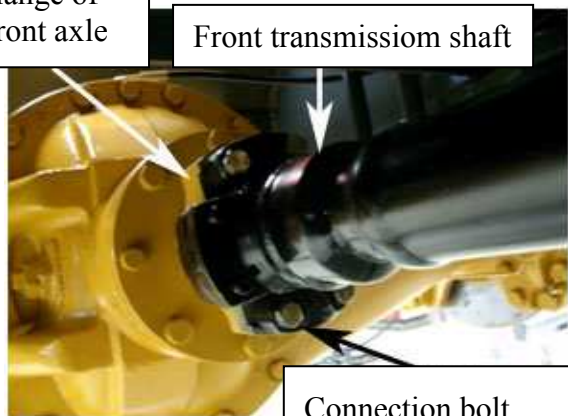
6. Tighten the connection bolts and nuts of axle and frame by tools.



M30 Tightening torque: $730 \pm 70 \text{ N.m}$

Flange of
Front axle

Front transmissiom shaft



Connection bolt

7. Install the front transmission shaft on the front axle.



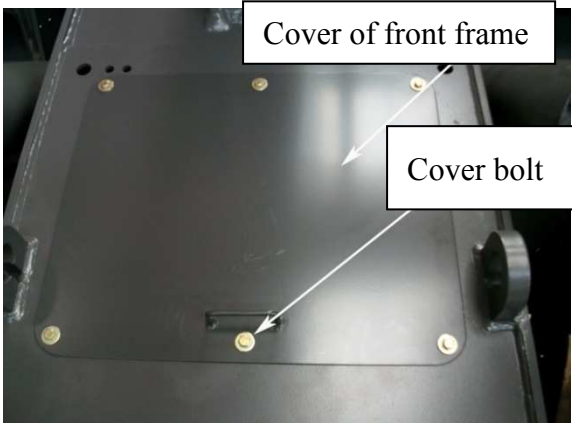
Tightening torque: $90 \pm 15 \text{ N.m}$



8. Install the front axle brake oil hose on the axle T-connector.



Tightening torque: $30 \sim 40 \text{ N.m}$



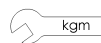
9. Install the cover plate of front frame.



10. Install the front wheels. As shown in “Assembling of front wheels”.



11. Add brake liquid and drain up the air of the brake. Add full of HZY 3 brake liquid in brake oil cup (GB/T12981-2003). Start the engine. After the barometer getting the appointed pressure, drain the air up in the booster pump. The people out of the loader loosen the deflating mouth on the brake clamp. The people in the loader tread the brake valve to drain the air still the complete liquid without air bladder drains from the mouth. After that, tighten the deflating mouth. In the deflating process, add brake oil into oil cup in time. At last, add oil to the middle-higher level of the oil cup and install oil cup cover. Pay attention to that the deflating mouth should be tightened by torque wrench.



Tightening torque: 25~35 Nm

4.5 Disassembly and Assembly of Rear Axle

I Disassembly of Rear Axle

In the chapter, how to change front and rear axles will be shown. The steps are shown as follow:

1. Remove the fuel tank before assembling the rear axle. Refer to Disassembly of Fuel Tank,



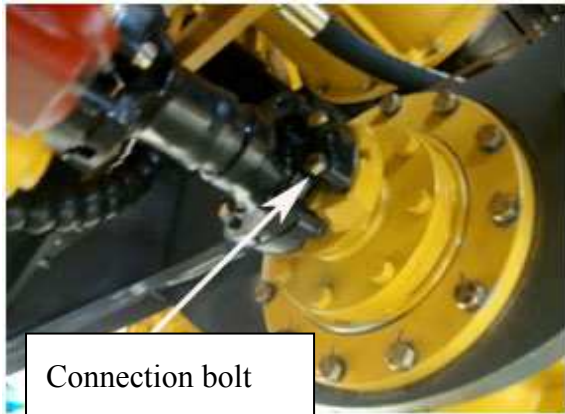
2. Remove the two wheels of the rear axle. Refer to Disassembly of Rear Wheel. The disassembly method of support is the same as that of the wheel.



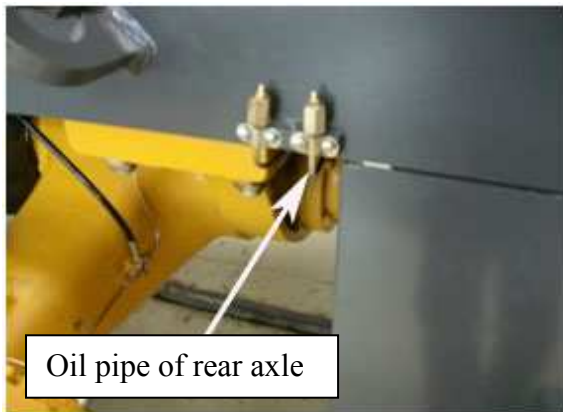
3. Remove brake oil hose of the front axle on the T-connector.

★Notice: Contain the brake liquid with vessel under the axle. Protect the disassembled connector.





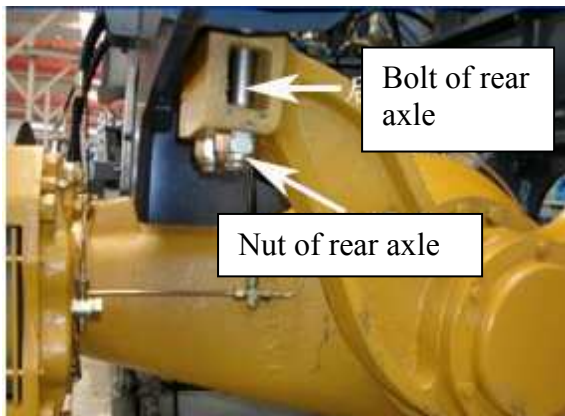
4. Remove the connection bolts and nuts connecting rear transmission shaft with rear axle.



5. Remove the fixing bolts of pipe clamps of rear axle to remove the pipes of rear axle.



6. Hang the rear axle end hub bolts with lifting tool.



7. Remove the bolts and nuts connecting rear axle with rear frame.



8. Operate the dolly to level the rear axle. Tip the rear axle backwards slowly with copper lever and hit it symmetrically. When the rear axle is hit out completely, persons under the frame should leave away. Shake it lightly to get it out from the rear axle frame. And put it on a dolly.

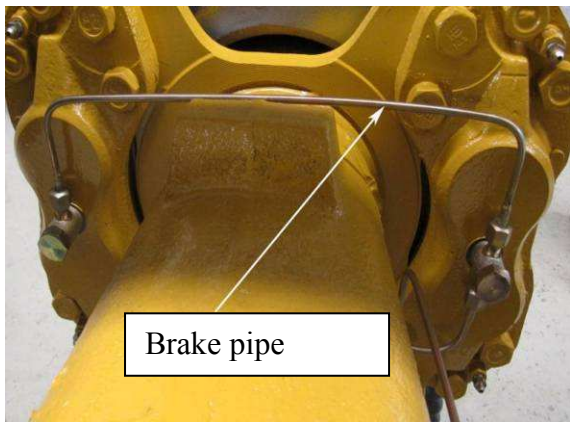


Driving axle assembly



9. Remove the vent port of the axle.

★ Remark: Contain the brake liquid with vessel under the axle. Protect the disassembled connector.

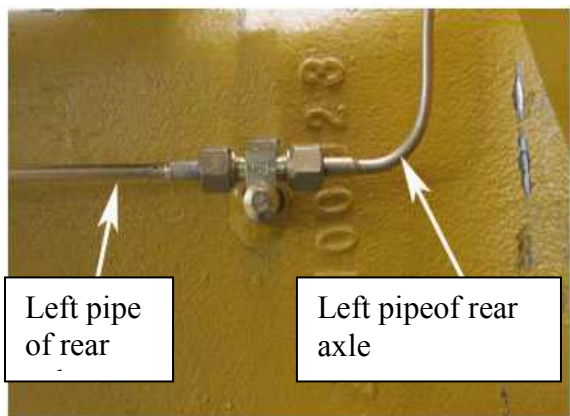


10. Get off the brake oil hose of the axle brake

★ clamp.

Remark: Contain the brake liquid with vessel under the axle. Protect the disassembled connector.

Brake pipe



Left pipe
of rear

Left pipe of rear
axle

11. Remove the right and left oil pipes of rear axle.

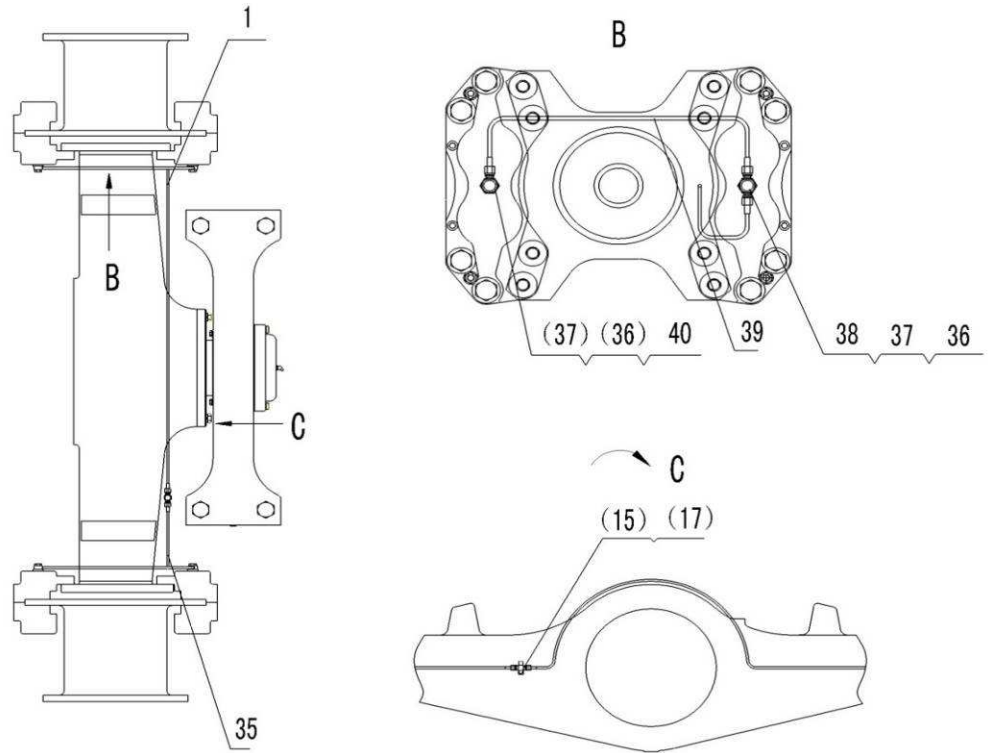


12. Remove the oil pipes of rear axle frame.

II Assembly of Rear Axle

1. Connect the left and right oil pipes (35、1) of rear axle with “T” connector (17) . Fix “T” connector on the fixing blocks of rear axle shell with bolts --M8×25 (15)
2. Install the left and right oil pipes of rear axle on the connector of brake forceps of rear axle with connector (36) of brake pipes, “T” connector (38) of brake and O-ring (37) .
3. Install one end of the oil pipes (39) of rear axle on the “T” connector of brake, and fix the other end of the pipes on the brake forceps with connector (36) of brake pipes, O-ring (37) of brake and connector (40) of brake pipes.

4. Install the vent port on the brake forceps, and tighten the 4 under bolts and don't tighten the 4 above ones to prevent them from falling down.



5. Put the assembled axle on the dolly and put the dolly under the frame.



Driving axle assembly



6. Hang up the front axle with lifting tool. Adjust the left and right position of the axle still installing holes on the axle and frame facing together. Tighten the bolts and nuts by hands.



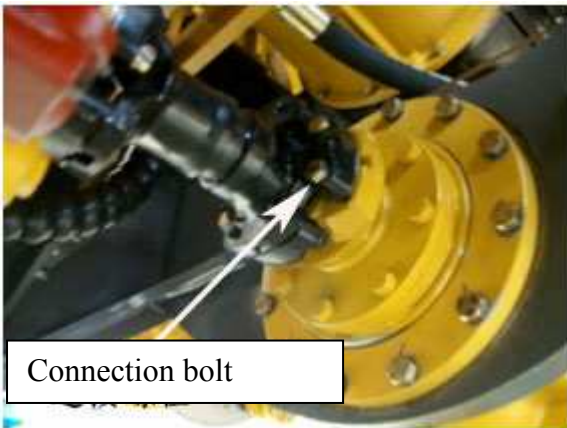
Diving axle assembly



7. Tighten the connection bolts and nuts of axle and frame by tools.



M30 Tightenning torque: $730 \pm 70 \text{ N.m}$



8. Install the bolts connecting the front transmission shaft with the rear axle.



Tightenning torque: $90 \pm 15 \text{ N.m}$



9. Install the brake oil hose of rear axle on the T-connector.



Tightenning torque: $30 \sim 40 \text{ N.m}$



10. Install the rear wheels. As shown in “Assembly of rear wheels”.



11.Fill the fuel tank fully. Refer to Assembly of fuel tank.

12. Add brake liquid and drain up the air of the brake.

Add full of HZY 3 brake liquid in brake oil cup (GB/T12981-2003). Start the engine. After the barometer getting the appointed pressure, drain the air up in the booster pump. The people out of the loader loosen the deflating mouth on the brake clamp. The people in the loader tread the brake valve to drain the air still the complete liquid without air bladder drains from the mouth. After that, tighten the deflating mouth. In the deflating process, add brake oil into oil cup in time. At last, add oil to the middle-higher level of the oil cup and install oil cup cover. Pay attention to that the deflating mouth should be tightened by torque wrench.



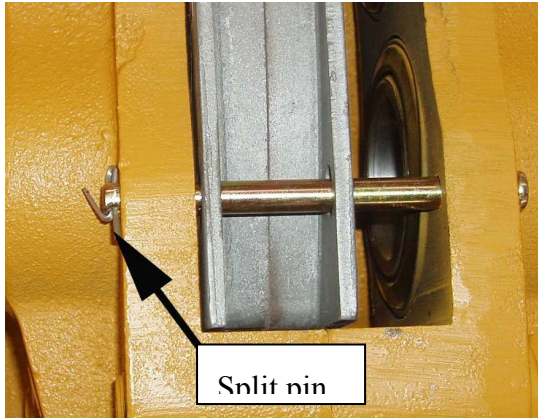
Tightening torque: 25~35 Nm

Assembly of rear axle is accomplished.

4.6. Disassembly and Assembly of Brake Clamp Assembly

I Disassembly of Brake Clamp Assembly

1. Remove the fixed split pin of friction plate connection pin shaft.



2. Get off the pin shaft.



3. Get off the brake plate.

Remove the bolts and washers of the internal and external clamp.





4 Remove the connection bolts and washers of inner clamp and external clamp.



5. Separate the internal clamp and external clamps. Get off the O-shape ring of the internal and external clamps.



6. Get off the clip ring of internal clamp.



7. Get off the dustproof cover.



8. Get off the piston.



9. Get off the rectangle seal ring.

10. Remove the external clamp parts in the same method.



II Assembly of Brake Clamp Assembly

1. Clean every part and prepare for installing.

2. Install the rectangle seal ring.



3. Coat certain brake liquid on the surface of piston and the holes. Install the piston.



4. Install the dustproof cover.



5. Install the clip and O- ring.



6. Install the internal and external clamps O-shape rings.



7. Install the external clamp in the same installing method of internal clamp.

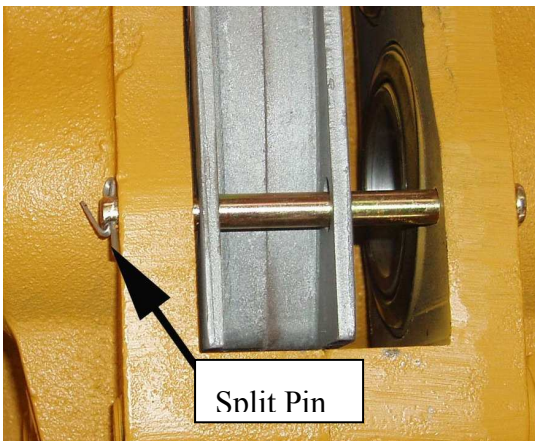
8. Lay the external around and put the internal on the external.



9. Install the connection bolts of external clamp and internal clamp.



10. Install the friction plate.



11. Install the connection pin shaft of friction plate and the split pin.

4.7 Disassembly and Assembly of Wheels

In the chapter, how to change wheels will be shown. The steps are shown as follow:

I Disassembly of Front Wheels

Start the completer appliance and stop it to the proper position.





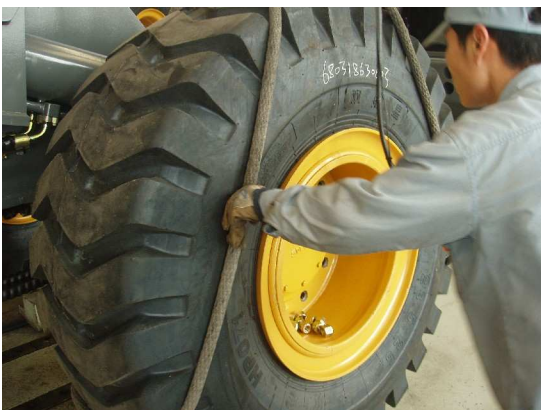
1. Loosen the hub nuts by impact wrench or socket wrench.
2. Put wood block under the bucket. Operate the boom lever to let it turn outside and support the front wheels. Leave the front wheels away the ground a little.



Hold the rear wheels by wood chock to avoid reversing.



3. Put support frame under the front frame to support the front frame. Let the engine to be flameout.



4. Hang the wheels and rock it around. Move wheel assembly out slowly.



Wheel assembly

II Disassembly of Rear Wheels

Start the completer appliance and stop it to the proper position. Operate the boom lever to let it turn outside and support the front wheels. Leave the front wheels away the ground a little.

★ Make sure that while the rear wheel away from the ground, the bucket won't touch the ground. And let the engine misfire.

1. Hang the rear frame by the hanging rope tied on the counterweight draft key with crane (or other loader).

Leave the rear wheels away the ground a little and put support frame under the counterweight. Lower the hanging tool down and make sure the rear frame fall on the wood pat coating rubber. The rear wheels could leave the ground a little.

★ Remark: The support should have the wood pad coating rubber bearing. The outmost shell is rubber bearing and to avoid scratching the paint on the counterweight.

2. Put suitable wood block between the axle inside and frame of the end where the wheel need disassemble.

Avoiding one end unwrapping, which make it impossible to install new wheel assembly, cause by the different weights of the two ends, when disassemble the wheels assembly.

3. Loosen the hub nuts by impact wrench or socket wrench.





4. Hang the wheels and rock it around. Move wheel assembly out slowly.



Wheel assembly

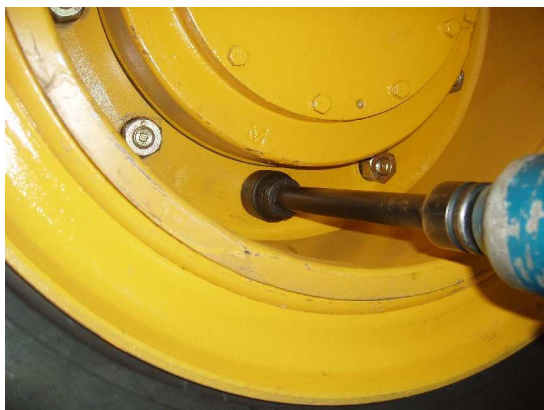


III Assembly of the wheels

1. Hang the wheel and rock it around to make the installing face on the hub touching the installing face on the axle and closing up to the installing position of the axle. Make the hub bolts appearing from the hub outside.



2. Tighten the hub nuts by hands previously.



3. Tighten the hub bolts by impact wrench or socket wrench. Tighten the hub nuts by diagonal principle.



M20: 310±45 Nm



4. Get off the hanging and supporting tools

4.1 Get off the hanging rope. Start the complete appliance and operate the handle. Raise the front wheel support parts a little and get out the support frame.

Operate the handle to lower the front wheel to the ground and then let the engine misfire.



4.2 Hang up the rear frame and put out the support frame. Lower the spreader still the rear wheels touch the ground. Get off the lifting tools.

The wheel is replaced finally.

4.8 Disassembly and Assembly of the Wheel Assembly

I Disassembly of the Wheel Assembly

1. Deflate the wheels first and get off the locking rings with crow.



2. Get off the locking ring.



3. Get off the outside flange.



4. Hang up the wheel by crane and get off hub.





5. Get off the hub pad rubber.



6. Get off the internal wheel.



II Assembly of the Wheel Assembly

1. Put the wheel hub body (1) on the ground with the smaller end to be up. Lay the internal wheel in the external wheel(2) uniformly. (Inflation the internal wheel still it just bulges the external wheel)

★ Remark: Before install the internal wheel, clean up the foreign body and dirt. Coat the talc in the inside of external wheel.



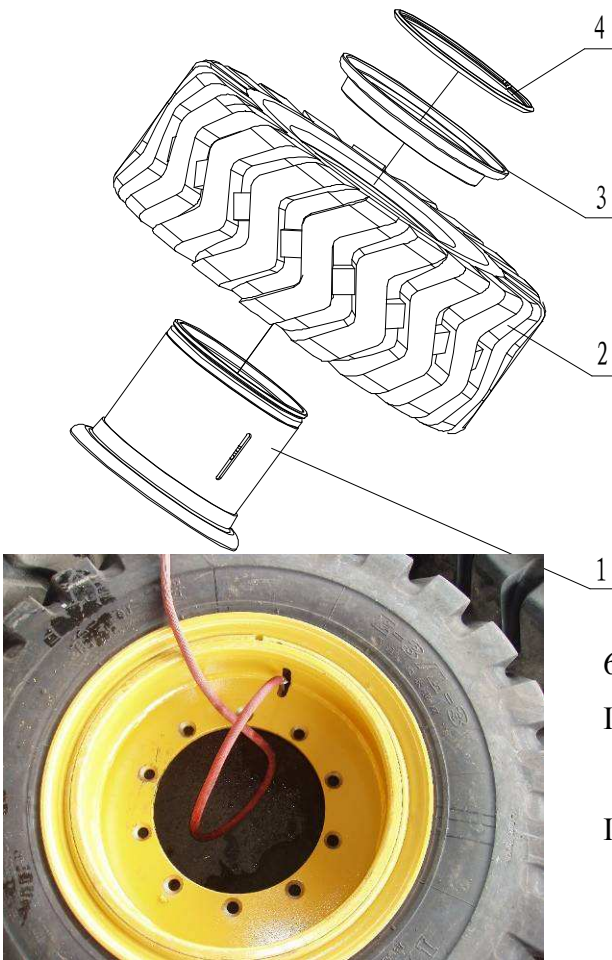
2. Put the pad rubber around the internal wheel.

★ Remark: Coat talc on the inside of pad rubber before installing the hub. Make sure the air tap be in middle.

3. Enwrap the wheel, which is installed with internal wheel, around on the hub body (1).

4. Buckle the external flange (3).

5. Buckle the locking ring (4).



6. Inflate the wheel.

Inflation: Front wheel: 0.39 ± 0.01 MPa

Rear wheel: 0.33 ± 0.01 MPa

Install the air tap cap and tighten it.

CHAPTER V DISASSEMBLY AND ASSEMBLY OF HYDRAULIC SYSTEM

5.1 Disassembly and Assembly of Working Pump

I Disassembly of the Working Pump

(The steps of changing working pump as followed)

1. Draining oil

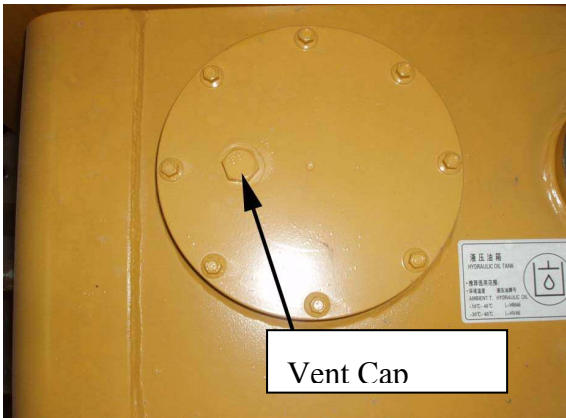
Start the complete appliance and drive it to the capacious place. Raise the boom to the highest position. Tilt the bucket backward to the extreme position, and then close the engine.

Turn the power switch to the “ON” position. Push the control handle of the pilot valve to the right side gently. Make the bucket to be forward by the deadweight to drain the oil in rotating cylinder.

After the bucket rotating moving to the position, push forward the handle gently. Make the boom turn forward at the effect of self-weight. So drain the oil in the boom oil cylinder. Keep the bucket flat on ground. Then operate the boom lever from right to left, and from forward to rear title position 5~6 times to drain the internal oil pressure of the system.

Fix the loader wheels with wood chocks stability.





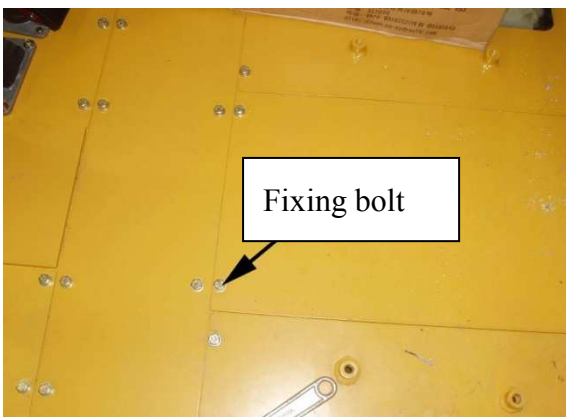
Open the vent cap of the pressure oil tank.



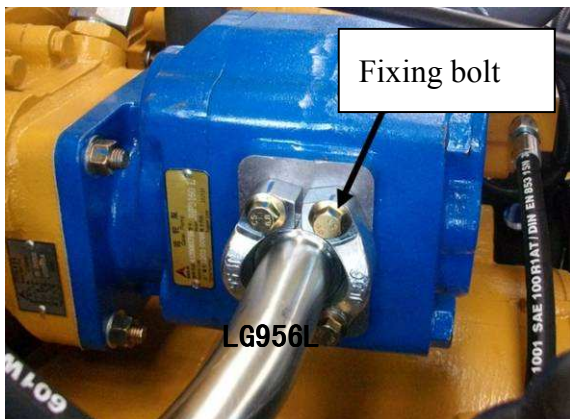
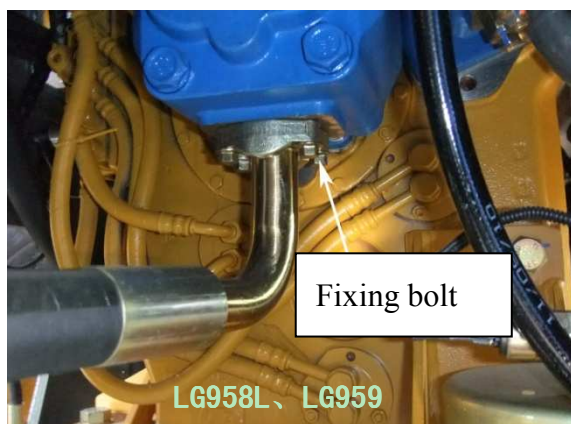
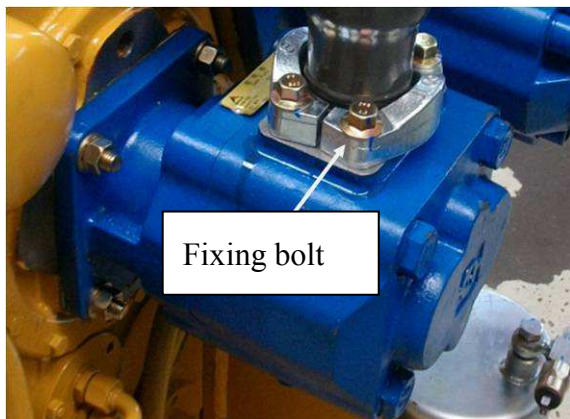
2 Put vessel under the rotating pump which needs to be changed.



3. Remove the seat and frame.(Refer to Disassembly and Assembly of Seat)



4. Remove the bolts on the cover of cab platform and take down the cover.

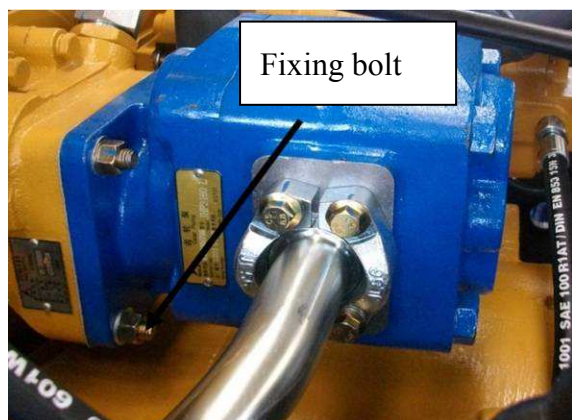
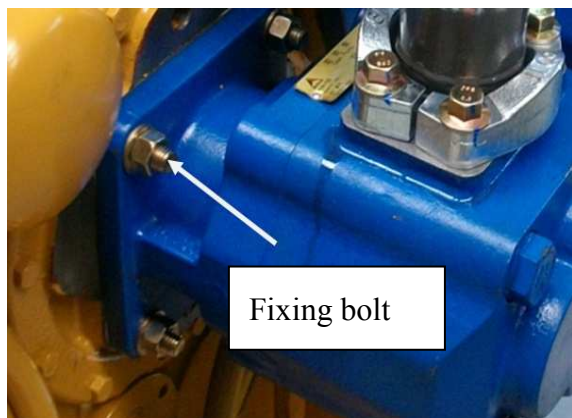


5. Disconnect the fixing bolts of the oil absorbing pipes of working pump and oil inlet port of working pump. Take down the bolts, spilt flange and O-ring and the steel pipes. And carry out the protective measures of all the port.

★ In the process of the disassembling, do not loosen the connection bolts or the flange fixed bolts completely to avoid the bursting out of oil. Loosen them off a little while the oil overflowing, and then disconnect them completely.

6. Disconnect the fixing bolts of the oil absorbing pipes of working pump and oil inlet port of working pump. Take down the bolts, spilt flange and O-ring and the steel pipes. And carry out the protective measures of all the port.

★ In the process of the disassembling, do not loosen the connection bolts or the flange fixed bolts completely to avoid the bursting out of oil. Loosen them off a little while the oil overflowing, and then disconnect them completely.

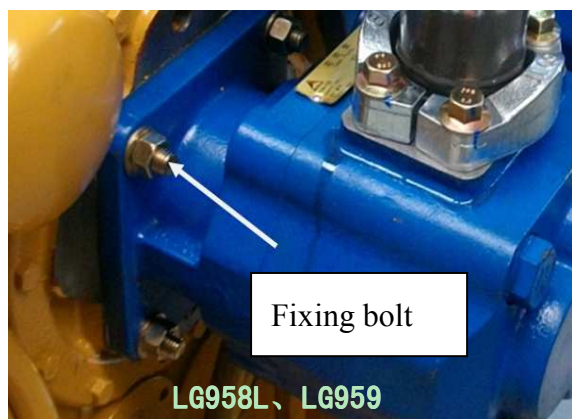


LG956L

7. Loosen the fixing bolts of working pump, take down the nuts and washers and remove the working pump and sealing gasket.



8. Dump the oil in the container into the special recycle tank for containing the hydraulic oil.



II Assembly of the Working Pump

(Install the working pump, which has been changed or repaired, by the steps as followed)

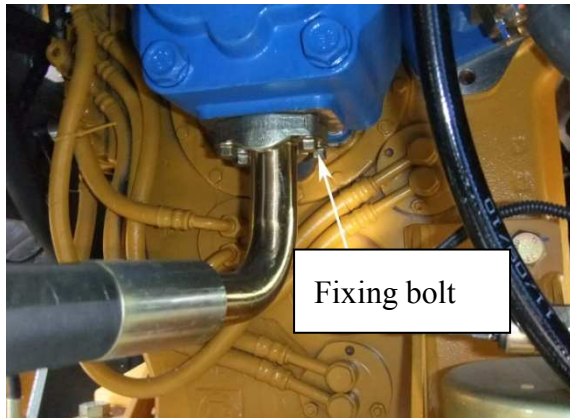
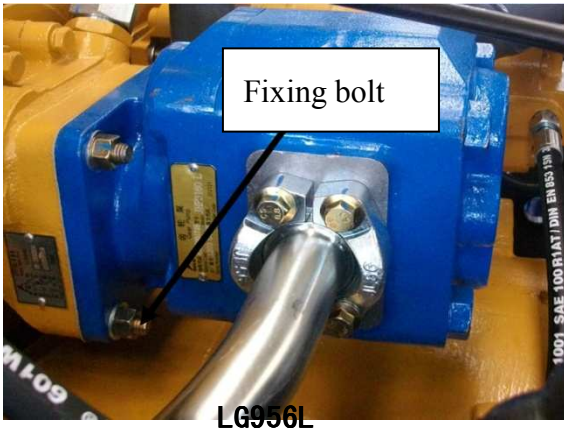
1. Install the working pump with seals to the surface of pump with 4 nuts -M12 and washer 12.



Tighten the stud bolt.



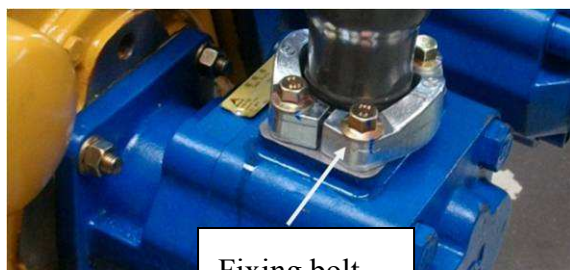
Tightening torque: 70~110N.m



2. Take down the shields on the oil ports. Install the O-ring in the O- groove of connector of oil outlet hose on the working pump. Tighten it on the oil outlet port surface of working pump with 4 bolts M10×30



Tightening torque: 42~62N.m



3. Take down the shields on the oil ports. Install the O-ring in the O- groove of connector of oil absorbing steel pipes on the working pump. Tighten it on the oil outlet port surface of working pump with 4 bolts (LG959、LG958L-- M12×35) (LG956L--M12×40) and a split flange.



Tightening torque: 70~110N.m



Fixing bolt



4. Install the seat and repair cover assembly on the platform of cab.



5.2 Disassembly and Assembly Steering Pump

I Disassembly of the Turning Pump (The steps of changing Turning pump as followed)

1. Draining oil

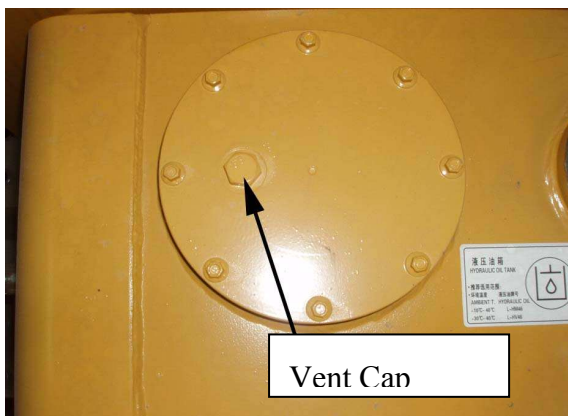
Start the complete appliance and drive it to the capacious place. Raise the boom to the highest position. Tilt the bucket backward to the extreme position, and then close the engine.

Turn the power switch to the “ON” position. Push the control handle of the pilot valve to the right side gently. Make the bucket to be forward by the deadweight to drain the oil in rotating cylinder.

After the bucket rotating moving to the position, push forward the handle gently. Make the boom turn forward at the effect of self-weight. So drain the oil in the boom oil cylinder. Keep the bucket flat on ground. Then operate the boom lever from right to left, and from forward to rear title position 5~6 times to drain the internal oil pressure of the system.

Fix the loader wheels with wood chocks stability.

Open the vent cap of the pressure oil tank.

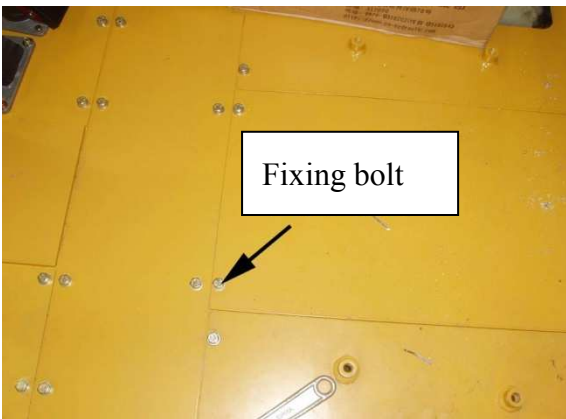




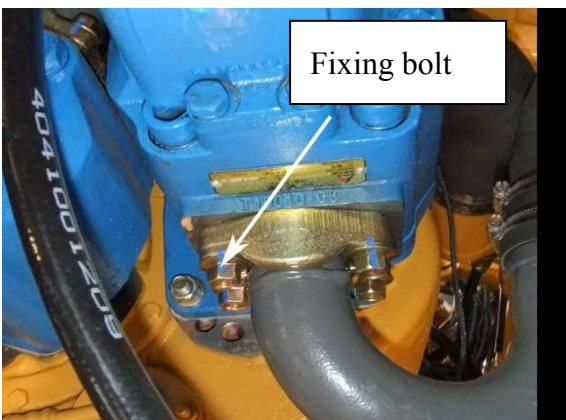
2. Put vessel under the turning pump which needs to be changed.



3. Remove the seat and frame. (Refer to Disassembly and Assembly of Seat)

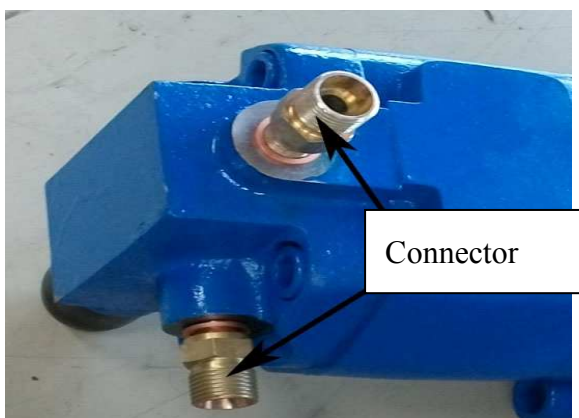
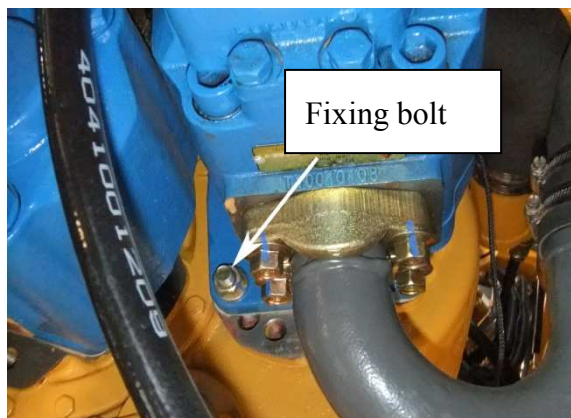
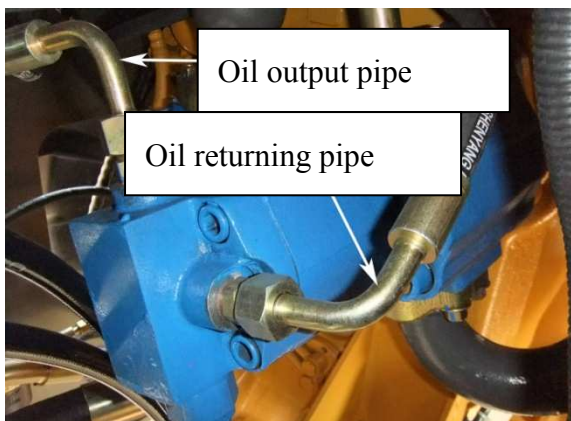
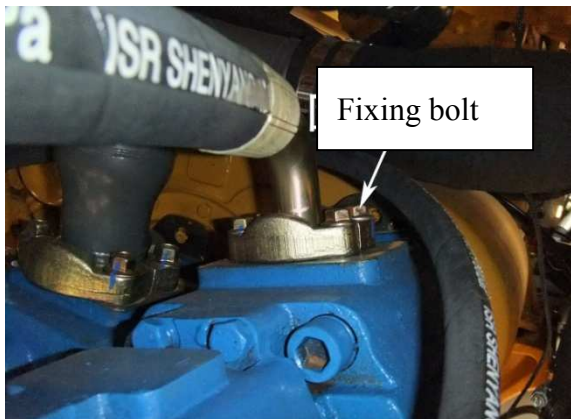


Remove the bolts on the cover of cab platform and take down the cover.



5. Disconnect the fixing bolts of the oil absorbing pipes of steering pump and oil inlet port of steering pump. Take down the bolts and O-ring and the steel pipes. And carry out the protective measures of all the port.

★ In the process of the disassembling, do not loosen the connection bolts or the flange fixed bolts completely to avoid the bursting out of oil. Loosen them



off a little while the oil overflowing, and then disconnect them completely.

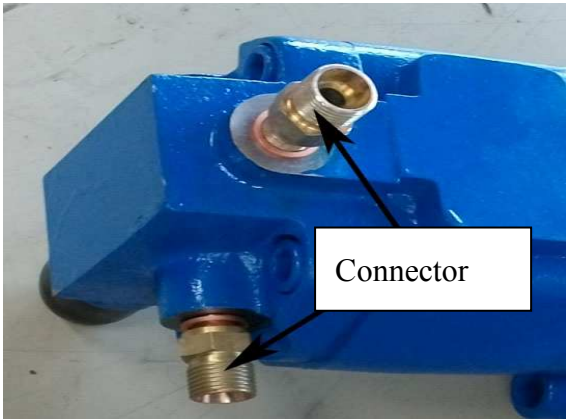
6. Disconnect the fixing bolts of the oil absorbing pipes of steering pump and oil inlet port of steering pump. Take down the bolts, split flange and O-ring and the pipes. And carry out the protective measures of all the port.

★ In the process of the disassembling, do not loosen the connection bolts or the flange fixed bolts completely to avoid the bursting out of oil. Loosen them off a little while the oil overflowing, and then disconnect them completely.

7. Cut off the connection between oil outlet pipes, oil returning pipes and the pilot pump.

8. Loosen the fixing bolts of the steering pump and get off the nuts and washers. Get off the working pump and sealing washer.

9. Remove the connectors of two pipes on the pilot pump.

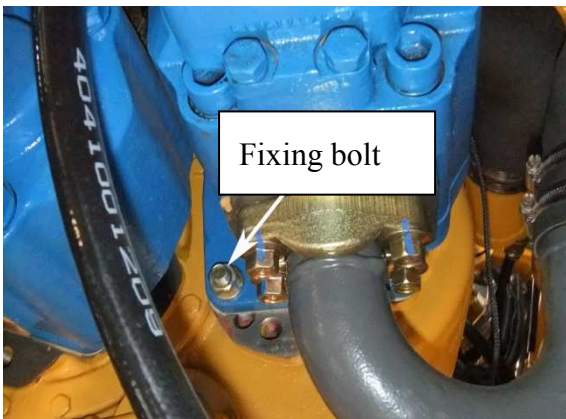


II Assembly of the Working Pump

(The steps about Assembly of the Working Pump are as follows)

Fix the straight joint added washer 14 to the overflowing port and oil outlet port on the front of the duplex pump.

 kgm Tightening torque: 40.5~49.5 Nm



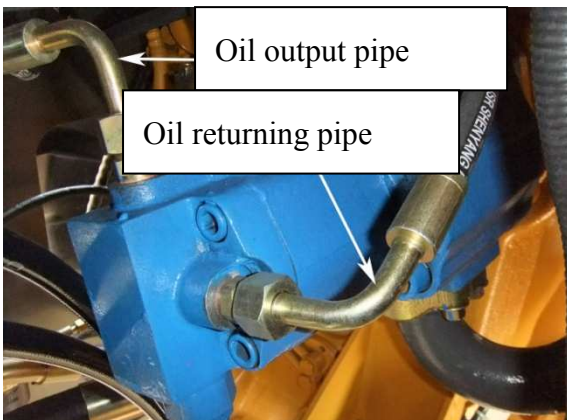
2. Tighten four M12×35 bolts of working pump again. Lay pump sealing washer and Fix the duplex pump. Tighten them with four M12 bolts and four 12 washers.

 kgm  kgm
 kg Tightening torque: 78~104 Nm

Working Pump

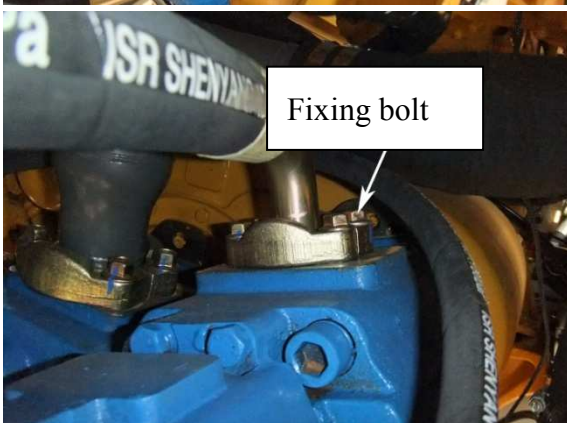
3. Connect the oil outlet and returning pipe of pilot pump to the corresponding joints.

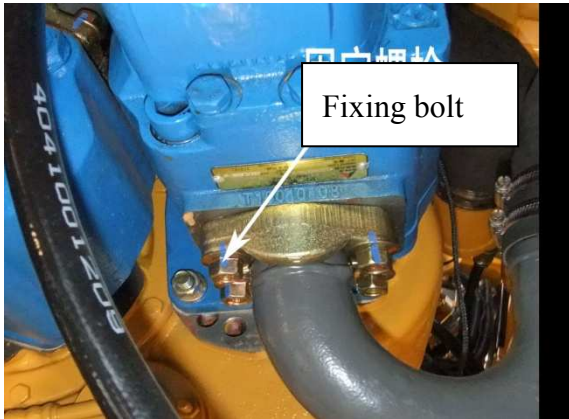
 kgm Tightening torque: 30~40 Nm



4. Fix O shape ring on the end of oil outlet rubber pipe of duplex pump. Fix it on the oil outlet port of duplex pump with four M10×30 bolts and fission flange.

 kgm Tightening torque: 45~59 Nm

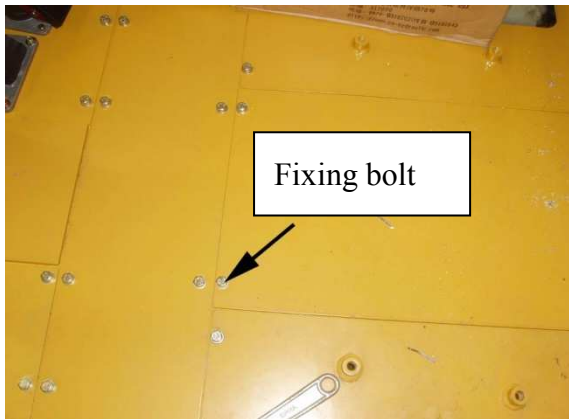




5. Fix O ring on the groove of oil absorbing steel pipes of double pump. Fix it on the oil outlet port of working pump with four M12×35 bolts.



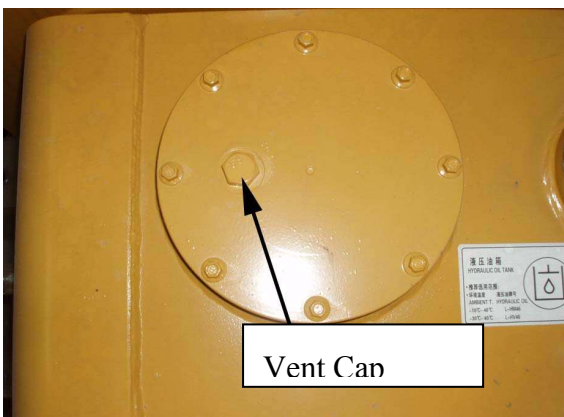
Tightening torque: 78~104 Nm



6. Fix the repair cover of the cab platform to the cab platform with bolts.



7. Assemble the seat and bracket. (Refer to the “Disassembly and Assembly of Seat”)

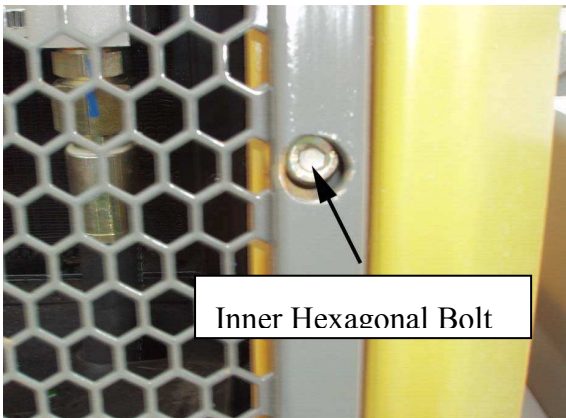
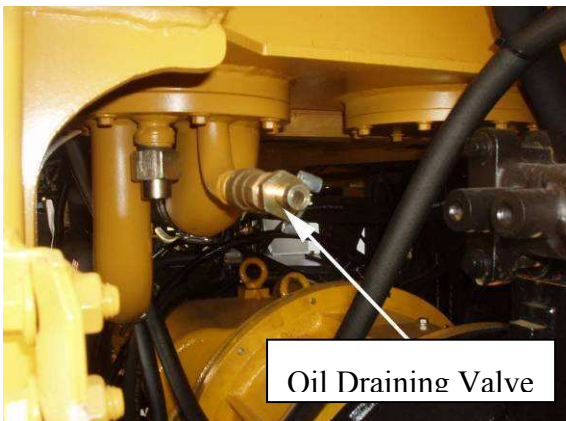


8. Fix the vent cap of hydraulic tank. Check the pressure oil level and add it if lack.

5.3 Disassembly and Assembly of Hydraulic Tank

I Disassembly of the Hydraulic Tank (The steps of disassembling hydraulic oil tank are as follow)

1. Drain oil (Drain the oil in the system)
 2. Connect a soft pipe on the oil draining valve. Open the draining valve of the pressure oil tank to drain the hydraulic oil. Get the oil with clean vessel. (Open the cap of the tank to accelerate the draining speed)
- ★ Cover the drained oil to protect it.



3. Get off the four rubber plugs of the rear window bar. Get off the inner hexagonal bolts and the window bar.

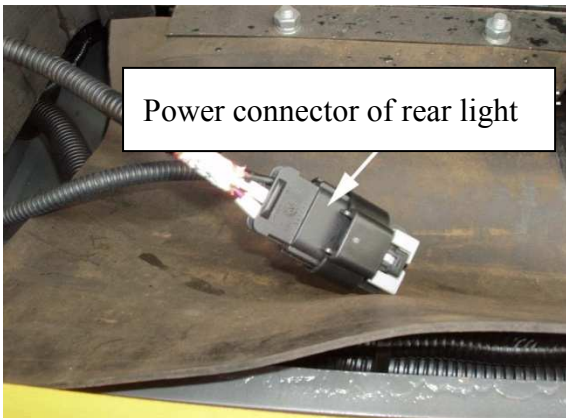


4. Loosen the tightening hoop of the air filter and get the filter off.

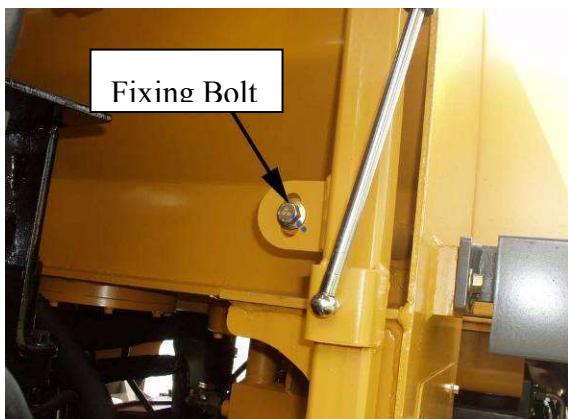


5. Loosen the tightening hoop of the engine vent-pipe and get engine off.

6. Disconnect the connection of the rear headlight power wire.



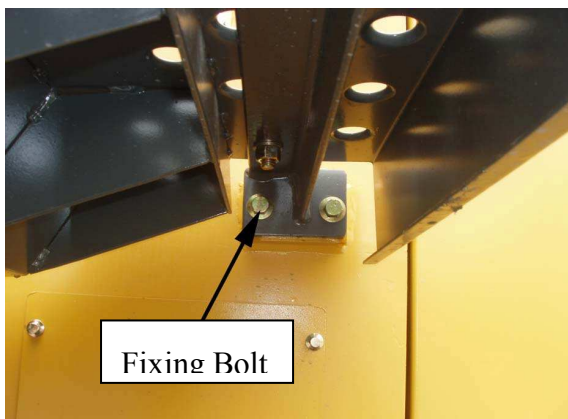
7. Loosen the fixing bolts of the engine hood. Lift away the engine hood.



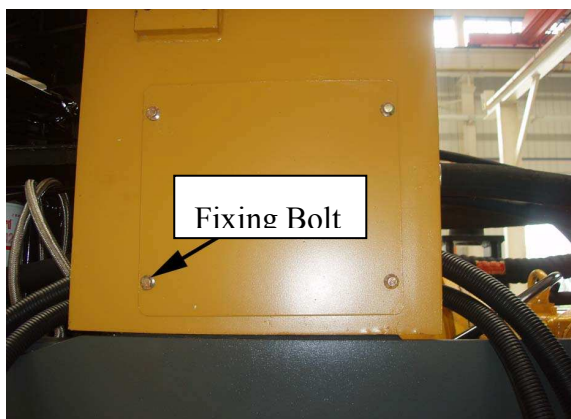
8. Loosen the fixing bolts of the left and right benches and Lift away them.

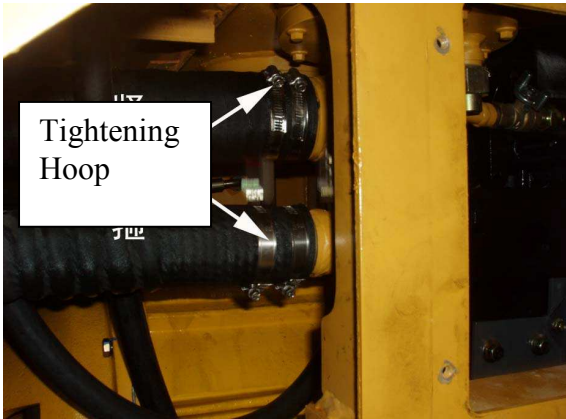


Left and Right Benches



9. Loosen the fixing bolts of the left and right profile plates of the hydraulic oil tank and get off them.





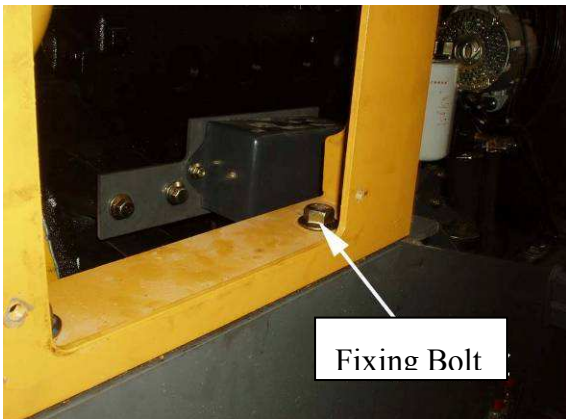
10. Disconnect the connection of the pipes of the hydraulic oil tank.

1) Loosen the tightening hoop of the two oil outlet rubber pipes of the hydraulic oil tank.



2). Disconnect the connection between the pipes of the ★ hydraulic oil tank and the oil tank.

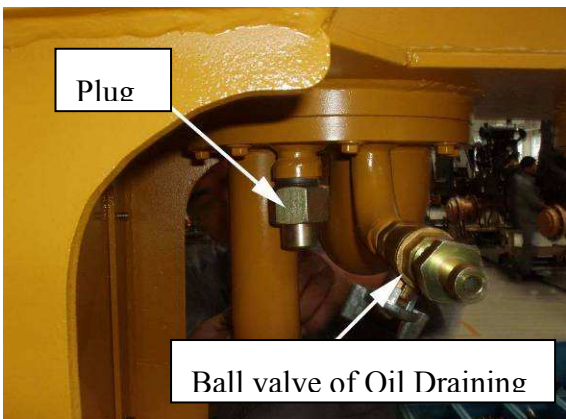
Protect the pipes and the port of them to avoid the dust and sundries entering the pipes.



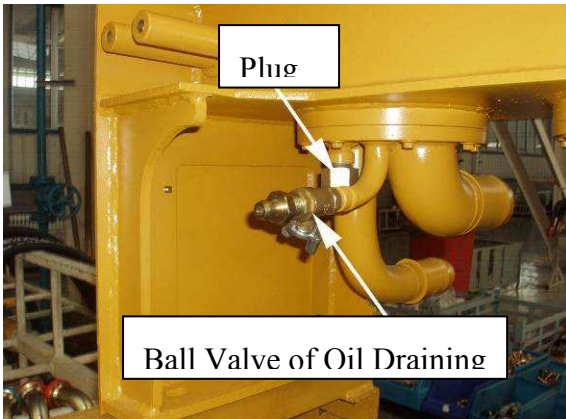
11. Lift the hydraulic oil tank with rope steadily and loosen the four tightening bolts of the tank. Lift away the tank. (In the process of lifting away the tank, disconnect the connection between the oil outlet pipe of hydraulic oil tank and the oil tank)



kg Hydraulic Tank



12. Loosen the oil draining valve and plug.



II Assembly of the Hydraulic Tank (Changing the hydraulic tank and installing the tank to the complete appliance could follow these steps)

1. Fix the oil draining valve and the plug on the tank. Disassemble the lift and right profile plates first. Coat the ball valve with AT545 screw sealant. Fix the ball valve and the oil draining joint on the screw base of the tank together. Fix the screw plug added O shape ring on the oil port on the left bottom of the oil tank.

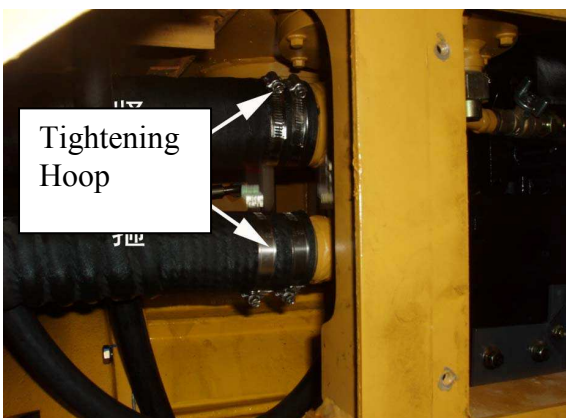
2. Disassemble the lift and right profile plates. Lift the tank above the rear frame and adjust the position. Fix it with four M16×35 bolts.

Cover two hoops on the oil absorbing pipe of working pump and the steering pump. Coat certain hydraulic oil on the inside of the rubber pipe and Fix them on the oil outlet port of the tank in the Lifting process.

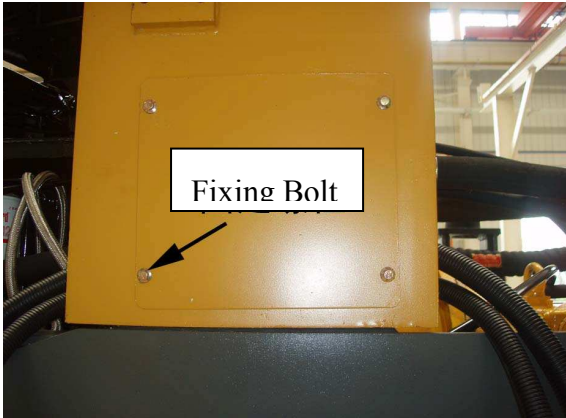
 kgm Tightening torque: 193-257 Nm



3. Connect the pipes of the oil returning ports of the hydraulic oil tank.



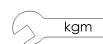
4. Fix the oil absorbing pipe of working pump and the steering pump on the hydraulic oil tank with two hoops.



5. Fix the left and right profile plates.



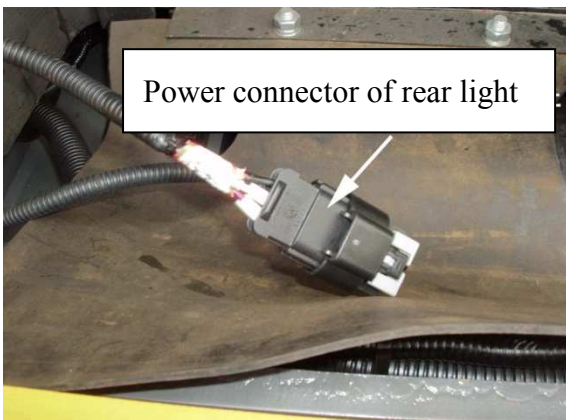
6. Lift the assembly of engine hood to the above of the engine and lower it to the rear frame gently. Pay attention to avoid hitting the engine and water tank in the lowering process. After adjusting it being suitable, fix it with rear frame with eight M12×25 bolts and with hydraulic oil tank with four M12×25 bolts.



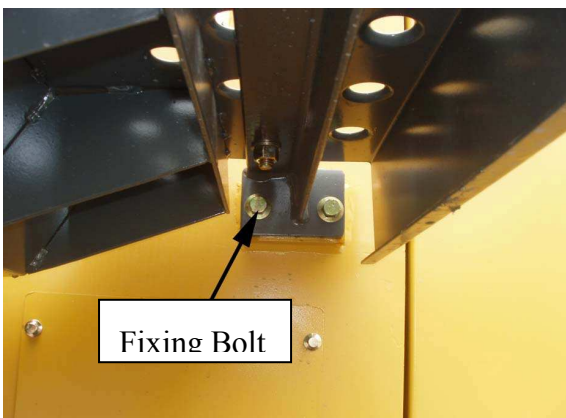
Tightening torque: 78-104 Nm



Engine hood



7. Connect the wire of rear hood with wire of rear frame by CN 15 pin.



8. Fix the left and right benches on the rear frame with bolts.



Tightening torque: 78-104 Nm



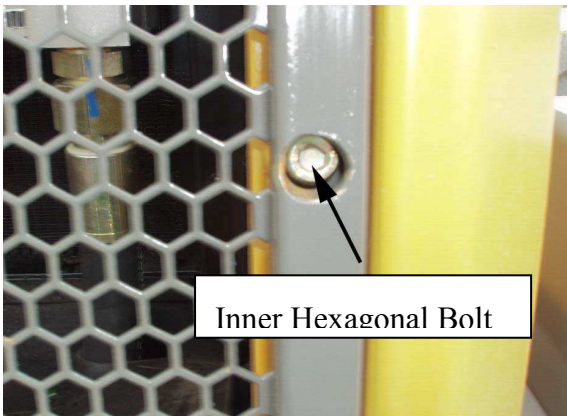
Left and Right benches



9. Fix the vent-pipe and the basin-type raw filter

Fix the basin-type raw filter on the air filter with hoop and Fix the vent-pipe on the muffler with hoop.

Notice: The touching distance of the two parts should be between 40-50 mm in the process of fixing basin-type raw filter. Adjust the vent port to be rear. And the two hoops should face the same position.



10. Fix the window bar on the engine hood with M8×20 bolts and fix the rubber plugs.

11. Fill 200L Mobil DTE25 hydraulic oil in the hydraulic cylinder. Start the complete appliance, and then fill 65L Mobil DTE25 hydraulic oil.

★ Note that hydraulic fluid can not be free to mix with each other. If one brand is selected, it must be used alone. If there is no adequate scientific basis, oil with different viscosity grades or oil with the same viscosity grade but different manufacturers can not be mixed, and shall not be mixed with other brands.

★ Note: the hydraulic system should be thoroughly cleaned before filling the oil. When the new system is used for the first time or the repaired system is used for the firstly time, clean it with the same oil. Even when replacing the oil, use the oil with same brand to clean for 1 to 2 times, until the clearness degree comes to meet the stipulated requirements.

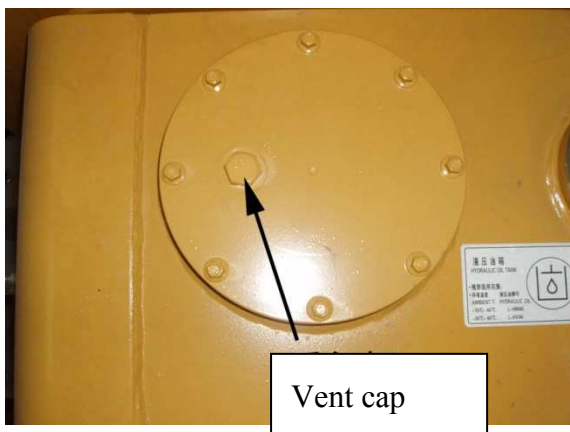
★ The same loader is in different conditions, the used hydraulic oil may also be different. Before filling hydraulic oil, confirm that used hydraulic oil is with the same brand and meet with company's requirements.

5.4 Assembly and Disassembly of Priority Valve

I Disassembly of Priority Valve (Disassembling Priority valve from complete appliance can refer to the following steps)



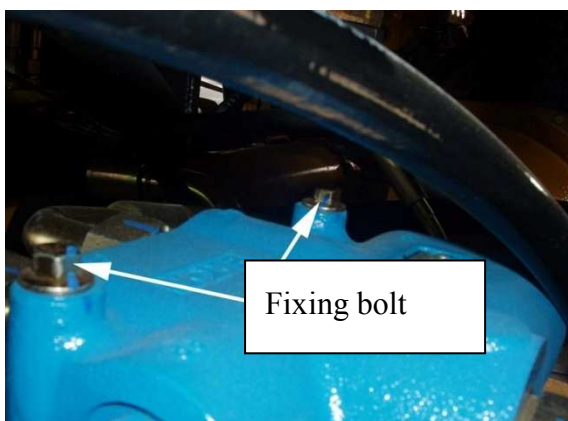
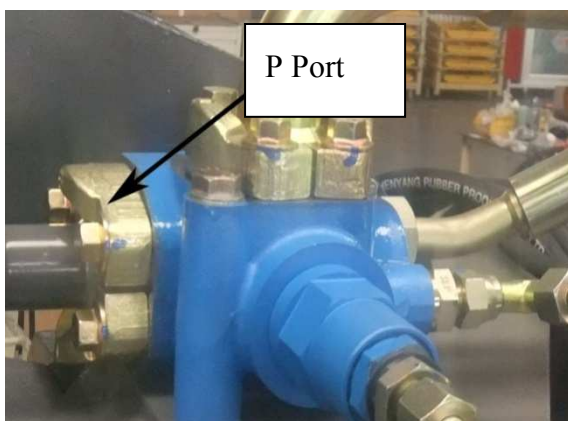
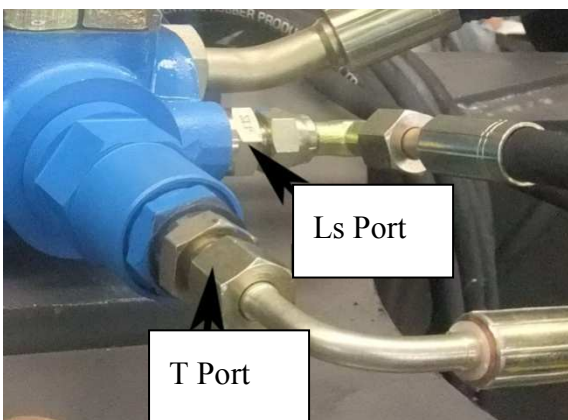
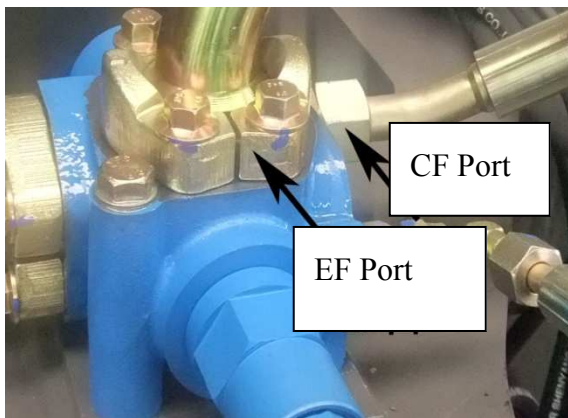
1. Start the complete appliance and run to the leveling, spacious and solid ground, and turn the steering wheel to run straightly, and then stop after placing properly. Put the bucket on ground horizontally and stop the engine. Turn the steering wheel clockwise and anticlockwise for 5~6 times. Fix the tire of loader with wood wedge stability.



Open the vent cap of oil tank.



2. Put oil holder under the priority valve to catch the leaked hydraulic oil.



3. Disconnect the connection between pipes and T port and Ls port of unloading valve.

★ In process of disassembling hydraulic pipeline, do not unload the connecting bolt of oil port completely. Loosen it off a little until there is oil overflowing, and then remove it to prevent the oil from bursting out due to oil unloading not completely.

4. Disconnect the oil inlet pipes of steering device and CF Port of priority valve, oil inlet pipes of radiator and EF Port of priority valve.

★ In process of disassembly, pay attention to protecting every pipeline and oil port. Prevent the dust and sundries from entering the pipeline.

5. Disconnect the oil inlet steel pipes of priority valve and P Port of priority valve.

6. Remove the fixing bolt of priority valve and take down the priority valve.



7. Remove the connectors and O –ring on the oil port of priority valve.

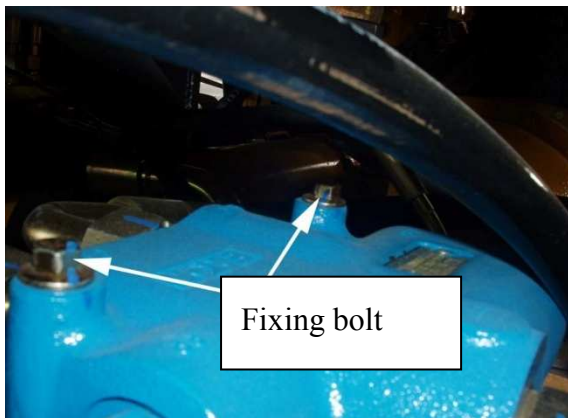


II Assembly of priority valve (Assembling priority valve on complete appliance can refer to the following steps)

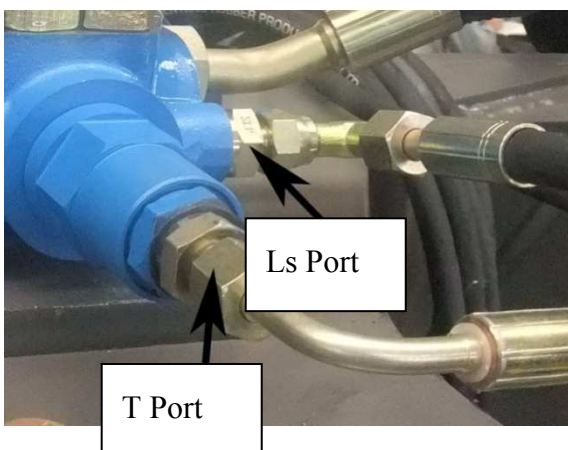
1. Install the direct joints with O-ring on the oil port of the priority valve.



Tightening torque: 45~59Nm



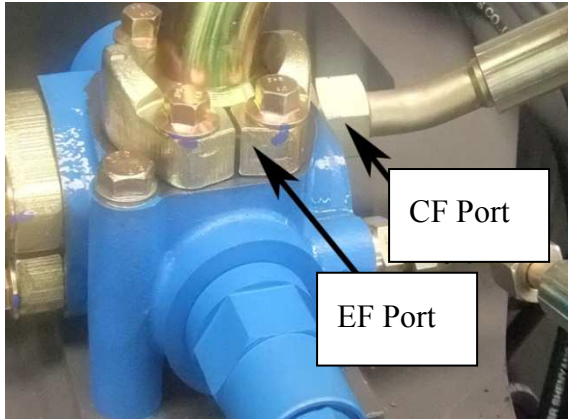
2. Fix priority valve on the fixing board on the left side of rear frame.



3. Connect oil returning pipes of priority valve with T port of priority valve. Connect oil feedback pipes of priority valve with Ls port of priority valve.

Oil returning pipes of priority valve: 25~35Nm

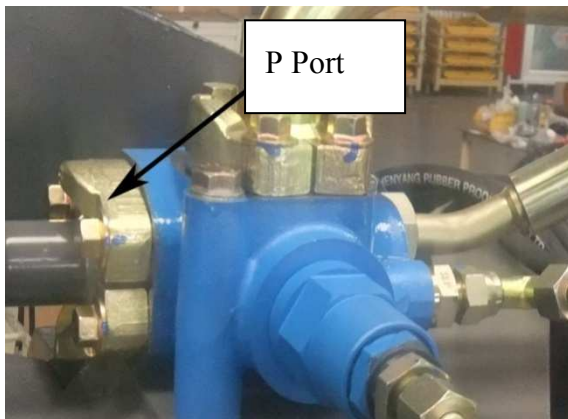
Oil feedback pipes of priority valve: 25~35Nm



Disconnect the oil inlet pipes of steering device and CF Port of priority valve, oil inlet pipes of radiator and EF Port of priority valve.

Oil inlet pipes of steering device: 75~95Nm

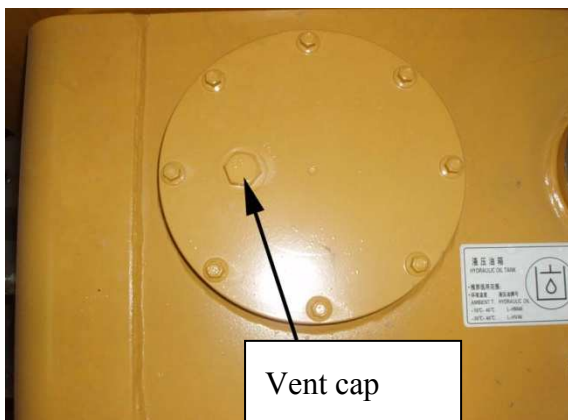
Oil inlet pipes of radiator: 100~130Nm



4. Disconnect the oil inlet steel pipes of priority valve and P Port of priority valve.



Tightening torque: 100~130Nm



5. Install the vent cap of hydraulic tank. and check the amount of hydraulic oil. Add hydraulic oil when it is not enough.

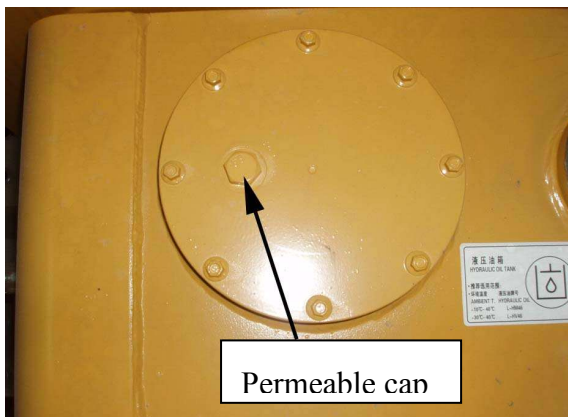
5.5 Disassembly and Assembly of Multiple Valve

I Disassembly of Multiple Valve

(Disassembling multiple valve from complete appliance can refer to the following steps)

1. Start the complete appliance and run to the front of supporting frame (The supporting frame is put on the spacious ground), and adjust the position of complete appliance. Lift the lift arm to the highest position and tilt the bucket backward to the maximum position, and then stop the engine. Turn the power switch to the position of “on”, and move the operating handle right slightly to tilt the bucket to the end slowly. Then push the handle forward slowly to put the lift arm on supporting frame slowly. Move the operating handle around for five or six times, and then remove the oil pressure in the system.

Fix the tire of loader with wood wedge stability.



Permeable can

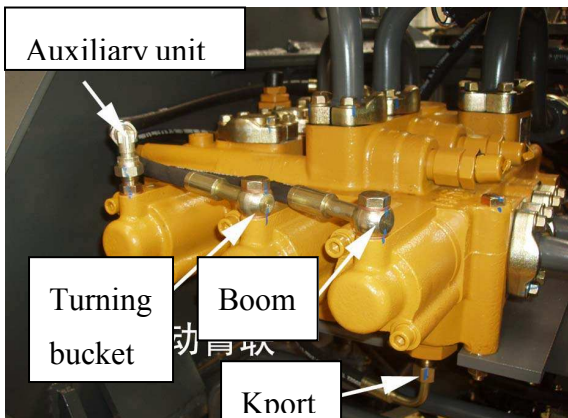
Open the permeable cap of hydraulic cylinder.



2. Put oil holder under the multiple valve.



3. Remove the fixing bolts on front end plate and take the front end plate down.



4. Disconnect each hose on the pilot unit

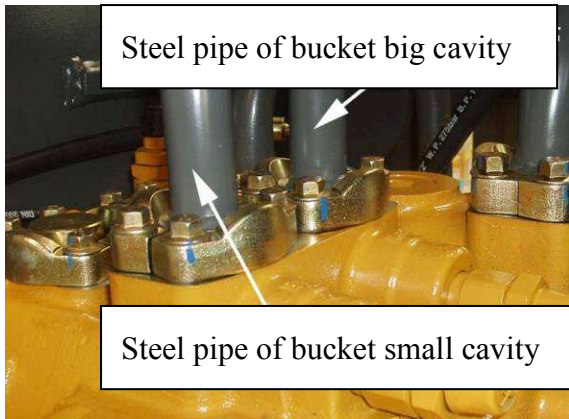
Disconnect the connection between multiple valve and boom unit, turning bucket unit, pilot oil pipe of floating unit. Then remove the oil pipe of auxiliary unit.

★ In process of disassembly, pay attention to protecting every pipeline and oil port. Prevent the dust and sundries from entering the pipeline.

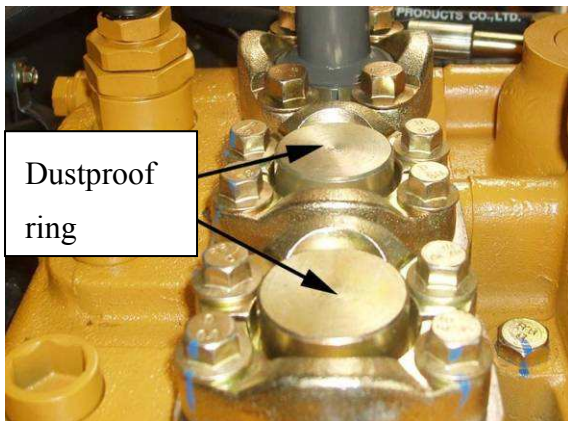


5. Remove the flange connecting the multiple valve with big and small cavity tee steel of boom unit.

★ In process of disassembly, do not unload the connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.



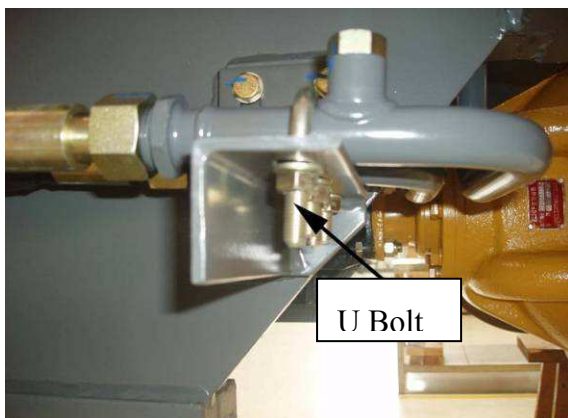
6. Remove the flange connecting the multiple valve with big and small cavity tee steel of turning bucket unit. Then disconnect the connection between steel and multiple valve.



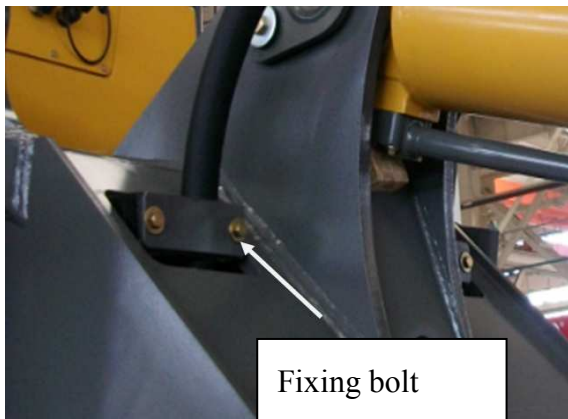
7. Remove the flange and dust cover of auxiliary unit on the multiple valve.



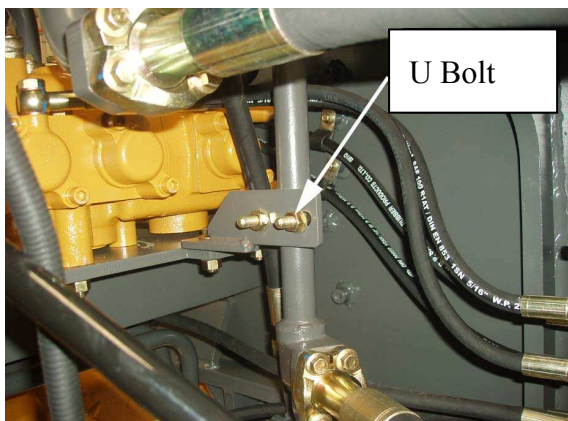
8. Remove the flange connecting the multiple valve with oil inlet and return steel of multiple valve. Disconnect the connection between steel and multiple valve.



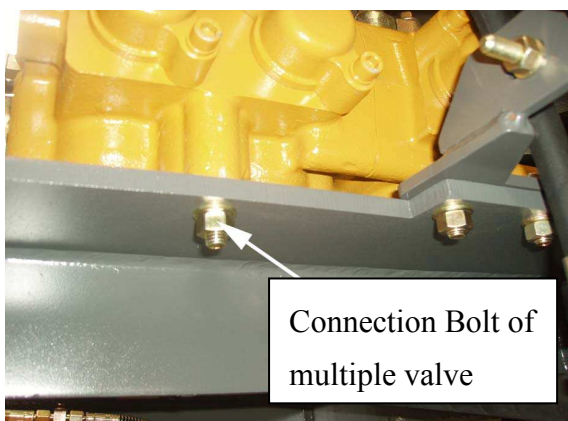
9. Loosen the U-shape fixed bolts of big and small cavity oil inlet steel on the boom unit. (But not necessary to remove)



10. Loosen the U-shape fixed bolts of big and small cavity oil inlet steel on the turning bucket unit. (But not necessary to remove)



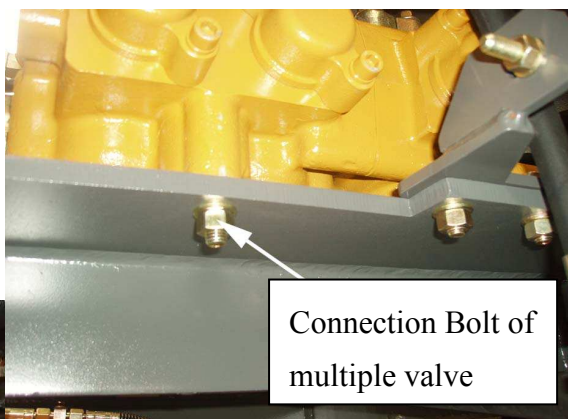
11. Loosen the U-shape fixed bolts of oil inlet steel on the multiple valve. (But not necessary to remove)



12. Remove the pipe joint connecting the auxiliary unit with K-port. Then remove the three fixed bolts connecting the multiple valve with front frame. Hoist the multiple valve down.



Multiple valve



II Assembly of multiple valve (Assembling

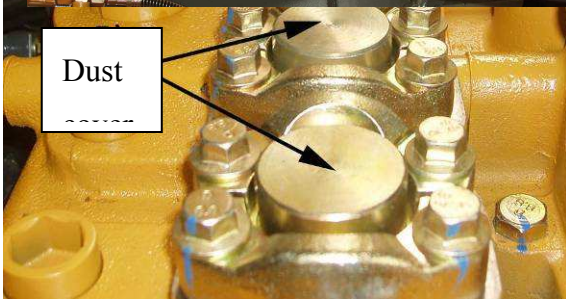
multiple valve on complete appliance can refer to the following steps)

1. Hoist the multiple

Fall the multiple valve on the front frame, then put two bolts $M12 \times 165$ and one bolt $M12 \times 145$ from up to down, and then fix with three washers 12 and three nuts $M12$. Install the pipe joint connecting auxiliary unit with K-port.



Tightening torque: 78~104Nm



Dustproof
ring

Multiple valve

2. Install the O-rings on the dust cover, and then fix it on the oil port of auxiliary unit with bolt M10×30 and split type flange.

 kgm Tightening torque: 45~59Nm

3. Put an O-ring in the O-shape groove of oil inlet steel on the multiple valve, and install the oil inlet steel of multiple valve on the multiple valve with a split type flange and four bolts M12×35. Install the oil return steel of multiple valve on the multiple valve in the same method.

 kgm Tightening torque: 78~104Nm

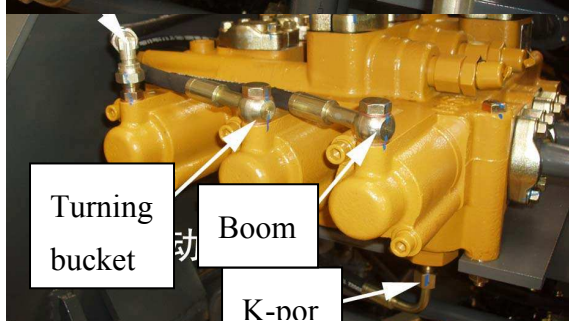
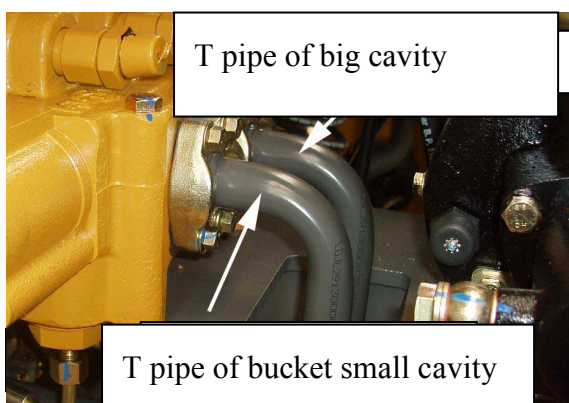
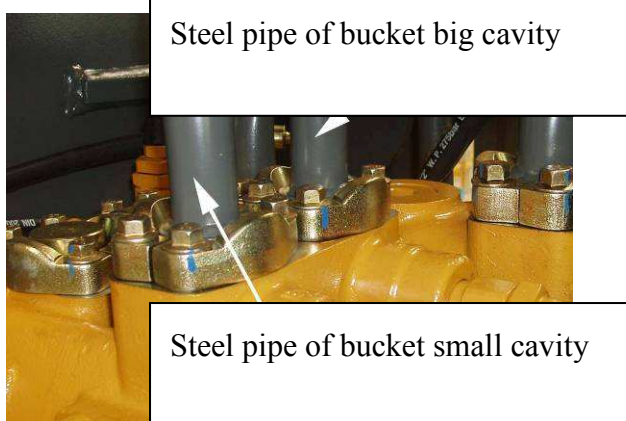
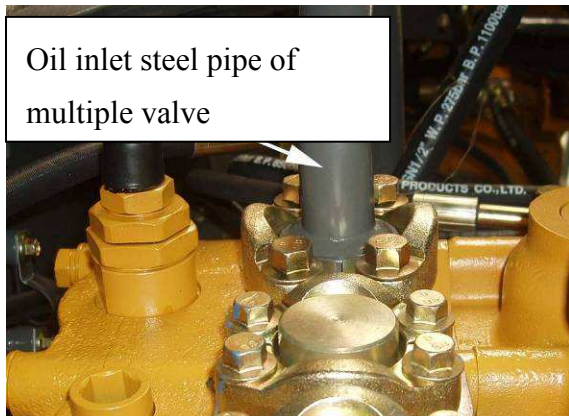
4. Put an O-ring in the O-shape groove of small cavity steel on the turning bucket unit, and fix small cavity steel of turning bucket unit on the multiple valve assembly with four bolts M10×30 and a split type flange. Install big cavity steel of turning bucket unit in the same method.

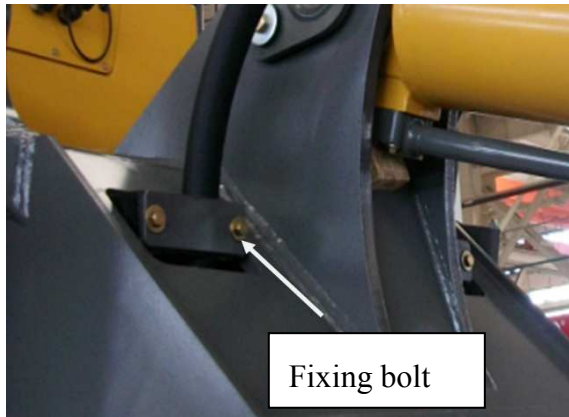
 kgm Tightening torque: 45~59Nm

5. Put an O-ring in the port of small cavity tee steel on the boom unit, and install it on the port at the left front of multiple valve with a split type flange and four bolts M10×30. Install big cavity tee steel of boom unit on the port at the left back of multiple valve in the same method.

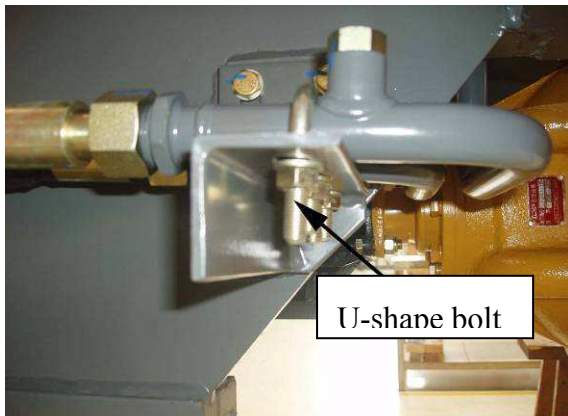
 kgm Tightening torque: 45~59Nm

6. Install four front piloting steels on the multiple valve. Connect the K-port hose of the multiple valve. Connect the front and back oil port with a hose.

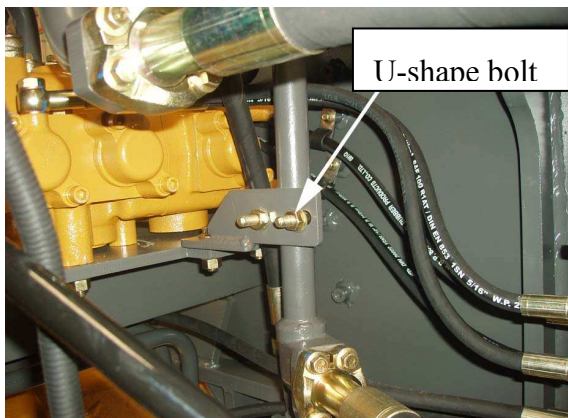




7. Fix the fixed bolts of big and small cavity oil inlet steel on the turning bucket unit.



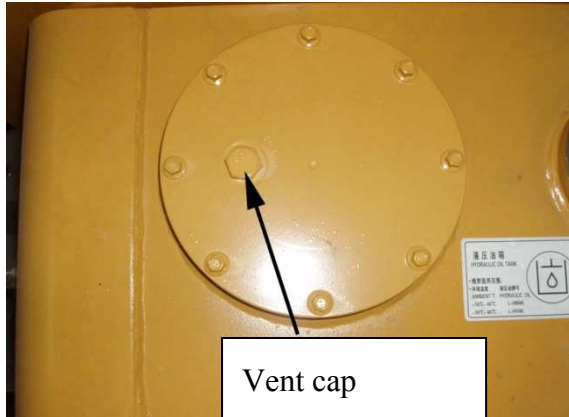
8. Fix the U-shape fixed bolts of big and small cavity oil inlet steel on the left and right boom unit.



9. Fix the U-shape fixed bolts of oil inlet steel on the multiple valve.



10. Fix the cover board on the front frame with four bolts M8×16 and washers 8.



11. Install the permeable cap on the hydraulic cylinder, and check the amount of hydraulic oil. Add hydraulic oil when it is not enough.

5.6 Disassembly and Assembly of Boom Cylinder

I Disassembly of boom cylinder (Disassembling boom cylinder from complete appliance can refer to the following steps)

1. Start complete appliance and run to the front of supporting frame (The supporting frame is put on the spacious ground), and adjust the position of complete appliance.

Lift the boom to the highest position and tilt the bucket backward to the maximum position, and then stop the engine.

Turn the power switch to the position of “on”, and move the operating handle of pilot valve right slightly to tilt the bucket forward to the end slowly. Then push the handle forward slowly to put the lift arm on



supporting frame slowly. Move the operating handle around for five or six times, and then remove the oil pressure in the system.

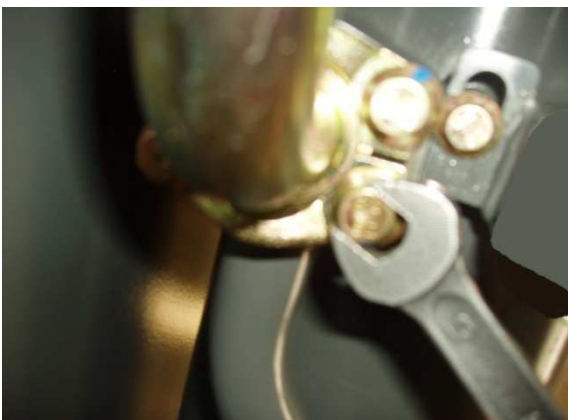


2. Put proper oil holder under the cylinder which will be replaced.



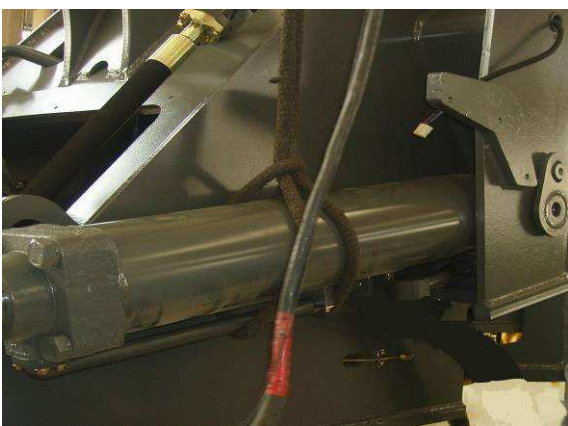
3. Loosen fixing bolts between boom hoses and big cavity oil port of boom and take down bolts, split flange and O-ring, and remove hoses.

★ In process of disassembly, do not unload the fixed bolt on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.



4. Loosen fixing bolts between boom hoses and small cavity oil port of boom and take down bolts, split flange and O-ring, and remove hoses.

★ In process of disassembly, do not unload the fixed until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.



5. Tie the cylinder with soft rope and lift it a little.



6. Loosen the fixing bolts of boom front pin shaft and take down the bolts and washers.



7. Remove the front pin shaft of boom cylinder, take down the adjustment gasket and void scratching the pin shaft.



8. Loosen two fixing bolts in front and rear of mudguard. Rotate the mudguard a certain angle so that the rear pin shaft of boom cylinder can be removed easily.



9. Loosen the fixing bolts of boom rear pin shaft and take down the bolts and washers.



10. Remove the rear pin shaft of boom cylinder and lift the boom cylinder down.



Boom cylinder



11. Loosen the fixing bolt that fix the front end of big cavity steel pipe of boom cylinder and take down the bolts.

★ Take measure to protect the port of steel pipes timely.



12. Loosen the fixing bolt that fix the rear end of big cavity steel pipe of boom cylinder and take down the bolts, steel pipe and O -ring.



13. Loosen the fixing bolt that fix the rear end of small cavity steel pipe of boom cylinder and take down the bolts, steel pipe and clamps.



14. Loosen the fixing bolt that fix the rear end of small cavity steel pipe of boom cylinder and take down the bolts, steel pipe and O -ring.

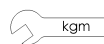


15. Pour the oil in the container to the special hydraulic vessel.



II Assembly of boom (After the repair is done, assemble according to the next steps)

1. Take down the protective cover of small cavity steel of boom cylinder, and put O-ring in the O-shape cycle groove, then fix them on the small cavity oil port of boom cylinder with bolt M10×50 and bolt M10×55.



Tightening torque: 45~59Nm



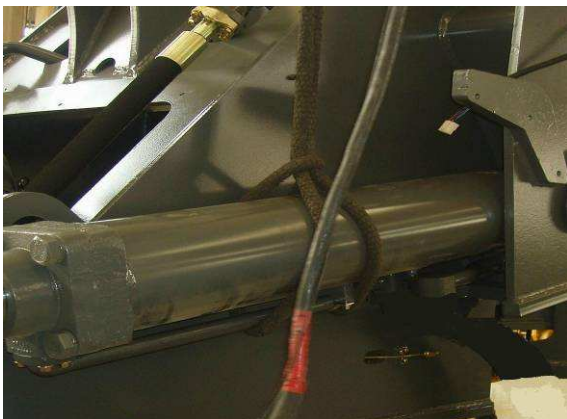
2. Fix the small small cavity steel of boom cylinder on the boom cylinder with clamps and 2 bolts-M8×20.



3. Put O-ring in the O-shape cycle groove, then fix them on the big cavity oil port of boom cylinder with bolt M10×50 and bolt M10×55.



4. Fix the steel pipe of boom big cavity with a bolt M10×20.



5. Tie the cylinder with lifting rope and hang it to the position where the pin shaft can be installed easily.



Boom cylinder



6. Coat the rear pin shaft of boom cylinder with a little grease. Connect the boom cylinder with front frame with pin shaft.

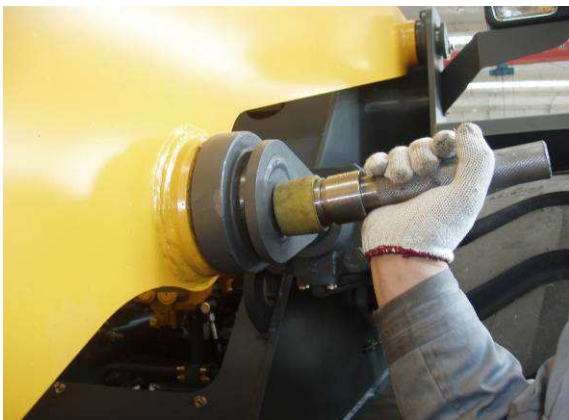
★ a. The pipeline of big cavity is in external part when assembling. Don't install it wrong.

b. Care about the oil cup when hitting the pin shaft.



7. Fix the rear pin shaft of boom cylinder on the front frame with a bolt -M16×30 and washer.

 kgm Tightening torque: 193~257 N.m



8. Coat the rear pin shaft of boom cylinder with a little grease, install the washer, start the engine, operate the boom control lever, adjust the displacement of piston, align the hinged holes on the boom and connect the boom cylinder and boom with bolts.

★ The screw bases on the piston head of boom cylinder is located in the external side; Adjust the quantity of gaskets to keep the lateral clearance between the front part of boom cylinder and boom as 0.5~1.5mm.

9. Fix the front pin shaft of boom cylinder on the piston head with a bolt -M16×30 and washer.

 kgm Tightening torque: 193~257 N.m



10. Take down the guard device, put O-ring in the O-groove at one end of hose of boom cylinder. And fix it to oil port of steel pipe on one end of boom cylinder with split flange and 4 bolts -M10×30.

 kgm Tightening torque :42~62N.m

★ Don't twist the hoses.



11. Put O-ring in the O- groove at one end of hose of boom cylinder. And fix it to oil port of steel pipe on one end of boom cylinder big cavity with split flange and 4 bolts -M10×30.



Tightening torque :42~62N.m



The two hoses should be paralleled and not be twisted



12. Adjust the mudfender and fix it with bolts.



13. Fill the oil cup on the front pin shaft of boom cylinder with grease until the grease overflows from the matching surface.



14. Fill the oil cup on the rear pin shaft of boom cylinder with grease until the grease overflows from the matching surface.

5.7 Disassembly and Assembly of Turning Bucket Cylinder

I Disassembly of Turning Bucket Cylinder

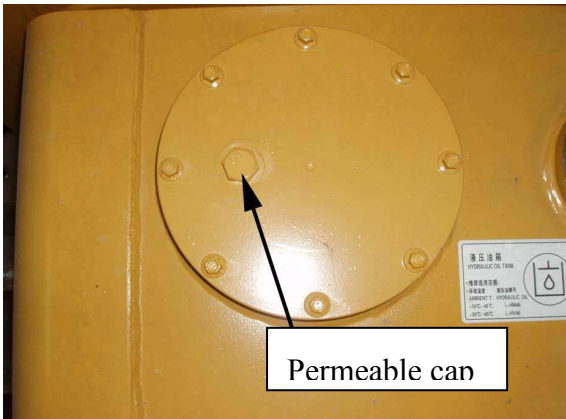
(Disassembling turning bucket from complete appliance can refer to the following steps)

1. Unload the oil

Start the complete appliance and run on the leveling and spacious ground, and lift the lift arm to the highest position and tilt the bucket backward, and then stop the engine. Turn the power switch to the position of “on”, and move slowly the pilot valve operating handle right to tilt the bucket forward under the dead weight slowly. Pull out the oil in the turning bucket cylinder. After turning the bucket in place, push the handle forward slowly to make the boom to drop slowly under the deadweight. Pull out the oil in the boom cylinder. Put the bucket on the ground horizontally and move the operating handle around for five or six times, and then remove the oil pressure in the system.



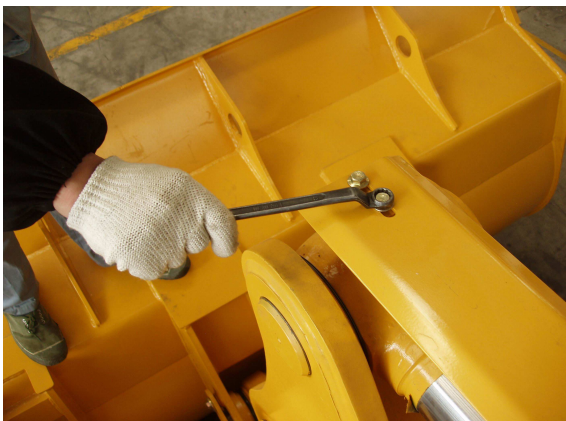
Fix the tire of loader with wood wedge stability.



Open the permeable cap of hydraulic cylinder.



2. Put proper oil holder under the turning bucket cylinder.



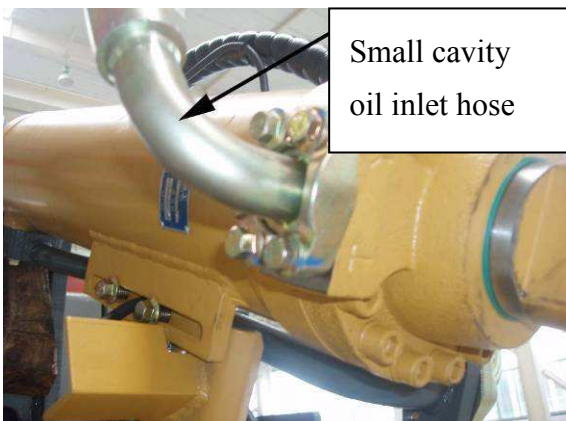
3. Remove the fixed bolt of horizontal guard plate, and then remove the washer and horizontal guard plate.



4. Shear the proximity switch wiring harness.



Big cavity oil
inlet hose



Small cavity
oil inlet hose

5. Remove the connecting flange of big oil inlet hose on the turning bucket cylinder. Disconnect the connection between turning bucket cylinder big cavity oil inlet hose and turning bucket cylinder.

★ In process of disassembly, do not unload the fixed bolt of connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.

6. Remove the connecting flange of small oil inlet hose on the turning bucket cylinder. Disconnect the connection between turning bucket cylinder small cavity oil inlet hose and turning bucket cylinder.

★ Pay attention to protecting every pipeline and oil port. Prevent the dust and sundries from entering the pipeline.

7. Hoist the turning bucket and keep certain pre-tightening force on the hoisting rope. Remove the fixed bolt which connects turning bucket with connecting pin of rocker.

Remove the connecting pin with rubber hammer.





8. Hoist the turning bucket cylinder up to make the cylinder to tend to be vertical. Remove the fixed bolt between turning bucket cylinder and front frame connecting pin, and then remove the connecting pin.



Turning bucket cylinder



9. Hoist the turning bucket cylinder down, and then remove the big cavity oil inlet steel of turning bucket cylinder.

II Assembly of Turning Bucket Cylinder

(Assembling turning bucket cylinder on complete appliance can refer to the following steps)



1. Put an O-ring 32.5×3.55G in the groove at the end of turning bucket cylinder big cavity steel, then install them on the turning bucket cylinder with two bolts M10×50 and two bolts M10×55. Fix the front end of turning bucket cylinder big cavity steel on the wire holder of turning bucket cylinder with two bolts M10×16 and washer 10 to fix the turning bucket cylinder big cavity steel.

 kgm Tightening torque: 45~59Nm



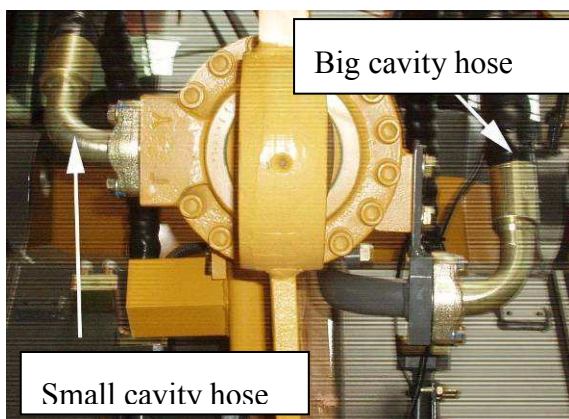
2. Clean the antirust oil pollution in the pin hole, and coat proper amount of lubricating grease on the pin. Hoist the turning bucket cylinder assembly and connect it with the front frame with pin, then put gasket on the joint end surface. Select the gasket according to model, number and installation position to make sure the fit clearance of end surface is 0.5~1.5mm. Then fix the pin with bolt M12×25 and washer.

 kgm Tightening torque: 78~104Nm

 kg Turning bucket cylinder

3. Put O-ring in the joint of turning bucket cylinder flexible hose, then connect it with turning bucket cylinder big cavity steel and turning bucket cylinder small cavity oil port respectively with split type flange and bolt M10×30.

 kgm Tightening torque: 45~59Nm

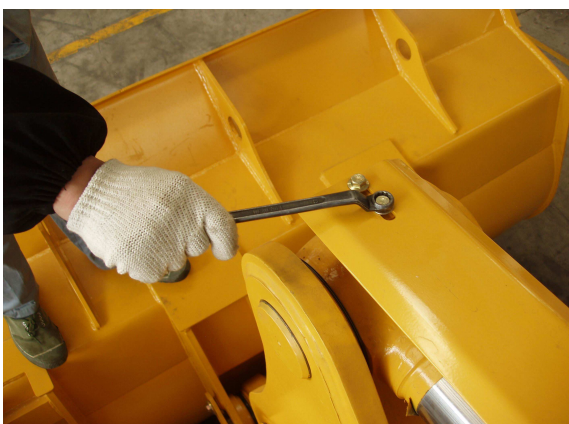




4. Start the complete appliance. Hoist the turning bucket cylinder body. Operate the turning bucket cylinder to align the connecting hole between the piston rod and rocker. Connect the turning bucket cylinder and rocker with turning bucket pin and put gasket on the joint end surface. Select the gasket according to model, number and installation position to make sure the fit clearance between turning bucket cylinder and rocker is 0.5~1.5mm. Then fix the turning bucket pin with bolt M16×30 and washer.



Tightening torque: 78~104Nm



5. Install the guard plate on the top of turning bucket cylinder with two bolts M10×25 and one washer 10.



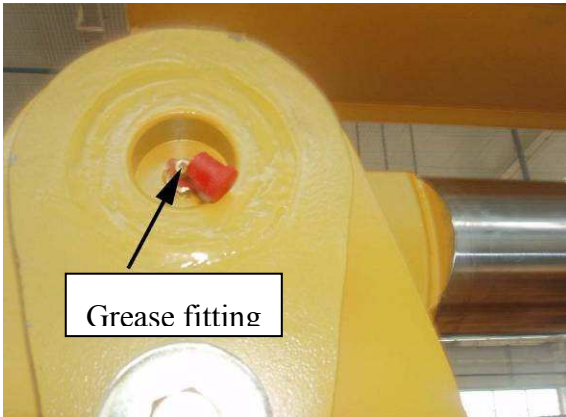
Tightening torque: 45~59Nm



6. Connect the proximity switch wire again according to the color of wiring harness and bind the wiring harness on the hose with ligature.



7. Install the permeable cap of hydraulic oil tank.



8. Load lubricant grease on each jointing position until there is lubricant grease extruding in the fit clearance. Check the amount of hydraulic oil and add hydraulic oil when it is not enough.

 Lubricant grease

5.8 Disassembly and Assembly of Steering Gear

I Disassembly of Steering Gear (Disassembling steering gear from complete appliance can refer to the following steps)

1. Start the complete appliance and run to the leveling, spacious and solid ground, and turn the steering wheel to run straightly, then stop after placing properly. Put the bucket on the ground horizontally and stop the engine. Turn the steering wheel clockwise and anticlockwise for 5~6 times. Fix the tire of loader with wood wedge stability.
2. Put clean oil holder under the steering gear to prevent the overflowing oil from spilling on the ground.



3. Loosen the connecting nut which connects the prior valve feedback oil pipe with the straight joint on the right oil port of steering gear, remove the hose and take protective measures.

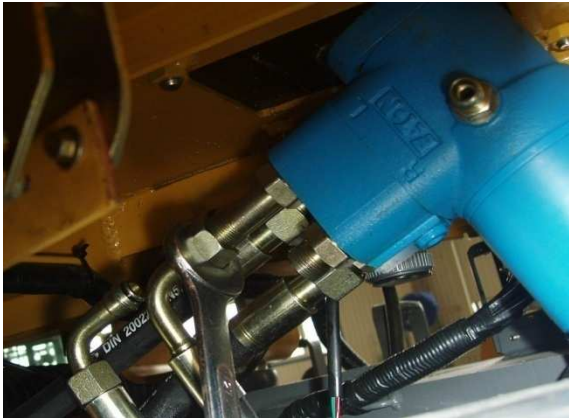
★ In process of disassembly, do not unload the fixed bolt of connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.

4. Loosen connection nuts between oil outlet hoses B of



steering device and R port under the steering device, remove the hose and take protective measures.

★ In process of disassembly, do not unload the fixed bolt of connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.



5. Loosen connection nuts between oil outlet hoses A of steering device and R port above the steering device, remove the hose and take protective measures.

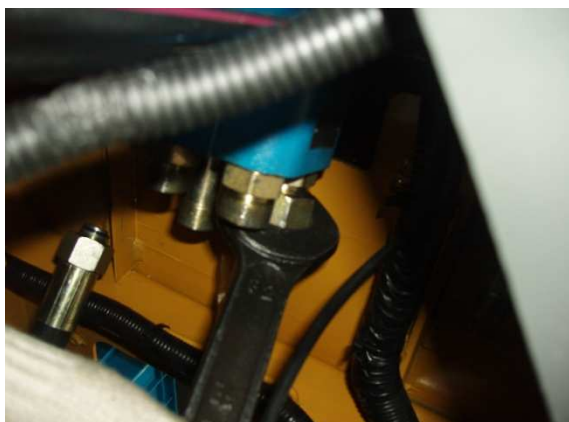
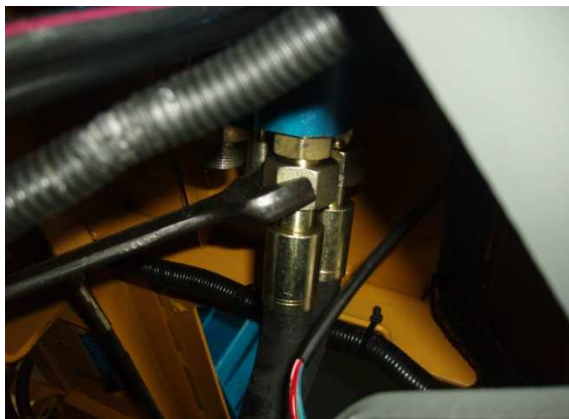
★ In process of disassembly, do not unload the fixed bolt of connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.

6. Loosen connection nuts between oil inlet hoses of steering device and P port under the steering device, remove the hose and take protective measures.

★ In process of disassembly, do not unload the fixed bolt of connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.

7. Loosen connection nuts between oil returning hoses of steering device and T port above the steering device, remove the hose and take protective measures.

★ In process of disassembly, do not unload the fixed bolt of connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.





8. Loosen screws on the covers under the console assembly and take down screw and covers.



9. Loosen fixing bolts of steering device and take down bolts and steering device.

★ When the bolt will be removed radically, someone are needed to hold the steering device stably in case of falling.



10. Loosen the direct joint on the right side of steering device, take down the direct joint and O-ring and take protective measures.



11. Loosen the direct joint on T shape port above steering device, take down the direct joint and O-ring and take protective measures.



12. Loosen the direct joint on P port under steering device, take down the direct joint and O-ring and take protective measures.



13. Loosen the direct joint on R port under right steering device, take down the direct joint and O-ring and take protective measures.



14. Loosen the direct joint on L port above right steering device, take down the direct joint and O-ring and take protective measures.



15. Pour the oil in the container into special hydraulic oil vessel.

II Assembly of Steering Gear (Assembling

steering gear on complete appliance can refer to the following steps)

1. Take down the guard component on oil port, and install the direct joint(With O-ring) on L port above right steering device

 kgm Tighening torque:72~88N.m



2. Take down the guard component on oil port, and install the direct joint (With O-ring) on R port under right steering device

 kgm Tighening torque:72~88N.m



3. Take down the guard component on oil port, and install the direct joint (With O-ring) on P port under left steering device

 kgm Tighening torque:72~88N.m



4. Take down the guard component on oil port, and install the direct joint (With O-ring) on T port above left steering device

 kgm Tighening torque:72~88N.m





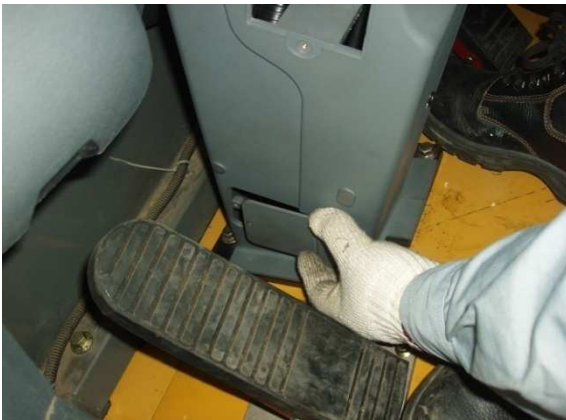
5. Take down the guard component on oil port, and install the direct joint (With O-ring) on feedback port on the right of steering device

 kgm Tighening torque: 31.5~38.5N.m

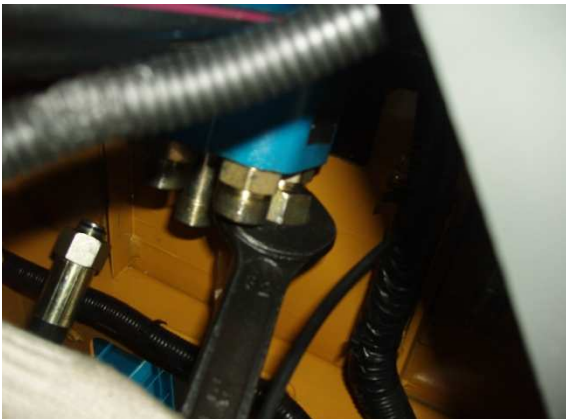


6. Install the steering device on the console fixing frame with 4 bolts -M10×55.

 kgm Tighening torque:45~59N.m



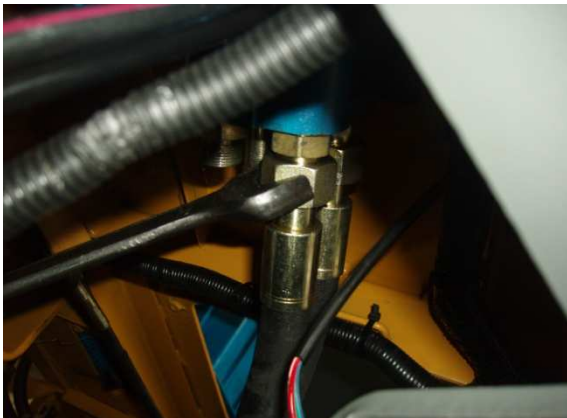
7. Install the cover on the two side under the console assembly with bolts.



8. Take down the guard component on oil port, and tighten oil returning pipes of steering device on the T port direct joint above left the steering device.

 kgm Tighening torque: 65~85N.m

★ Don't twist the hose.



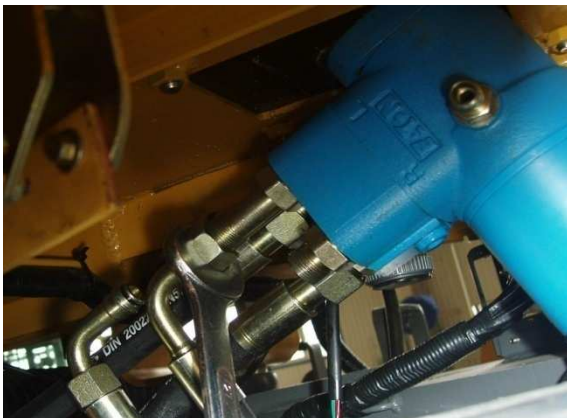
9. Take down the guard component on oil port, and tighten oil returning pipes of steering device on P port direct joint under left the steering device.



Tightening torque: 65~85N.m



★ Don't twist the hose.



10. Take down the guard component on oil port, and tighten oil outlet pipes A of steering device on the L port direct joint above right the steering device.



Tightening torque: 45~65N.m



★ Don't twist the hose.



11. Take down the guard component on oil port, and tighten oil outlet pipes B of steering device on the R port direct joint above right the steering device.



Tightening torque: 45~65N.m



★ Don't twist the hose.



12. Take down the guard component on oil port, and tighten oil feedback pipes of priority valve on oil port direct joint on the right of the steering device.



Tightening torque: 25~30N.m



★ Don't twist the hose.

5.9 Disassembly and Assembly of Steering Cylinder

I Disassembly of Steering Cylinder

(Disassembling steering cylinder from complete appliance can refer to the following steps)

1. Start the complete appliance and run to the leveling and spacious ground, and turn the steering wheel to run to the converse direction of steering cylinder which will be replaced and deflect a certain distance so that remove it easily. Fix the tire of loader with wood wedge stability. Put the bucket on the ground horizontally and stop the engine. Turn the steering wheel clockwise and anticlockwise for 5~6 times to release oil pressure in the steering system.

2. Put clean oil holder under the cylinder which will be replaced.

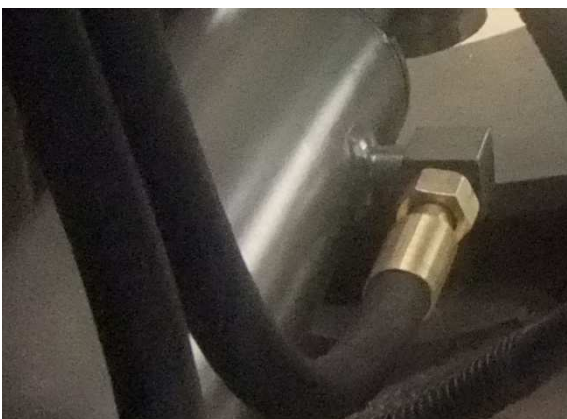
3. Disconnect the connection between steering cylinder small cavity oil inlet hose and steering cylinder.

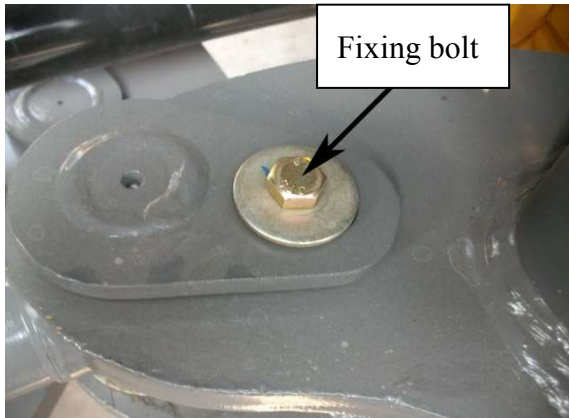
★ In process of disassembly, do not unload the connecting nut on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.

★ Pay attention to protecting every pipeline and oil port. Prevent the dust and sundries from entering the pipeline.

4. Remove the fixed bolt of steering cylinder big cavity oil inlet steel, and then disconnect the connection between big cavity oil inlet hose and steering cylinder.

★ In process of disassembly, do not unload the connecting nut on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.





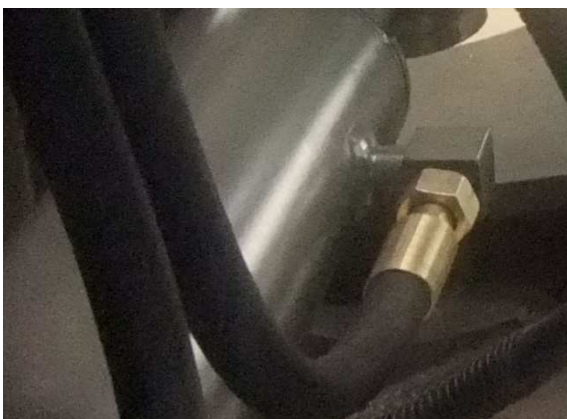
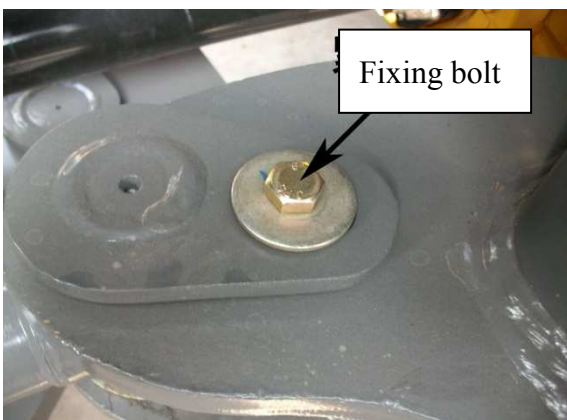
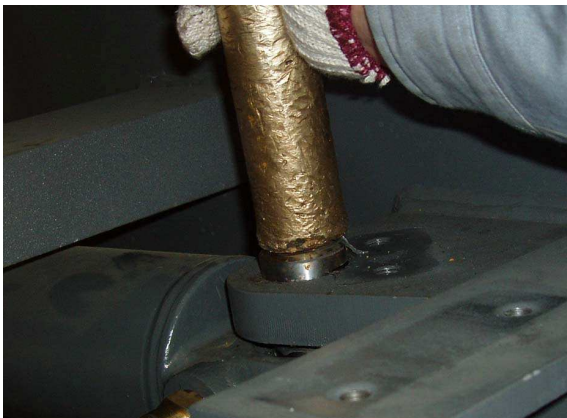
5. Remove the oil through bolt and washer of butter pipe at the front of steering cylinder.



6. Remove the fixed bolt on the front and back steering pin snap-gauge of steering cylinder. Take down the bolt, washer and snap-gauge (Don't confuse front and back snap-gauge).



7. Remove the steering cylinder.

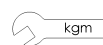


II Assembly of Steering Cylinder (Assembling steering cylinder on complete appliance can refer to the following steps)

1. Draw part of steering cylinder piston rod out to make the whole length equal to the distance between two jointing holes. Then put end of steering cylinder body in the steering cylinder installing seat of front frame.

★ The joint oil port of steering cylinder toward inside.

2. Put steering cylinder on the joint position to align the front joint position, and then fix steering cylinder on the front frame with front steering pin and snap-gauge, then fix with two bolts M16×30 and two washers 16.



Tightening torque: 193~257Nm

3. Adjust the extension elongation of piston rod to align the rear joint position, and then fix it on the rear frame with rear steering pin, gasket and snap-gauge, then fix with two bolts M16×30 and two washers 16.



Tightening torque: 193~257Nm

4. Install the oil inlet pipes of steering cylinder on the big cavity oil port of steering cylinder.

★ The hose should be never distorted.



Tightening torque: 55~75Nm

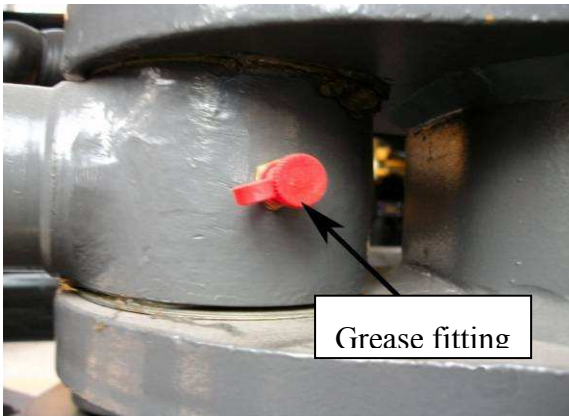


5. Connect the small cavity oil inlet hose of steering cylinder on the oil port of small cavity .

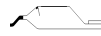
★ The hose should be never distorted.



Tightening torque: 55~75Nm



6. Load lubricant grease on each jointing position until there is lubricant grease extruding in the fit clearance.



Lubricant grease

Check the oil volume, add it if necessary.

CHAPTER VI

DISASSEMBLY AND ASSEMBLY OF BRAKING SYSTEM



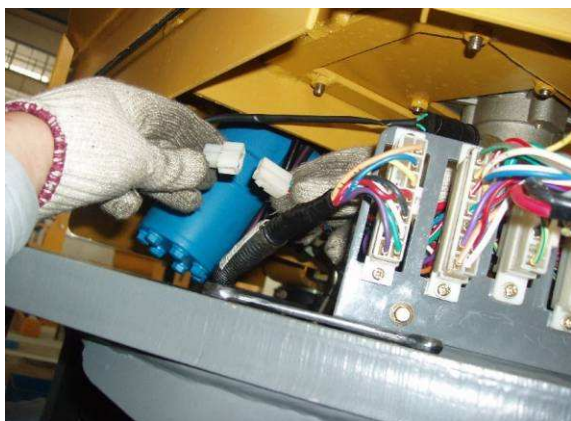
6.1 Disassembly and Assembly of Foot Brake Valve

(Disassembling foot brake valve from complete appliance can refer to the following steps)

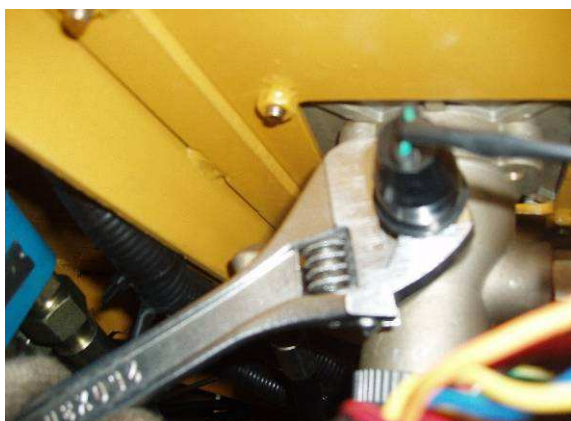
Dissembly of foot brake valve

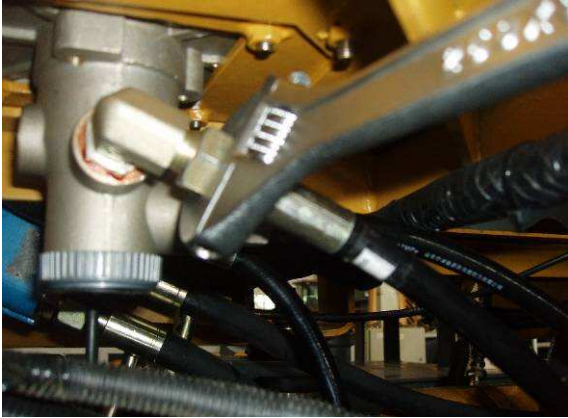
1. Open the water drain valve of gasholder to release the internal pressure.

2. Disconnect the connector of brake switch lamp.



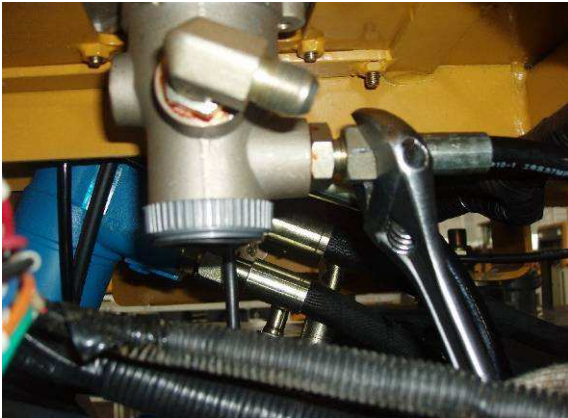
Remove the brake lamp switch.



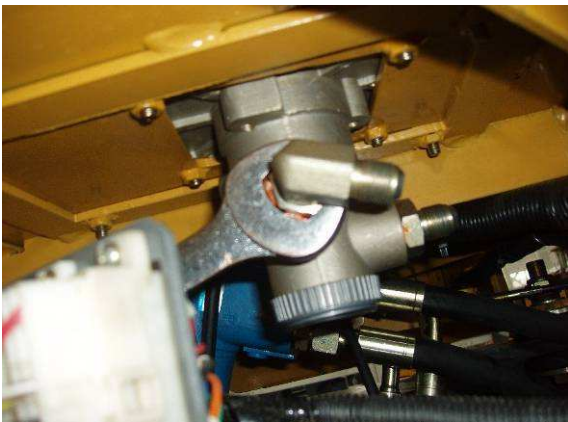


3. Remove the pipeline on the brake valve.

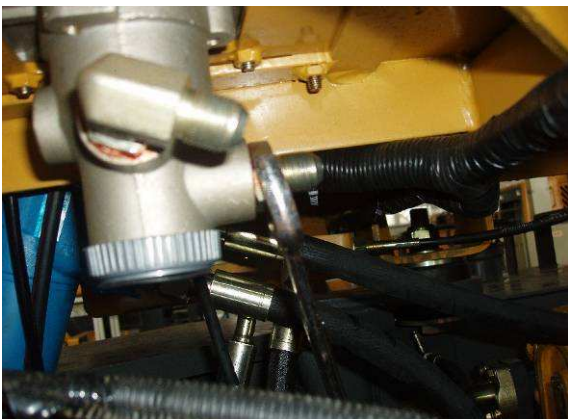
3.1 Remove the booster pump air pipes before and after the brake valve.



3.2 Remove the air pipes from the gas holder to the brake valve.



3.3 Remove the connectors on the foot brake valve.

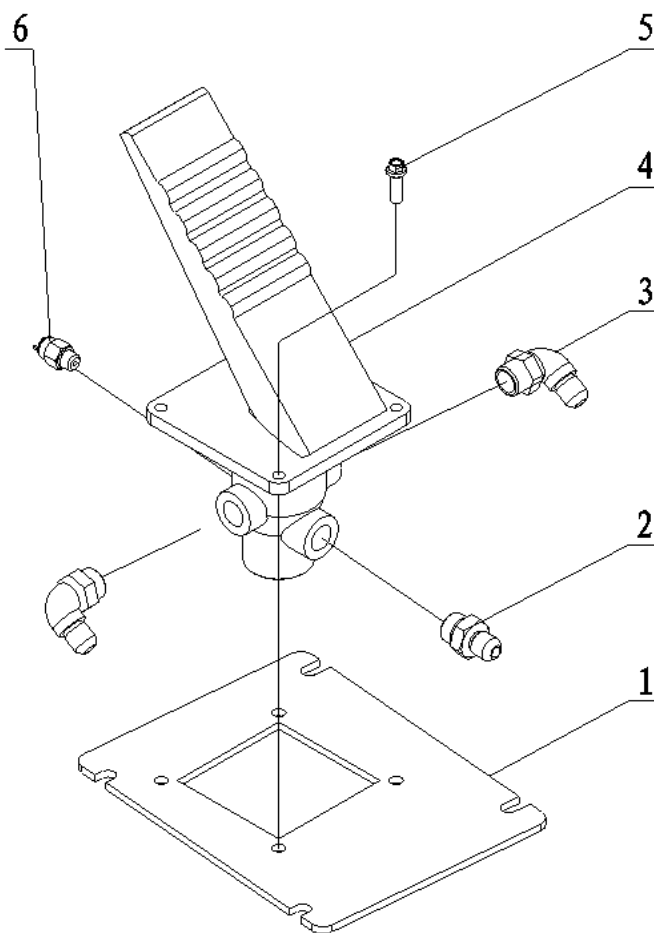


3.4 Remove the direct connectors on the foot brake valve.

★ Notice: Protect the the surface of pipes, connectors and other parts and clean them.



4. Remove the fixing bolts of brake valve in cab and take down the brake valve.



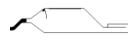
II Assembly of Foot Brake Valve

1. Fix foot brake valve on the installation plate (1) with four bolts (5). Remove the guard cover behind the brake valve. Coat the direct connector (2) with proper amount of 1545 sealant and tighten the port; Remove the guard cover in the front of the brake valve. Coat the external screw of brake switch (6) with proper amount of 1545 sealant and tighten it to the corresponding port of brake valve; Remove the guard cover in the right and left side of the brake valve. Coat the external screw of connectors (3) with proper amount of 1545 sealant and tighten it to the right and left of brake valve; Bent connector faces downward and there is 45°

between the horizontal ground and it. Tighten the connector assembly after adjusting it well.

★ Notice: Coat the screw with 1545 sealant: (1) Clean the dirt around the screw with paper. (2) Coat the external screw with sealant for 1 cycle and the width of sealant is 3~5 circles. The teeth of screw should

be full with sealant and the first tooth should not be coated with sealant. After assembly, there should be a complete glue wire between external screw and screw hole. Coat in time when assembling, tighten it with hands and it should be condensed for more than 30 minutes after assembly.



1545 Sealant

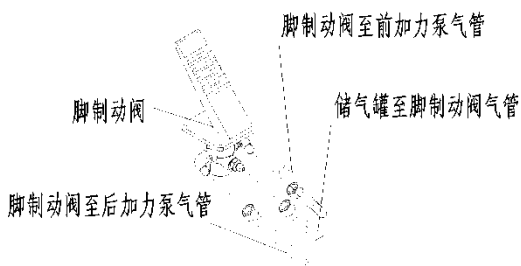
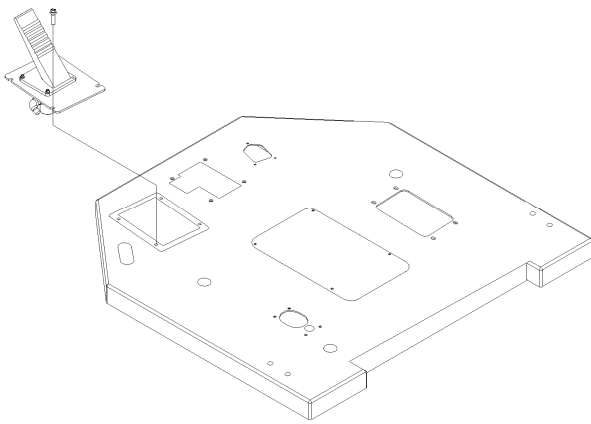


Direct connector 70~90N.m

Bent connector 50~70N.m

2. Fix the foot brake valve assembled to the corresponding position of front left side of the platform with 4 bolts.

★ Notice: After the foot brake valve is assembled, it should be assembled after 30 minutes.

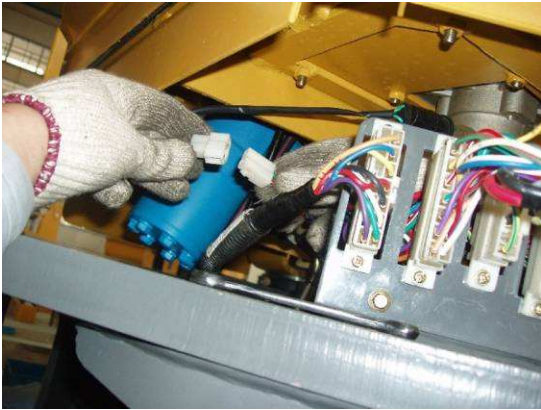


3. Remove the guard cover from gas holder to foot brake valve and lay the pipes out well; Connect the air hose from the foot brake valve to front booster pump with the right connector of foot brake valve, and connect the air hose from the foot brake valve to rear booster pump with the left connector of foot brake valve, and lay out the pipelines before fixing them. After assembling them, lay out the hose from brake valve to front/rear booster pump and the hose from gas holder to foot brake valve, and tie them with nelon bands so that the interference between them. 重



Nut of air hose M18×1.5

Tightening torque: 50~65N.m



4. Unplug the connectors of brake switch and the plug of wire harness.

6.1.1 Disassembly and Assembly of Brake Assembly

I Disassembly of Brake Valve



1. Remove the fixed bolt on the fixed plate, and then take the fixed plate down.

★ Notice: Register the installation position and installation size.



2. Remove the oriented column.



3. Remove the spring seat and ratio small spring assembly.

4. Remove the valve core.



5. Take out the return spring.



6. Remove the O-ring on the valve core.



7. Remove the cushion at the bottom of valve body.





8. Remove the shield with circlip pliers.



9. Take down the gasket.



10. Remove the small valve core assembly and O-ring.



11. Remove O-ring in the valve body.

II Assembly of Brake Valve

1. Install O-ring in the lower valve body.
2. Coat small amount of brake fluid in the lower valve body. Then install small valve core assembly in lower valve body.
3. Install the gasket.
4. Install the internal circlip pliers.





5. Install the cushion.



6. Install O-ring in the valve core.



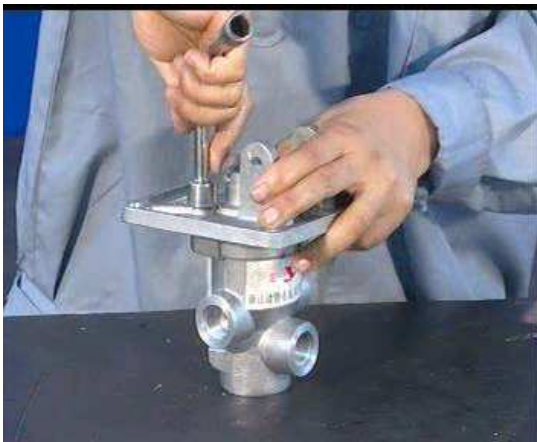
7. Install spring in the valve body.



8. Coat small amount of brake fluid on the surface of valve core, and install valve core in the valve body. Press the valve core to check the return reliability of valve core.



9. Install ratio small spring assembly in the valve body.



10. Install the fixed plate.



★ Notice: The speed-limiting screw is opposite air inlet.

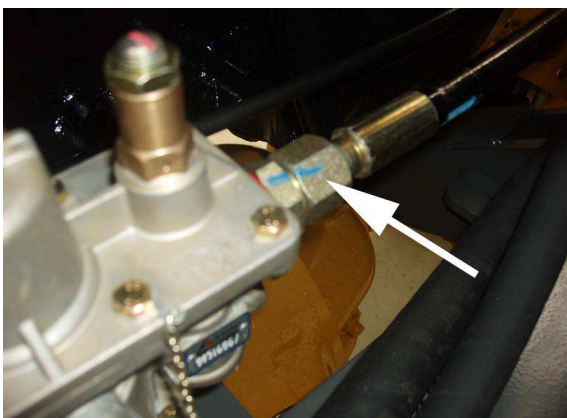
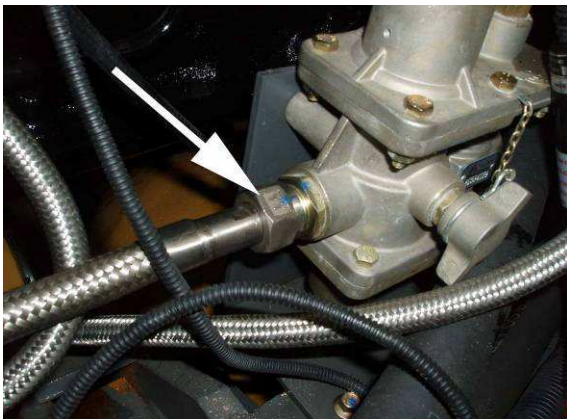
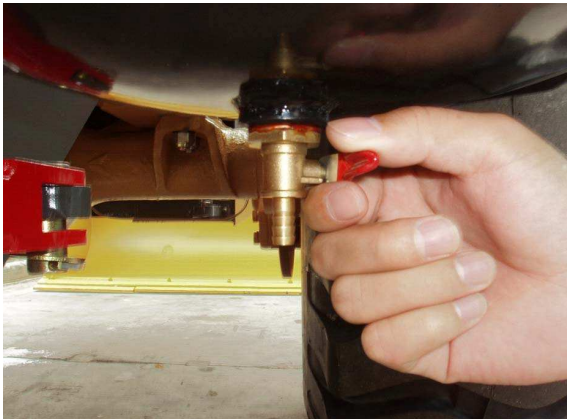


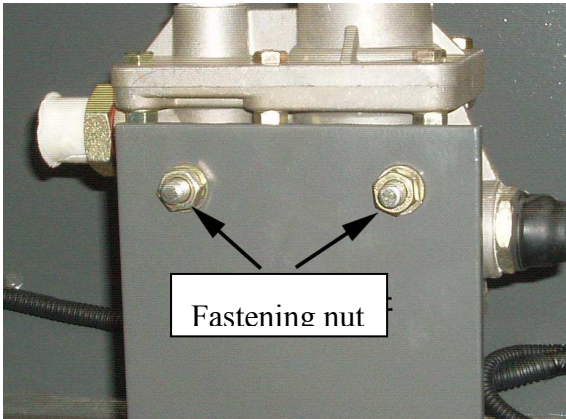
11. Install ejector pins and dust cover.

6.2 Disassembly and Assembly of Oil-water Separator

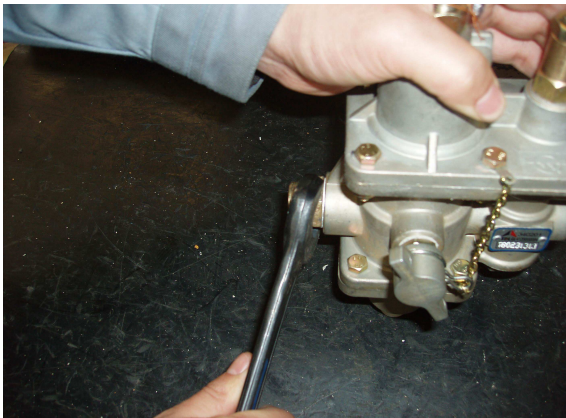
I Disassembly of Oil-water Separator (The disassembling steps for replacing the oil-water separator are as follow)

1. Start the complete appliance and run to the leveling, spacious and solid ground, then stop after placing properly. Put the bucket on the ground horizontally and place the operating handle in neutral position. Press down the parking brake joystick and stop the engine. Fix the tire of loader with wood wedge stability.
2. Before disassembling, release the pressure firstly. Open the water drain valve on the gasholder to release the internal pressure.
3. Open the side door. Remove the metal flexible hose at the end of air compressor to oil-water separator from two-way joint of oil-water separator.
★ Pay attention to protecting each pipeline and port. Prevent the dust and sundries from entering the pipeline.
4. Remove the windpipe at the end of oil-water separator to gasholder from straight joint of oil-water separator.

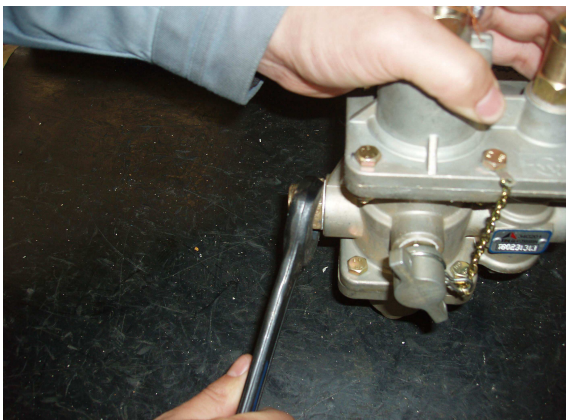




5. Remove the fixed nut and washer of oil-water separator. Then remove oil-water separator from the support of oil-water separator.

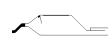


6. Remove two-way joint and washer from oil-water separator respectively.



II Assembly of Oil-water Separator (Install according to the following steps after replacing and repairing completely)

1. After coating 1545 sealant on the two-way joint, add a washer and tighten on the oil-water separator.



1545 sealant



kgm

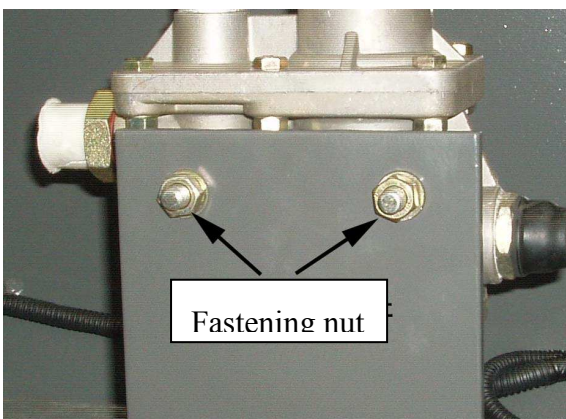
Tightening torque: 70~90Nm

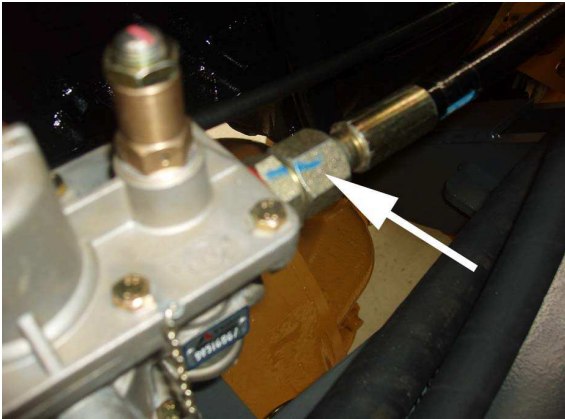
2. Fix oil-water separator on the support of oil-water separator with self-bring nut and washer.



kgm

Tightening torque: 22~30Nm



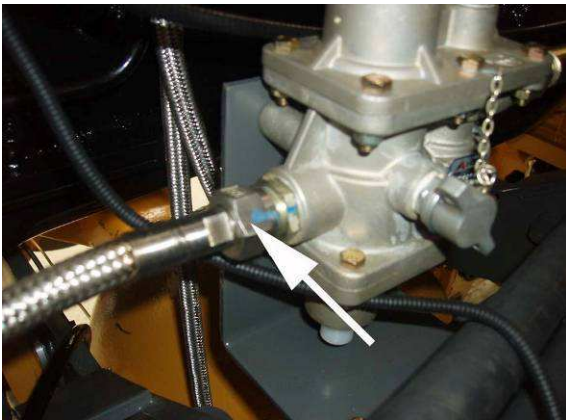


3. Tighten the windpipe at the end of oil-water separator to gasholder on two-way joint after adding a washer.

★ Never distort the flexible hose.



Tightening torque: 50~65Nm



4. Coat AT272 screw lock fix sealant on the two-way joint of oil-water separator. Connect the metal flexible hose with oil-water separator adding a washer. Tighten after adjusting the angle.



Tightening torque: 40~60Nm



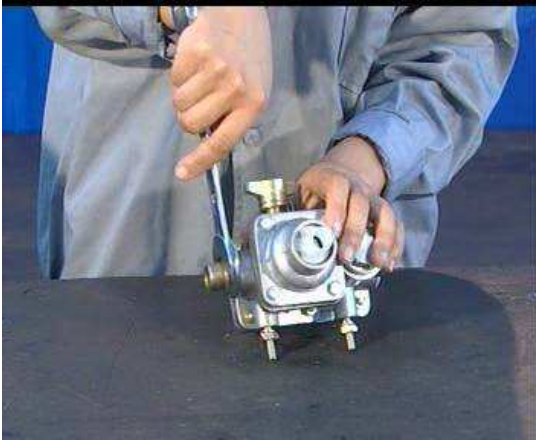
AT272 screw lock fix sealant

★Notice: The metal flexible hose can be bended randomly and not rebound. Never contact and rub with other parts when assembling.

6.2.1 Disassembly and Assembly of Oil-water Separator Assembly

I Disassembly of Oil-water Separator

1. Remove the pipe joint and washer.
2. Remove the upper lock nut. Then loosen the regulating screw with screwdriver.
3. Remove the fixed bolt connecting upper cover with midbody. Take down the upper cover.
4. Take down the regulating spring seat. Then take down one-way valve and return spring.





5. Take down the control piston assembly. Then take down the regulating valve rod.



6. Take down the pressure regulating valve.



7. Turnover 180° , and then take down the shield ring and water drain joint.



8. Loosen the fixed bolt connecting lower shell with midbody.



9. Take down the lower shell assembly.



10. Remove the O-ring of lower shell.



11. Fix the lower shell assembly on the bench clamp, and then remove the valve core bolt and cushion. Take down the lower shell.



12. Take down the collector plate and the parts on it, and then take down the spring and O-ring of valve core.



13. Loosen the filter element plug, and then take down the O-ring.



14. Take down the air filter element.



15. Remove the wing nut.



II Assembly of Oil-water Separator

1. Clean every part for assembling.



2. Install O-ring on the valve core. Check the spring and install in place.



3. Install collector plate and the parts under it. Then install the lower shell.



4. Install the valve core bolt and cushion. Tighten the bolt.



5. Put the middle valve body horizontally and the fixing surface with lower shell is upward. Install the O-ring and lower shell assembly.



6. Put the air filter element in the midbody. Install the O-ring, plug and then tighten.



7. Install the bolt and washer connecting middle valve body with lower shell, and then tighten.



8. Install the regulating valve and regulating valve rod, and then install the control piston assembly in place.



9. Install the pressure regulating spring and spring seat, and then install the one-way valve return spring.



10. Install O-ring on the upper cover, and then install upper cover on the midbody.



11. Assemble the midbody and upper cover. Install the bolt and washer, then tighten.



12. Install the wing nut.



13. Install the regulating screw and lock nut, and then preload the nut.



14. Install the pipe joint washer, and then tighten.



15. Install the water drain joint and washer.

★The setting pressure on the complete appliance is 0.8Mpa.

6.3 Disassembly and Assembly of Gasholder

I Disassembly of Gasholder (Disassembling

foot brake valve from complete appliance can refer to the following steps)

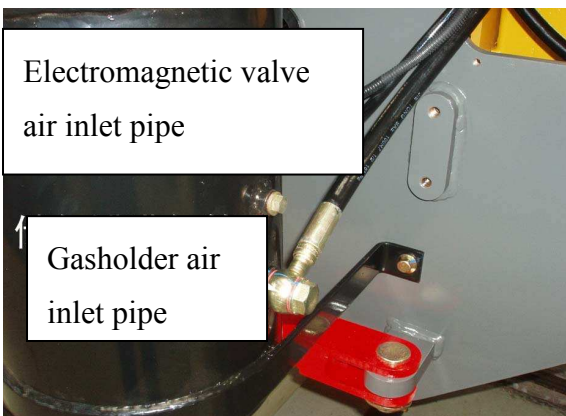
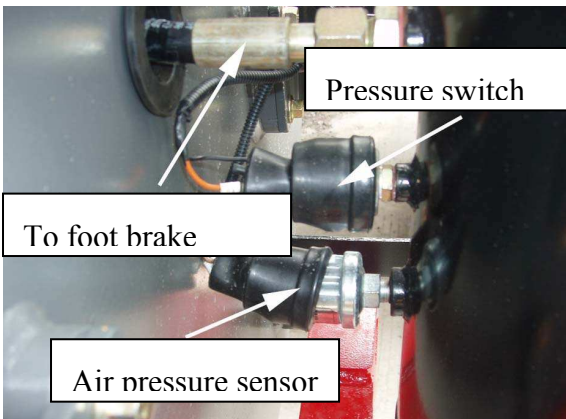
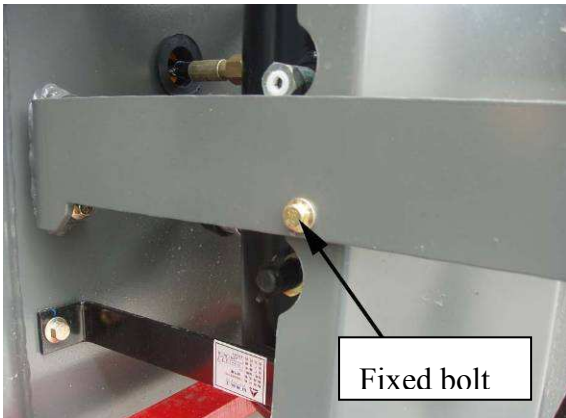
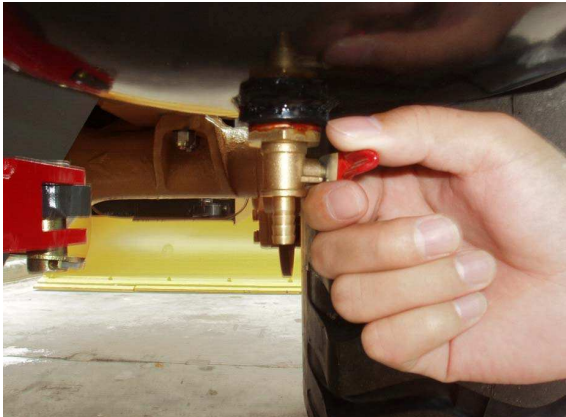
1. Open the water drain valve to release the internal pressure.

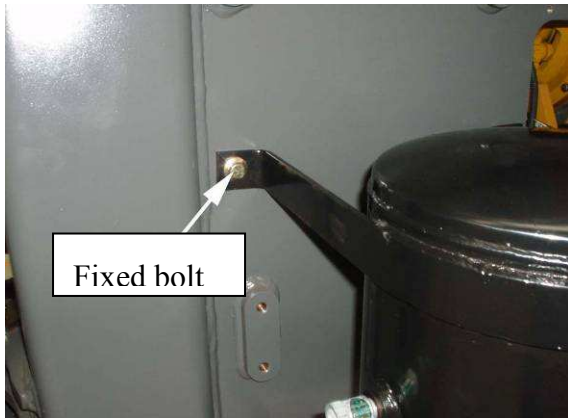
2. Remove the fixed bolt of gasholder cover, and then take down the cover.

3. Disconnect the connection between braking pressure sensor and pressure switch wiring harness, and disconnect the connection between brake valve oil inlet pipe and gasholder.

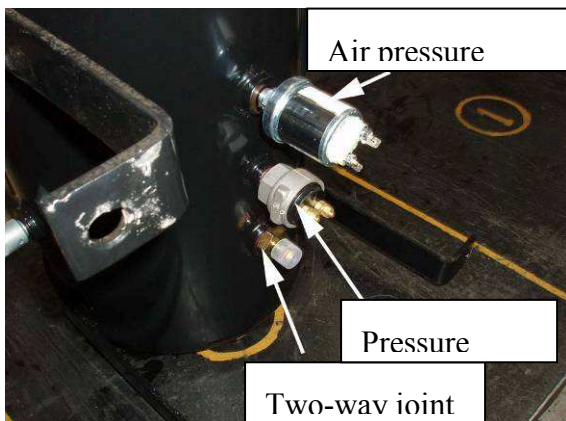
★In process of disassembly, pay attention to protecting each pipeline and port. Prevent the dust and sundries from entering the pipeline.

4. Disconnect the connection between electromagnetic valve oil inlet pipe, gasholder oil inlet pipe and gasholder.

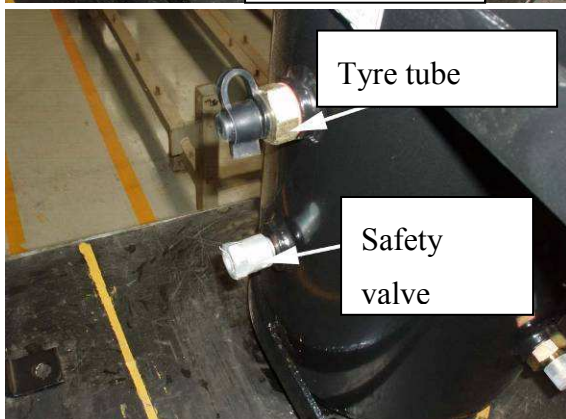




5. Remove the fixed bolt of gasholder, and then take down the gasholder.



6. Remove the accessories such as gasholder safety valve, tyre tube valve, pressure sensor, plug, pressure switch, two-way joint and etc. from gasholder.



II Assembly of Gasholder (Assembling gasholder on complete appliance can refer to the following steps)

1. Install tyre tube valve adding a washer on the gasholder. Then install pressure switch adding a washer on the gasholder. Install braking pressure sensor on the gasholder. Install two-way joint adding a washer on the gasholder.

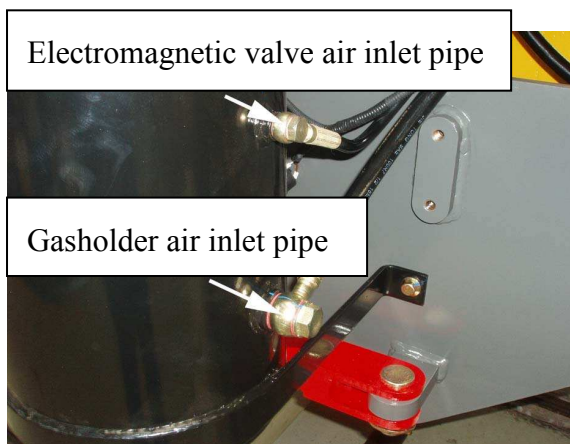
Coat AT545 oxygen-wear type pipe thread sealant on gasholder safety valve, tyre tube valve, pressure sensor, plug, pressure switch and two-way joint. The requirement for daubing process is as follow: (1) Clean the position of screw with towel not losing fur. (2) Coat a circle of sealant on outside thread of part. The width of daubing sealant is 3~5 pitches screw, and the sealant should be full of thread profile. Don't coat sealant on the first pitch of screw, and coat instantly during assembling. After assembling completely, there should be a rounded circle of glue line on the outside thread

and peritreme of screw. (3) Don't tighten each part daubing sealant with impact wrench, which should be tightened with wrench by hand. (4) The solidification time should be more than 30mins at least after assembling.

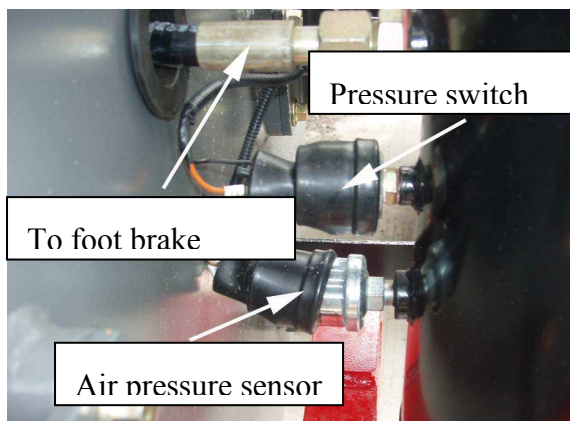
 AT545 oxygen-wear type pipe thread sealant

2. Install gasholder assembly on the rear frame with four bolts M12×30.

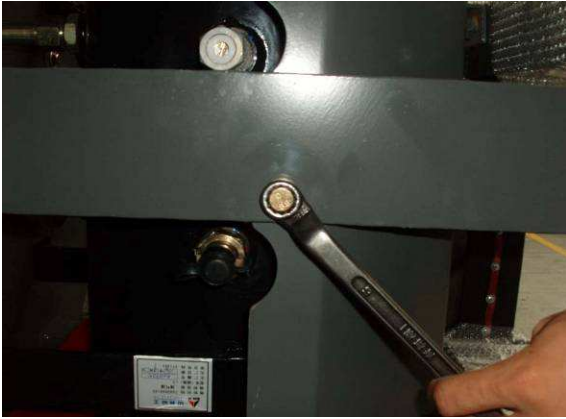
 Tightening torque: 78~104Nm



3. Install oil-water separator to gasholder windpipe on the gasholder with bolt and two washers. Install electromagnetic valve air inlet pipe on the gasholder with bolt and two washers.



4. Install the joint of gasholder to brake valve windpipe adding a washer on the two-way joint of gasholder; Connect No.18 and No. 32 wire with terminal marked "G" and "WK" of braking pressure sensor respectively; Connect No.0 and No. 54 wire on the pressure switch of gasholder.



5. Install guard cover on the left lower ladder assembly with three bolts M10×20.



Tightening torque: 45~59Nm

6.4 Disassembly and Assembly of Booster Pump

I Disassembly of booster Pump (The

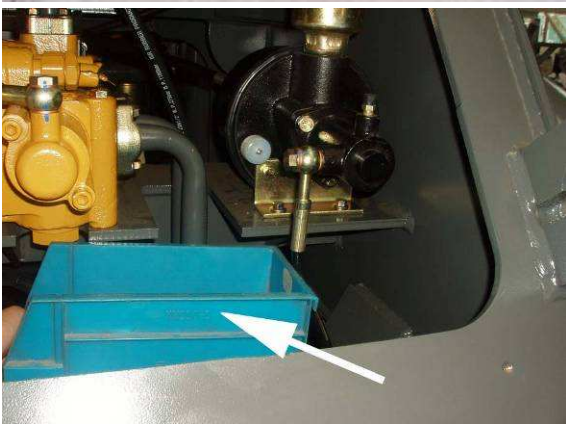
disassembling steps for replacing the booster pump are as follow)

★ In process of disassembly, pay attention to protecting the flexible pipe and joint which are disassembled. Prevent the dust and sundries from entering the pipeline.

1. Start the complete appliance and run to the leveling, spacious and solid ground. Put the bucket on the support and place the operating handle in neutral position. Press down the parking brake joystick and stop the engine. Fix the tire of loader with wood wedge stability.

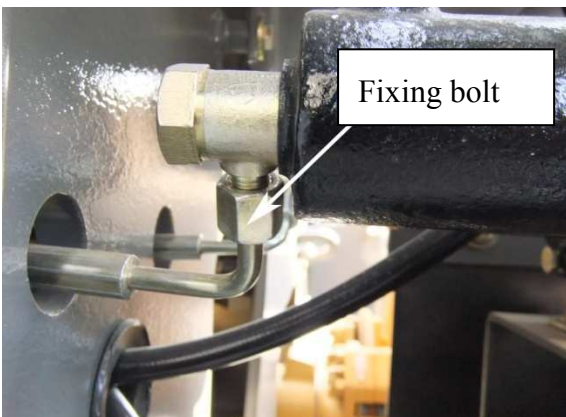


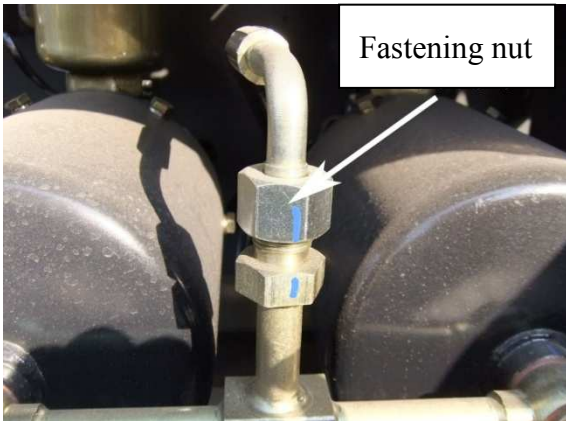
2. Put oil holder under the booster pump which will be replaced.



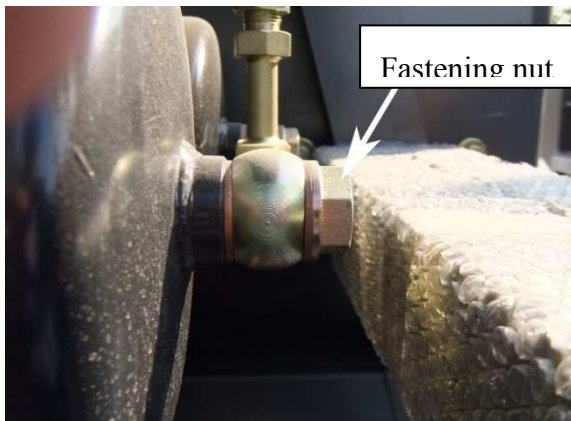
3. Remove the fixing bolts of oil pipes of front/rear axle to booster pump. Disconnect the connection between hose and booster pump.

★The braking fluid has causticity, and pay attention to protecting body and machine.

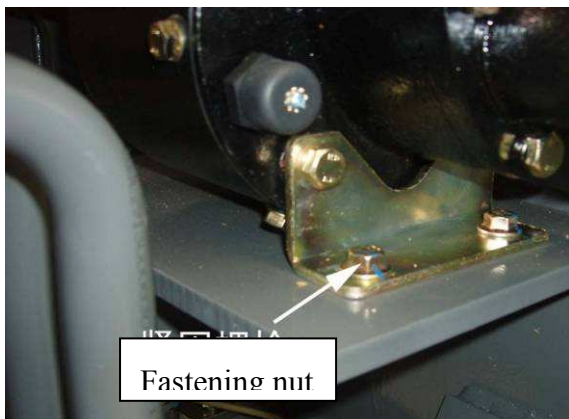




4. Remove the hose from foot brake valve to tee pipes out of front booster pump.



5. Remove the fixed bolt from tee pipes to booster pump, and cut off the connection between tee pipes and booster pump..



6. Remove the fixing bolts of front booster pump. And take down the booster pump.



7. Remove direct joint on the booster pump.

II Assembly of Booster Pump (Assemble

according to the following steps after replacing and repairing completely)

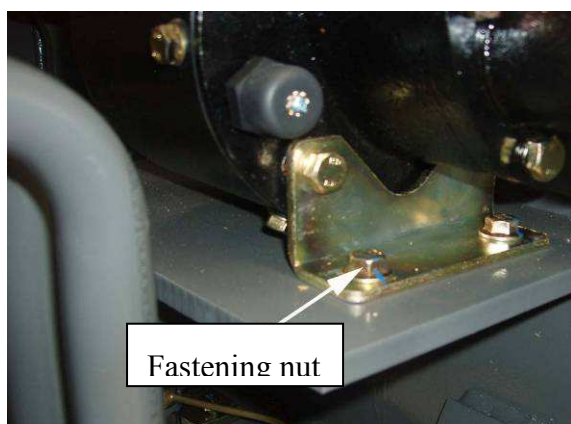
1. Coat AT545 oxygen-wear type pipe thread sealant on two-way joint, and then install the two-way joint adding a washer on the booster pump.



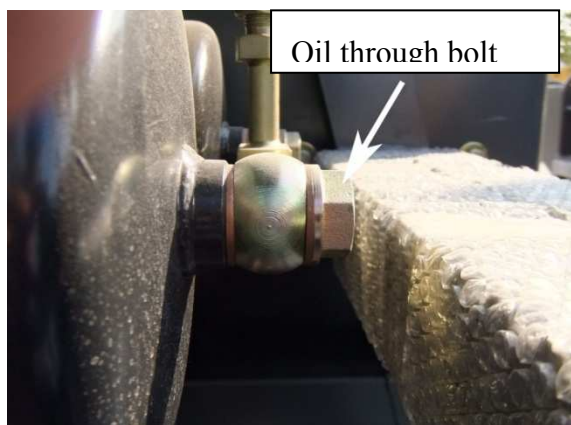
2. Install the booster pump assembly on the booster pump support of front frame with two bolts M10×30.



kgm Tightening torque: 45~59Nm

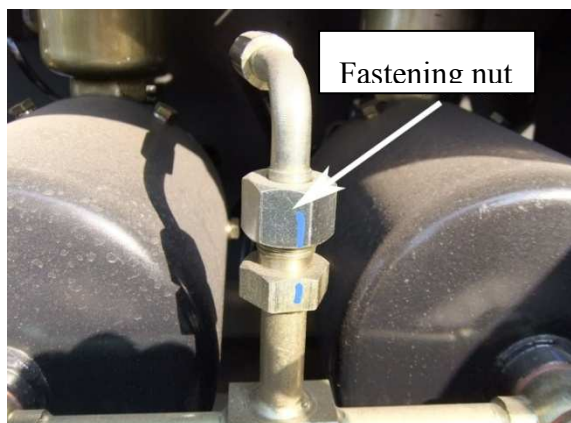


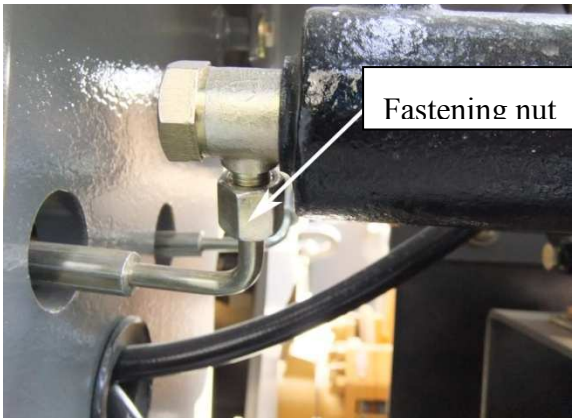
3. Connect the front axle oil pipe to hose of booster pump on the booster pump with oil through bolt and copper washer (The smaller copper washer is near to the booster pump).



4. Connect the hose from foot brake valve to front booster pump with tee pipes.

★ Never distort the flexible pipe.





5. Fix screw connection of booster pump of front/rear axle on the connector block of booster pump.

★ Never distort the flexible pipe.



6. Load braking fluid and discharge the brake.

Load full of HZY3 braking fluid (GB/T12981-2003) in the brake oil cup, and then start the engine. When the reading of barometer rises to the specified pressure, loosen the deflating valve at top of brake shaft by the person who isn't on the loader. The person who is on the loader steps on the brake valve to exhaust gas until there is not bubble in the exhausting full line of fluid. Tighten the deflating valve after exhausting completely. Add braking fluid in the brake oil cup in time when exhausting gas. Finally add braking fluid to the top of middle position of oil cup, and then install the cover of oil cup and tighten. Notice to tighten the deflating valve with wrest wrench.



Tightening torque: 25~35Nm



6.4 .1 Disassembly and Assembly of Booster Pump Assembly

I Disassembly of Intensifier Pump

Assembly

1. Discharge braking fluid in the intensifier pump completely, and then remove the oil storage cup assembly.



2. Remove the cover of oil cup and seal ring, and then remove filter screen.



3. Remove the air relief cock.



4. Remove the fixed bolt of intensifier cylinder.



5. Separate the intensifier cylinder from intensifier pump body.



6. Remove the O-ring on the intensifier cylinder.



7. Remove bolt on the intensifier cylinder body.



8. Remove the fixed plate.



9. Remove the respirator.



10. Separate the intensifier pump body from intensifier cylinder body.



11. Disassemble the intensifier pump body:

1) Press the spring with vice slowly, and then remove the spring retainer ring.



2) Remove the push rod seat and braking piston.



3) Remove the oil inlet valve of push rod seat.



4) Remove the skeleton oil seal of braking piston.



5) Loosen vice slowly, and then separate push rod from push rod piston.



6) Remove the return spring and push rod piston assembly.



7) Take out the rubber band of push rod piston.



8) Remove the shield ring, washer and oil seal in the intensifier pump body.



II Disassembly of Booster Pump

1. Clean every part for installing.



2. Install the piston rubber band o the push rod piston.



3. Install the seal ring, gasket and shield ring in the intensifier pump body.



4. Coat small amount of braking fluid on the surface of push rod. Assemble the push rod piston, return spring and intensifier pump body, and then press with vice slowly.



5. Install the oil inlet valve in push rod seat.



6. Assemble the braking piston, push rod seat and push rod with shield ring. Loosen vice.



7. Coat small amount of braking fluid on push rod piston and intensifier pump body. Assemble the intensifier cylinder body and intensifier pump body.



- Install the bolt and washer.



8. Install seal ring in the braking piston.



9. Install O-ring in the braking cylinder body, and then load small amount of braking fluid.



10. Assemble the intensifier braking cylinder body and intensifier pump body. Install the bolt and washer.



11. Install the air relief cock



12. Install the fixed plate with bolt and washer.



13. Install the intensifier cylinder respirator.



14. Install the oil storage cup and filter screen. Load small amount of braking fluid in the oil cup. Then install O-ring and oil cup cover.

CHAPTER VII

DISASSEMBLY AND ASSEMBLY OF WORKING DEVICE

7.1 Disassembly and Assembly of Bucket

I Disassembly of Bucket

(Replacing and assembling the bucket from complete appliance can refer to the following steps)

1. Start the complete appliance, run to the leveling, spacious and solid ground, and stop when place properly. Put the bucket on ground horizontally, and place all operating bars in the neutral position and pull up the operating bar of parking brake, then stop the engine and wedge the tire of loader with wooden wedge.

2. Remove the pin connecting linkage and bucket.
Then remove the fixed bolt of pin.

Take down the pin with soft hammer.

★**Notice:** Fix the linkage with rope to avoid dropping to hurt foot or destroy ground when take down the pin.





3 Remove the fixed bolts and washers connecting with boom(Left and right sides of bucket) respectively.



Take down the pins on both sides with soft hammer.
Remove the adjustment washer and O-ring.



4 Hang off the bucket or drive away from the complete appliance.



I Disassembly of Bucket

(Replacing and assembling the bucket from complete appliance can refer to the following steps)

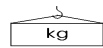
1. Start the complete appliance, and lift the boom to certain position (the distance between front end of boom and ground is 0.3 meters). Clean dirt in the shaft hole, and inject proper amount of grease in each hole.



2. Install O-shape dust ring on both ends of boom pin hole respectively

★Take care of hands when install the O-shape dust ring.

Hang the bucket, and adjust the position of bucket to align pin hole connecting bucket with boom.



Bucket



Connect bucket with boom with pin and gasket, then adjust the thickness and number of adjusting gasket to make sure the assembly clearance between bucket and end surface of boom is 0.5~1.5 mm.



Put the O-shape dust ring in the connecting clearance between bucket and boom.



Then fix the pin with two bolts and two washers.



Tightening torque: 193~257N.m。



3. Start the complete appliance, then manipulate boom cylinder and fall the bucket to the ground. Lift the linkage, and manipulate dump cylinder to make linkage align to axle hole of connecting pin. Put one O-shape dust ring in both end of linkage axle hole. Make sure not hurt by O-ring.



Linkage



Connect bucket with linkage assembly with a pin, then fix the pin with a bolt M16×30 and a washer.



Tightening torque: 193~257N.m。



Load proper amount of lubricant grease in the pin connecting position with grease injector.



Lubricant grease



7.2 Disassembly and Assembly of Linkage

I Disassembly of linkage

(Removing the linkage from complete appliance can refer to the following steps when replace linkage)

1. Start the complete appliance and run to the leveling, spacious and solid ground, and stop when place properly. Put the bucket on ground horizontally, place all operating bars in the neutral position and pull the operating bar of parking brake up, then stop the engine and wedge the tire of loader with wooden wedge.



2. Remove the pin connecting linkage with bucket. Then remove the fixed bolt and washers.

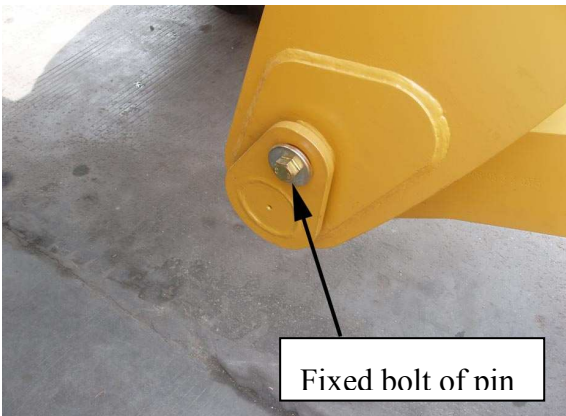
Take down the pin with soft hammer. Take down the adjustment washer and O-ring.

★**Notice:** Hang the linkage with joist barrow to avoid dropping to hurt foot or destroy ground when taking down the pin.



3. Remove the pin connecting linkage with rocker arm.

- 1) Remove the fixed bolt of pin.





2) Take down the pin with soft hammer.

★ Notice: Predict the moving trace of linkage to prevent injury.

II Disassembly of linkage

(Assembling the linkage on complete appliance can refer to the following steps when replace linkage)

1. Clean the antirust oil pollution in the shaft sleeve holes at both ends of linkage, and then install two sleeves in the hole at both ends of linkage with copper rod. And install two dust rings in the joint hole at both ends respectively.

★ **Notice:** Assemble the sleeve after it is frozen for 4 hours. Make sure wear protective gloves when take out sleeve from low temperature test box so as not to hurt hands.

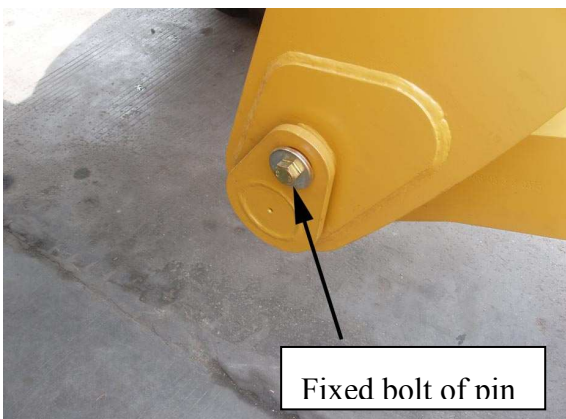
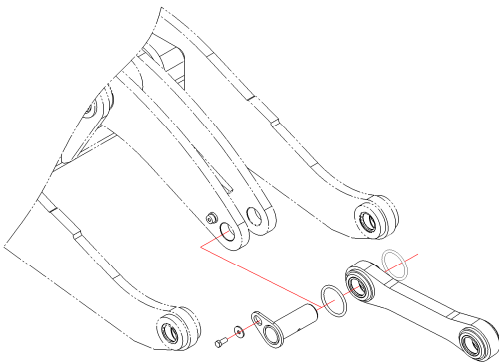
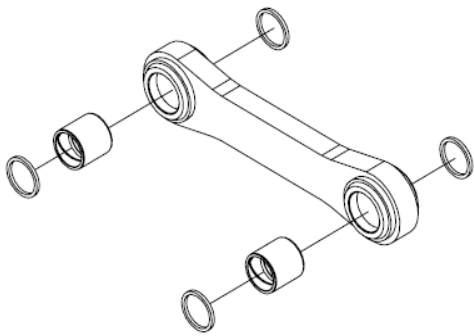
Load proper amount of lubricant grease in each hole when clean pollution.

2. Hang the linkage, and connect the linkage assembly on the rocker assembly with a pin and two O-shape dust rings.

Then fix the pin on rocker arm with bolt M16×30 and washer.



Tightening torque: 193~257N.m。





3. Start complete appliance and hang the linkage. At the same time, manipulate the dump cylinder to align the hole of pin connecting linkage with bucket. Before linkage contacts with bucket, put an O-shape dust ring at both ends of linkage shaft hole. **Never** scratch the O-ring.



Linkage



Connect the bucket with linkage assembly with a pin, and then fix the pin with a bolt and a washer.



Tightening torque: 193~257N.m。



4. Load proper amount of lubricant grease in the pin connecting position with grease injector.



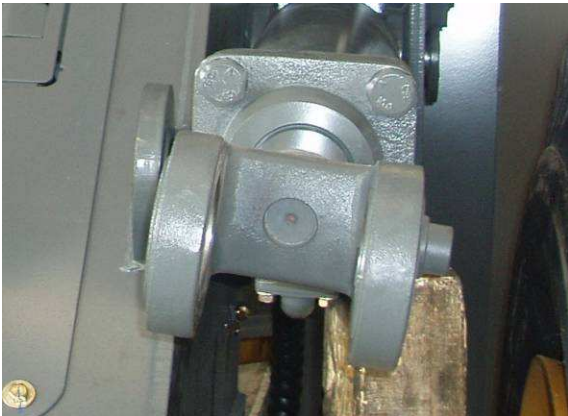
Lubricant grease

7.3 Disassembly and Assembly of Boom

I Disassembly of boom

(The disassembling steps of replacing boom are as follow)

1. Start complete appliance and run to the leveling, spacious and solid ground, and stop when place properly. Put the bucket on ground horizontally, and place all operating bars in the neutral position and pull the operating bar of parking brake up, then stop the engine and wedge the tire of loader with wooden wedge.
 2. Bucket (Disassembly and assembly of bucket is shown in 7.1).
 3. Rocker (Disassembly and assembly of rocker is shown in 7.4).
 4. Start the engine, and lift the boom to a certain distance. Put same height wood block under left and right boom cylinders to make sure disassemble the pin conveniently. Hang the boom with hoisting rope.
- ★ **Notice:** Keep the hoisting rope balance and keep the height of wood under left and right boom cylinders same.
5. Remove the fixed bolt of pin connecting boom cylinder with boom.





6. Strike slightly and take out the pin. And take down the adjustment washer and O-ring



7. Remove the left and right big lamps

★ Only remove the upper fixed bolt when assembly, loosen the down fixed bolt, make the lamp has an angle with the support to protect the circuitry from damaging.

8. Remove the fixed bolt of pin connecting front frame with boom.



9. Take down the the adjustment washer and O-ring.



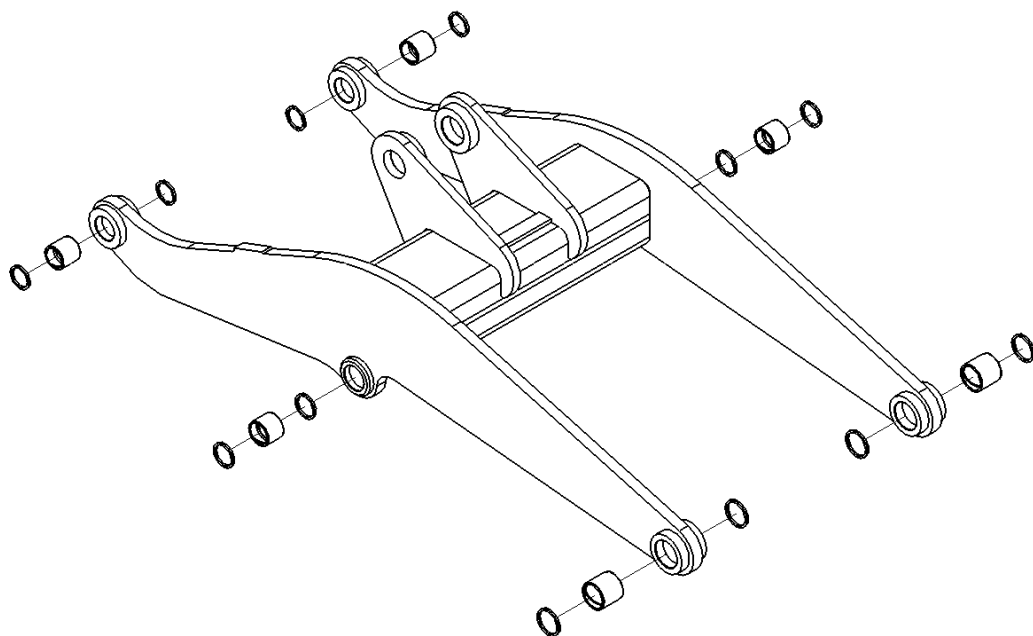
10. Lift the boom down.

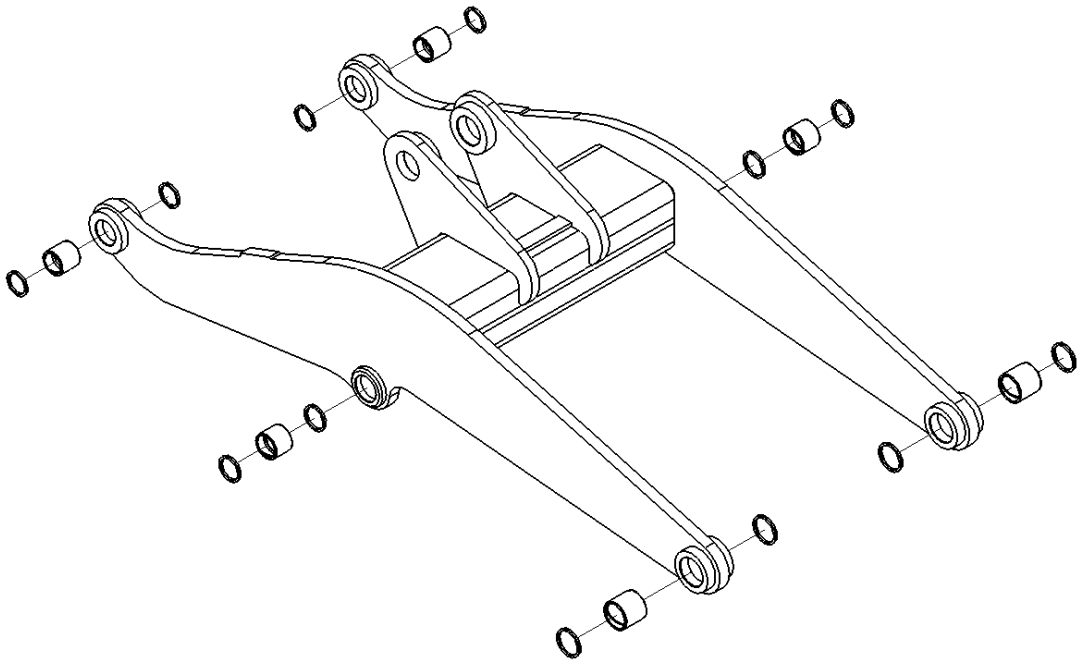
★ Keep the boom balance in process of hang.

II Assembly of boom (Assemble according to the following steps after replacement and maintenance)

1. Clean the antirust oil pollution in each shaft sleeve hole, and coat proper amount of grease in each hole of boom. Lead two sleeves into the hole jointing boom and front frame with copper rod, and install four dust rings in jointing hole; Lead two sleeves into the hole jointing boom and boom cylinder, and install four dust rings in jointing hole; Lead two sleeves into the hole jointing boom and bucket, and install four dust rings in jointing hole and make sure the sleeves not tilt.

★**Notice:** Assemble the sleeves and joint bearings after frozen for 4 hours. Make sure wear protective gloves when take out sleeve from low temperature test box so as not to hurt hands.





2. Clean the filth. Check whether internal holes (oil duct) of each pin are clean and keep them unblocked. Then load proper amount of grease. First, install the rocker assembly on boom assembly with pin.

★ The clearance between rocker and end surface of boom is 0.5~1.5 mm after adding gasket. The two surfaces are basically symmetric.

Then fix the pin on boom with bolt and washer.

 Tightening torque: 193~257N.m





3. Connect linkage assembly on the rocker assembly with a pin and two O-shape dust rings.



Then fix the pin on rocker with bolt and washer.



Tightening torque: 193~257N.m



4. Connect the bucket and boom assembly with two pins, two groups of gasket and four O-shape dust rings.

★ The assembling clearance between end surfaces is 0.5~1.5mm.



Fix the pin with two bolts and two washers.



Tightening torque: 193~257N.m



5. Connect the bucket and linkage assembly with a pin and two O-shape dust rings, then fix the pin with a bolt and a washer.



Tightening torque: 193~257N.m



6. Hoist the boom, rocker and bucket assembly smoothly.

★ **Notice:** Keep the hoisting object balance during hoisting and make sure not destroy the surface of pin.

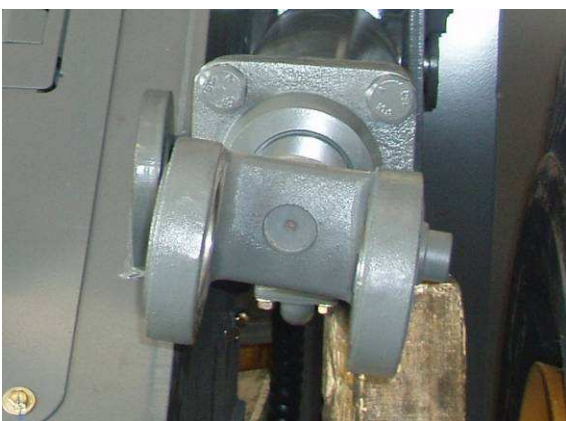


7. Connect the boom, rocker arm and bucket assembly on the front frame with two boom pins and gaskets. Then fix the pins with a bolt and a washer respectively.

★ Make sure the assembling clearance between boom and front frame is 0.5~1.5mm by selecting gasket and installation position.

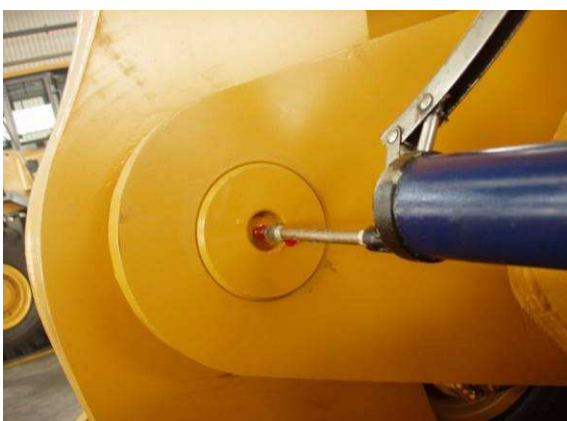


Tightening torque: 193~257N.m



8. Lift the boom to a certain distance, and take down the wood of same height under left and right boom cylinders, then hoist the boom with hoisting rope.

★ **Notice:** Keep the hoisting rope balance



9. Start the engine to adjust the expansion amount of piston rod. Align the pin holes of piston rod and boom combined with hoisting rope. Then connect two boom cylinders on boom with two boom cylinder front pins and gaskets, and then fix the pins with a bolt and a washer respectively.



Tightening torque: 193~257N.m

★ a. Make sure the unilateral clearance between front end of boom cylinder and boom is 0.5~1.5mm by adjusting the number of gaskets.

b. During assembling the gasket, try to make the center line of boom collinear with center line of front frame in order to make the clearances between external side of boom jointing hole and front frame are uniform. Then adjust the clearance between internal side of boom jointing hole and front frame by selecting corresponding adjusting gasket according to requirement.

10. Lift the dump cylinder to a certain distance, and then take down the wood under the dump cylinder.

11. Start the engine to adjust the expansion amount of piston rod. Align the pin holes of piston rod and rocker arm combined with hoisting rope. And connect the dump cylinder on the rocker arm with a pin, then fix the pin with a bolt and a washer.



Tightening torque: 193~257N.m

12. Assemble the left and right big lamps, tight the relevant fixed bolts.

13. Load proper amount of grease in the pin connecting position with grease injector.

★ **Notice:** The specific method in assembling linkage and bucket can refer to correlated chapter.



Grease



7.4 Disassembly and Assembly of Rocker

I Disassembly of Rocker Arm (The

disassembling steps of replacing rocker are as follow)

1. Start the complete appliance and run to the leveling, spacious and solid ground, and stop when place properly. Put the bucket on ground horizontally, place all operating bars in the neutral position and pull the operating bar of parking brake up, then stop the engine and wedge the tire of loader with wooden wedge.
2. Lift the dump cylinder with hoisting rope which should have certain pre-tightening force. Prevent the dump cylinder from dropping down when take down the pin.



Dump cylinder

★ Keep the hoisting rope in use clean, and make sure not destroy the piston rod. The best position to hoist is the front end of cylinder body.

Remove the pin connecting rocker with dump cylinder. And remove the connecting bolt of pin

Strike the pin down with soft hammer, and take down the gasket.



3. Lift the dump cylinder to a certain distance, and put a wood block at the bottom of dump cylinder, then set up the dump cylinder.

★ Make sure there is not oil pollution on the supporting position and place the wood block firmly.



4. Hoist the rocker with hoisting rope (through the pin hole).

★ Keep the hoisting rope in use clean, and make sure not destroy the pin hole of rocker.



5. Remove the pin connecting rocker and linkage, and then remove the fixed bolt of pin.



Strike the pin down with soft hammer and take down the O-shape dust ring.

★**Notice:** Before taking down the pin, apply certain pre-tightening force on linkage with hoisting rope to avoid dropping to hurt foot or destroy the ground when take down the pin



6. Remove the pin connecting the rocker arm with boom. Then remove the fixed bolt of pin



Strike the pin down with soft hammer and take down the gasket. Hang the rocker arm down and put it on the clean leather

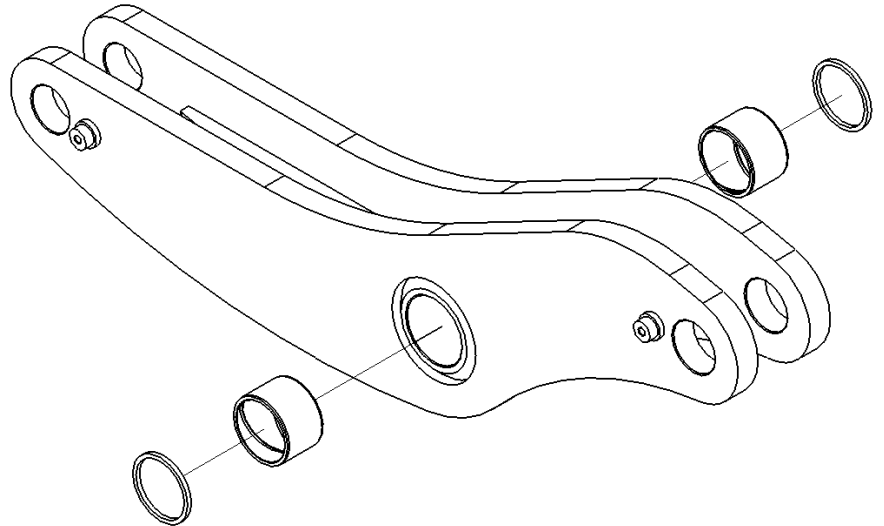


Rocker arm

II Assembly of Rocker (Assemble according to the following steps after replacement and maintenance)

1. Clean the antirust oil pollution in each shaft sleeve hole, and coat proper amount of grease in each hole of boom. Lead two sleeves into the hole jointing boom and front frame with copper rod, and install the dust rings in jointing hole, Pay attention to the oil holes of two sleeves is level or not.

★**Notice:** Assemble the sleeves and joint bearings after frozen for 4 hours. Make sure wear protective gloves when take out sleeve from low temperature test box so as not to hurt hands.



2. Clean the filth. Check whether internal holes (oil duct) of each pin are clean and keep them unblocked. Lift rocker with hoisting rope (through the upper pin hole)

★ Keep the hoisting rope in use clean, and make sure not destroy the pin hole on rocker..

 kg **Rocker**



3. Align the two pin holes of hoisting rocker and boom, then install the pin and gasket on boom, and fix the pin with bolt, and adjust the clearance of rocker.

★ Add adjusting gaskets according to the clearance between end surface of rocker arm and boom. Make sure the unilateral clearance between end surface of rocker arm and end surface of boom is 0.5~1.5mm by selecting gaskets. The two surfaces are basically symmetric.



 kgm Tightening torque: 193~257N.m

4. Lift the dump cylinder and keep the rocker steady. Then take down the supporting wood block under dump cylinder.

 kg Dump cylinder



5. Remove the hoisting rope in the pin hole of rocker, then hang the dump cylinder with hoisting rope (the best hoisting position is the front end of cylinder body). Start the engine to adjust the expansion amount of piston rod and align the pin holes on piston rod and rocker combined with hoisting rope. Connect dump cylinder on the rocker with a pin and put gasket on the jointing surface. The gasket should be selected according to type and installation position to make sure the assembling clearance is 0.5~1.5mm. Tighten the pin with a bolt M16×30 and a washer.

 kgm Tightening torque:193~257N.m

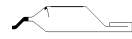


6. Lift the linkage with hoisting rope. Start the engine to adjust the expansion amount of rocker piston rod, and adjust the position of linkage and rocker to align the pin holes on rocker and linkage combined with hoisting rope. Connect the linkage assembly on the rocker assembly with a pin and two O-shape dust rings, then fix pin on the rocker with bolt M16×30 and washer.

 kgm Tightening torque: 193~257N.m



7. Load proper amount of grease in the pin connecting position with grease injector.



Grease

CHAPTER VIII DISASSEMBLY AND ASSEMBLY OF CAB

8.1 Disassembly and Assembly of Cab Assembly

(This section mainly introduces how to replace the cab assembly, the replacing steps are as follow)

I Disassembly of electrical components of cab assembly

1. Turn off the power switch.



2. Remove the rain wiper

2.1 Remove the fixing bolts outside the rain wiper.



2.2 Take down the swing levers outside the rain wiper.



2.3 Remove the guard hood.



2.4 Remove the nut.

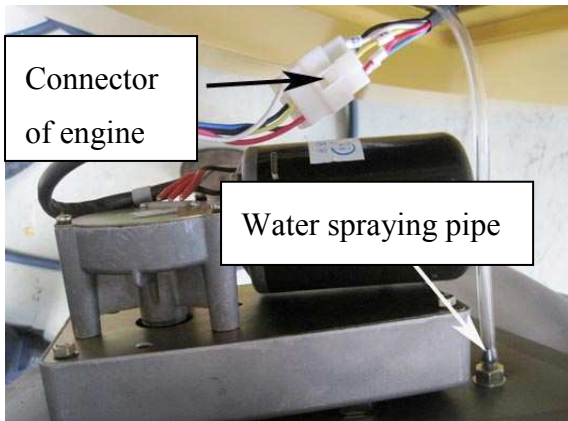


2.5 Remove the fixing plate



2.6 Remove the engine and operation mechanism of the engine.





2.7 Plug the connector of engine and remove the water sprinkling hose.



3. Remove the front light before the cab.

3.1 Plug the connector of front light.



3.2 Remove the front light.

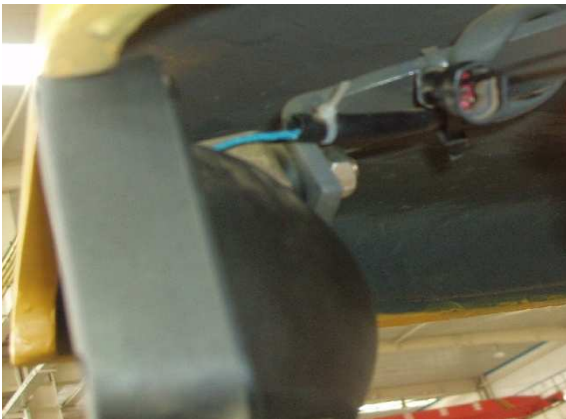


3.3 Deposition of the front light

3.3.1 Remove the screws outside the light



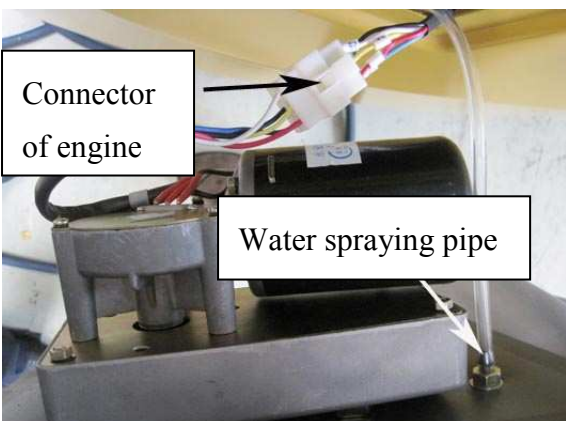
3.3.2 Remove the external glase and fixing housing.



3.3.3 Select the connector of power wires during the connectors.



3.3.4 Remove the bulb.



II Assembly of the electrical components of cab

1. Assembly of rain scraper

1.1 Insert the connector of engine and connect the water pipes.



1.2 Put the engine of rain scraper and operation mechanism inside the hole.



1.3 Insert the connection mechanism of engine into the holes on the cover and tighten the nut.



1.4 Put the guard cap.



1.5 Install the fixing plate on the cab.



1.6 Install the swing lever of rain scrape.



1.7 Fix the swing lever of rain scrape.

★ Pretighten the fixing bolts of swing lever and turn on the scraper switch. Adjust the installation position of swing lever according to the working area and tighten the nut.



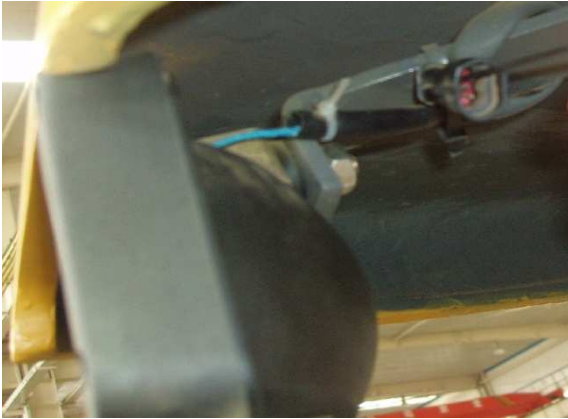
2. Installation of front light.

2.1 Install the bulb.



2.2 Fix the glass of the headlight.

2.3 Insert the power wire of bulb into the connector.



2.4 Fix the headlight on the frame of cab.



3. Turn on the power switch.



8.2 Disassembly and Assembly of the Lock of Cab Door

(This section introduces how to replace the lock of the cab door. The replacing steps are as follow).

I Disassembly of the Lock of Cab Door

1. Remove the guard hood of lock.



2. Take down the guard hood of lock.



3. Remove the guard hood of groove.



4. Remove the internal trimming of door.





5. Take down the internal trimming of door



6. Remove the fixing end of lock of door handrail.



7. Remove the lock of door.



8. Remove the fixing bolts of the handrail on the lockof cab door.



9. Take down the handrail of the door lock.



10. Remove the groove.

II Installation of Lock of Cab Door



1. Put the lock handrail on the proper position of the cab door.



2. Fix the bolts that fix the door lock.



3. Install the door lock.



4. Install and fix the groove the specified position.



5. Put the inner trimming of the cab door to the specified position on the door.



6. Press the installation card that fixes the internal trimming into the hole.



7. Install the plastic nail.



8. Install the guard hood of door lock.



9. Install the guard hood of groove.

8.3 Disassembly and Assembly of Cab Assembly

(This section mainly introduces how to replace the cab assembly, the replacing steps are as follow)

I Disassembly of cab assembly

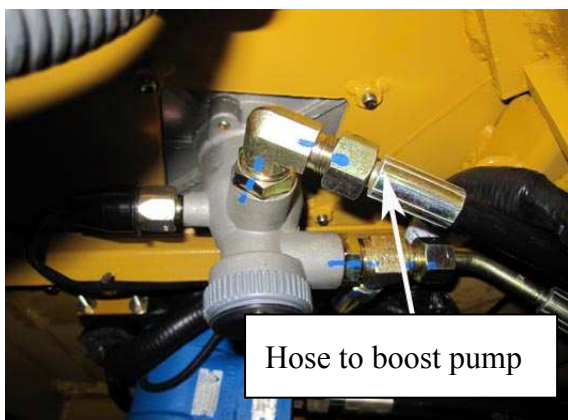
Start the machine and run to the leveling, spacious and solid ground. Rotate the steering wheel to run in straight line and stop when place properly. Put the bucket on ground horizontally, and then stop the engine. Rotate the steering wheel for five or six times clockwise and anticlockwise. Release the oil pressure and wedge the tire of loader with wooden wedge.

1. Put the oil holder under the steering gear.

2. Remove the four hydraulic oil pipelines of steering gear .and tube of steering gear to prior valve.

★ **Notice:** In process of disassembly, do not unload the connecting nut on the oil port completely. loosen it a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloaded not completely. Then disassemble the oil pipe completely. Protect the jointing surface of disassembling oil pipe, jointer etc. and keep them clean.





3. Disassemble the pipeline connecting on the brake valve.

3.1 Open exhaust valve on the gasholder, and release the pressure gas completely.

3.2 Remove the gas pipe of brake valve to intensifier pump.

3.3 Remove the gas pipe of gasholder to brake valve.

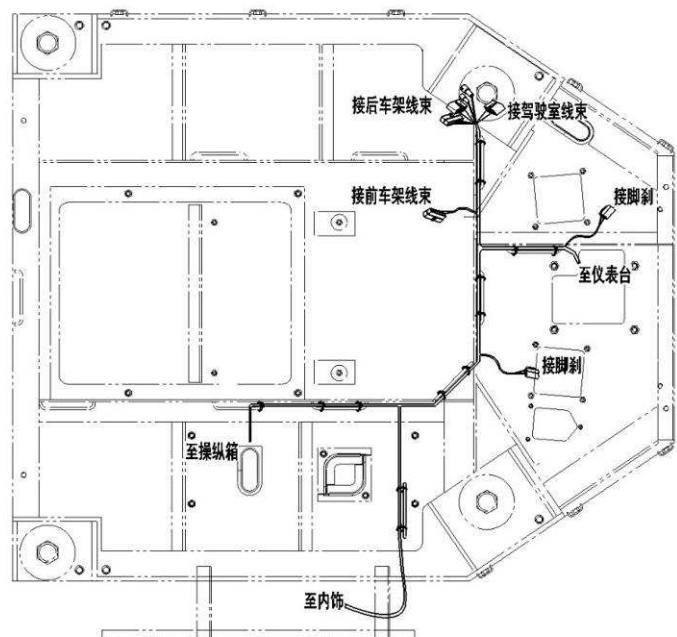
★ Protect the jointing surface of disassembling oil pipe, jointer etc. And keep them clean.



4. Unplug the connector connecting the cab. as is shown below figure.

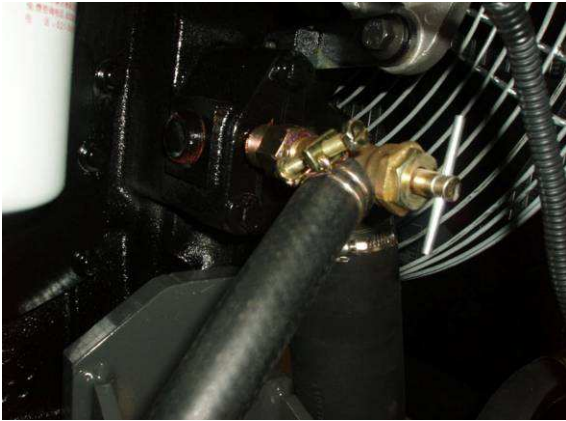
5. Remove wire connecting with the pilot valve and the operation box (Refer to 8.5 disassembly and assembly of operation box).

Platform wire harness assembly



6. Remove the throttle flexible shaft of engine.

7. Remove the split pin of throttle operating flexible shaft connecting to the pedal, then loosen dorsal-compact nut of engine throttle flexible shaft .Remove the throttle and operate the flexible shaft.



8. Close the inlet and outlet water valve of engine, and then remove the two water pipes at left of air conditioner evaporator, and then remove the air conditioner hose connecting with compressor and liquid storage tank (refer to the disassembly and assembly of air conditioner).

★ The place of maintenance should be airy.



9. Remove connecting blots of the lift and right handrails and the cab (2 wires).



10. Remove connecting blots of the gearbox system on the gearbox(5wires).

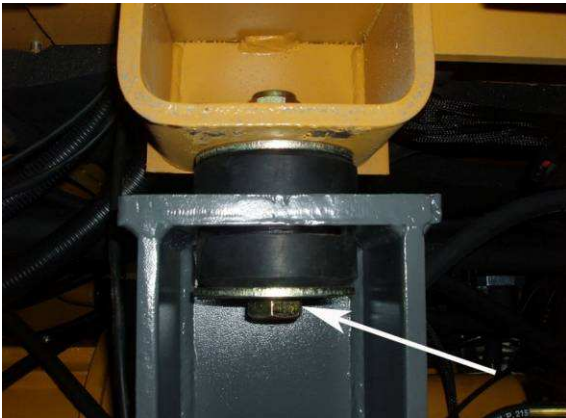


11. Lift the cab until the hoisting rope is not loosen, but not too tight.



12. Remove the four bolts fixing cab.

12.1 Remove the right and left fence of the cab.



Remove the four boltsfixing the cab.



13. Lift the cab away from frame and put on the proper position.



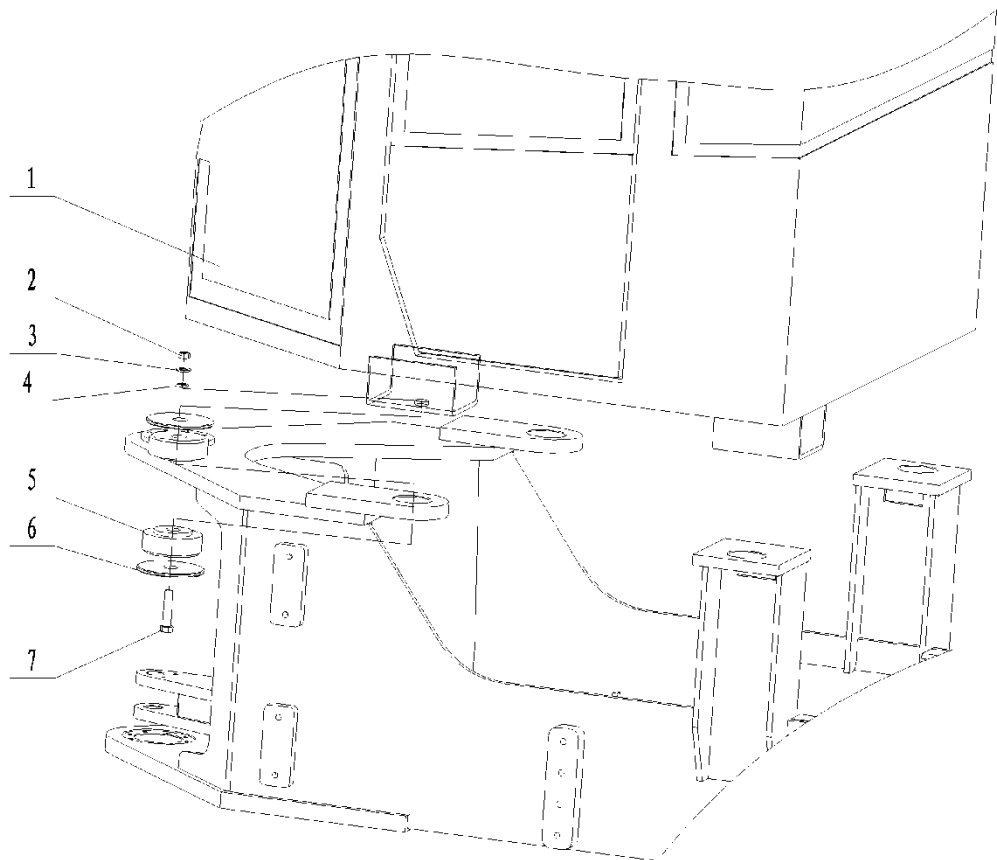
Cab assembly

II Assembly of Cab

1. Put four shock absorbers (5) and four washers (6) on the cab support of rear frame. Lift the cab assembly (1) to rear frame support. During falling, four bolts (7) will be through four washers (6) and four dampers (5) from up to down under the support. Adjust the position of cab assembly .After adjusting properly, install four washers(3,4) and four nuts(4), then tighten the bolts in principle of diagonal.



The bolt of cab assembly M20: Tightening torque: 120~200Nm





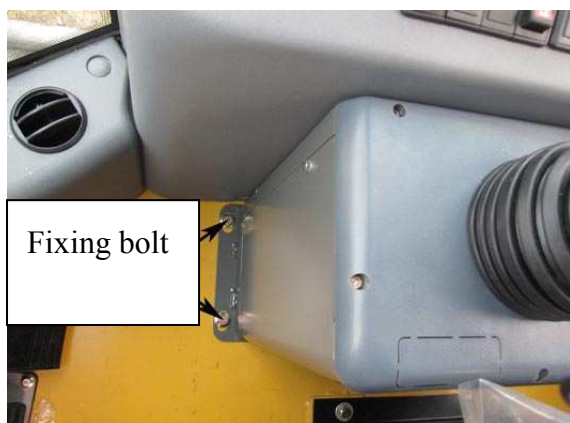
2. Connection of shifting mechanism

Put the shifting operation soft shaft under the console through fixing frame. And fix the soft shaft on the shifting operation handle with the connectors equipped with it. Set the shifting operation handle in backing position.



3. Connection of operation mechanism

3.1 Install the pilot valve assembly, hand brake switch and other components to the corresponding position of operation box (Refer to the disassembly and assembly of the operation box)



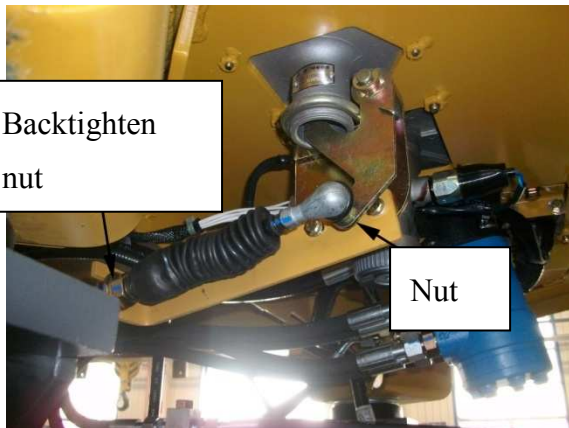
3.2 Fix the connected operation box to the corresponding position of the cab frame with 4 bolts M10×25.



4. Connect the oil pipe of steering device.
(Refer to the assembly of steering device)



5. Connection of foot brake air pipe, air pipe of brake valve and the related power connectors. (Refer to the disassembly and assembly of the foot brake valve)



6. Connection of soft shaft of accumulator
Connect the soft shaft of accumulator on the accumulator operation mechanism and adjust the back nut. Press the spool to ensure the proper tightness after assembly.

7. Assembly of air conditioning (Refer to the disassembly and assembly of air conditioning)

8. Insert the connector of speed sensor to the corresponding position of the gearbox (2 wires)



9. Insert the connector of speed control valve to the corresponding position of the gearbox (5 wires)





10. Connection of connectors

Insert the console wire harness of rear frame and the connectors of the wire harness of cab.

Insert the connectors of the wire harness of front and rear frame and the cab.

8.4 Disassembly and Assembly of Air Conditioner

(This section mainly introduces how to replace the air conditioner, the replacing steps are as follow)

I Disassembly of Air Conditioner

Evaporator

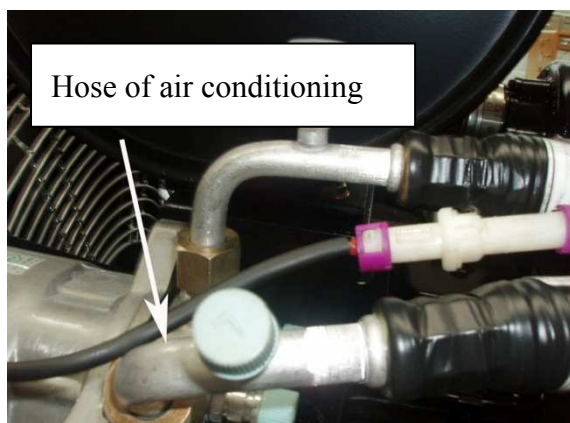
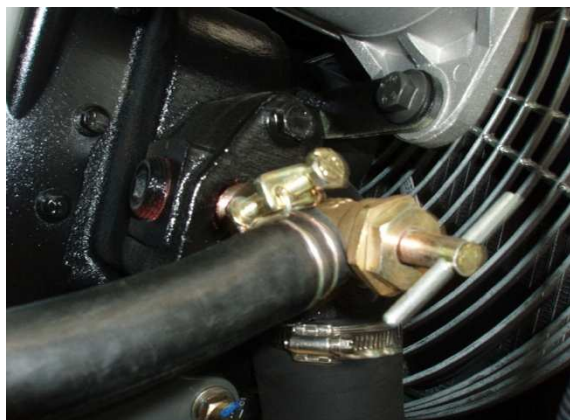
1. Close the inlet and return water pipe of air conditioner evaporator on the engine.

2. Loosen the connection of compressor with air conditioner flexible pipe, and then discharge the refrigerant in the refrigeration system.

★ The place of maintenance should be airy and the maintenance personnel should be far away during discharging.

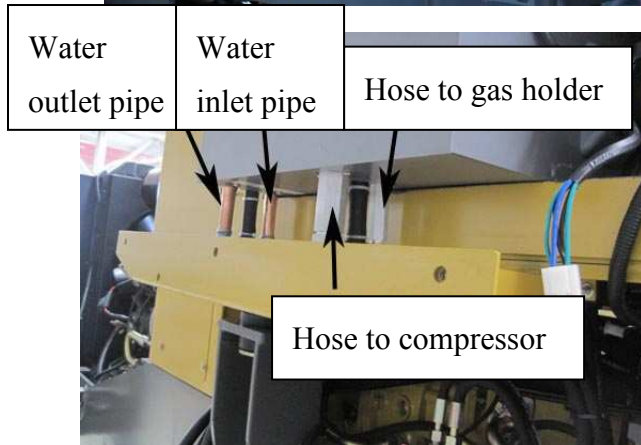
3. Remove the seat assembly (shown in the disassembly and assembly of seat).

4. Remove the right platform of cab.



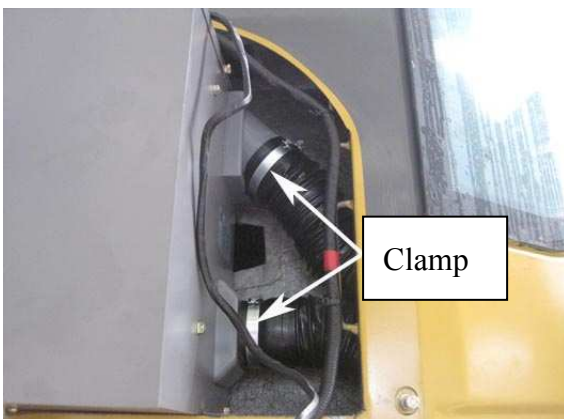


5. Remove the condensing guard plate on the external hood of evaporator



6. Remove the water inlet/ outlet hose of evaporator, the pipes to liquid tank and the pipe to compressor.

★ **Notice:** Discharge the storage water of water heating tube in the underside vessel.



7. Remove two wind hose on the left of evaporator of air conditioning. Loosen the clamps that fix the wind hoses and take down the wind hoses.



8. Unplug the connectors between the evaporator and the air conditioning panel, power wire, compressor and liquid storage tank respectively.



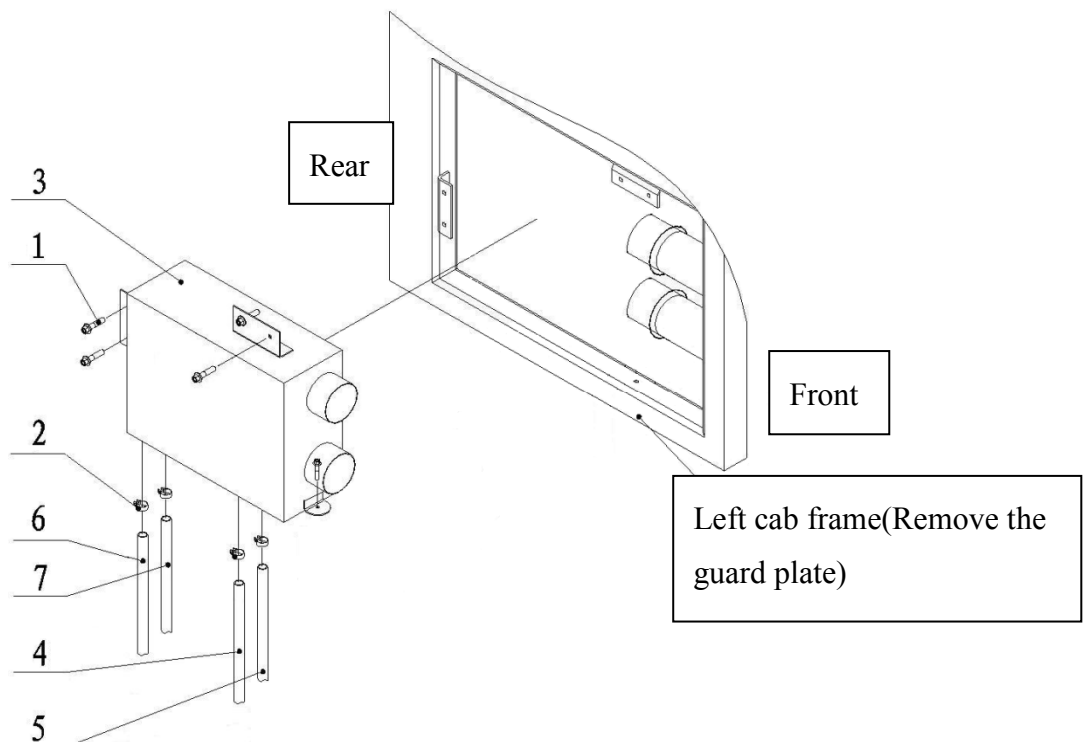
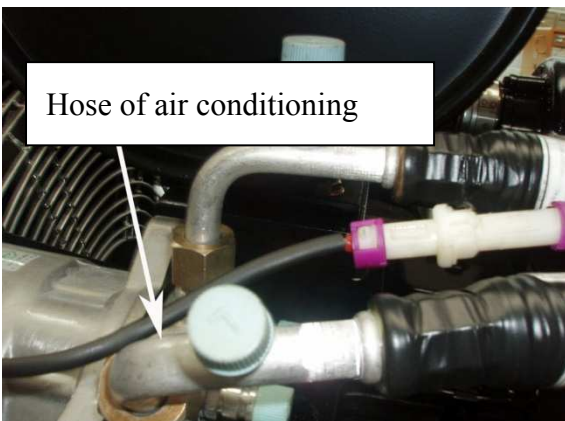
9. Remove 4 bolts M8 and a bolt M6 that fix the evaporator of air conditioning.

Take down evaporator of air conditioning.

III Assembly of Air Conditioning

Evaporator

1. Fix the water inlet /outlet hoses (7, 6) of air conditioning evaporator and fix them on the evaporator (3) with clip(2).
2. Fix the pipes (4) from air conditioning evaporator to compressor (4) and the pipes (5) to liquid storage tank and fix them on the evaporator (3) with clip(2) and connect the other end of the pipes with the



corresponding connectors of the compressor and the liquid storage tank.

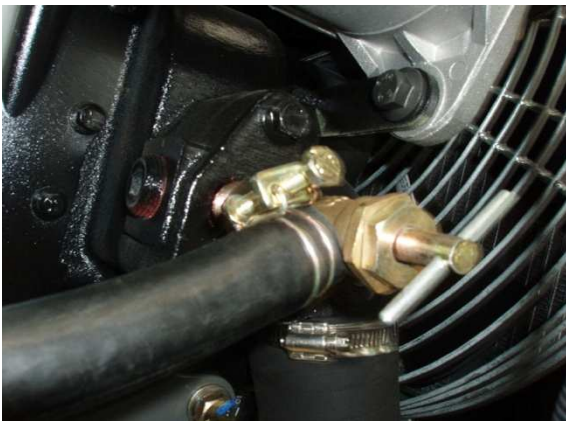
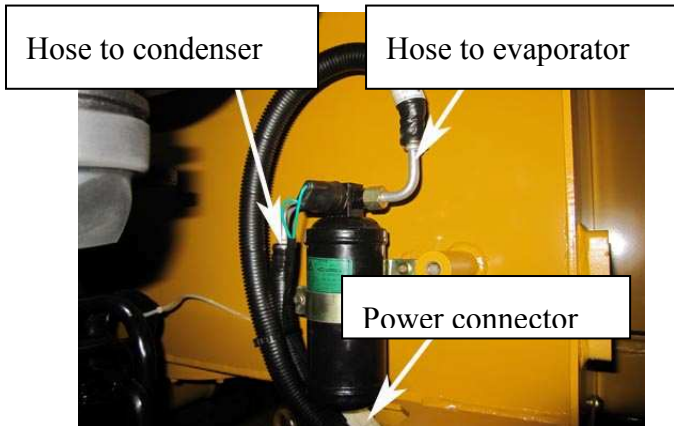
3. Fix the evaporator to the frame on the right of the cab with 4 bolts-M8 (1) and 1 bolt-- M6. Connect the wind hoses and evaporator with clips, and connect the power connectors of the evaporator.

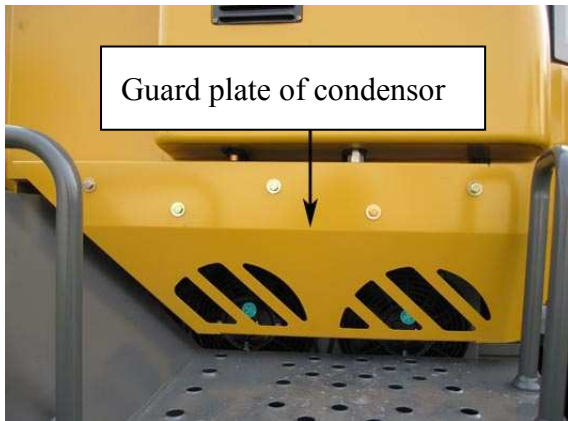
4. Connect one end of the pipes (4) to compressor to the corresponding position of the compressor.

5. Connect one end of the pipes (5) to liquid storage tank to the corresponding position of the liquid storage tank.

6. Turn on the water draining valve of the engine.

7. Insert the connectors from evaporator to air conditioning panel, power wires, compressor and the liquid storage tank respectively.





8. Install the guard plate of condenser.

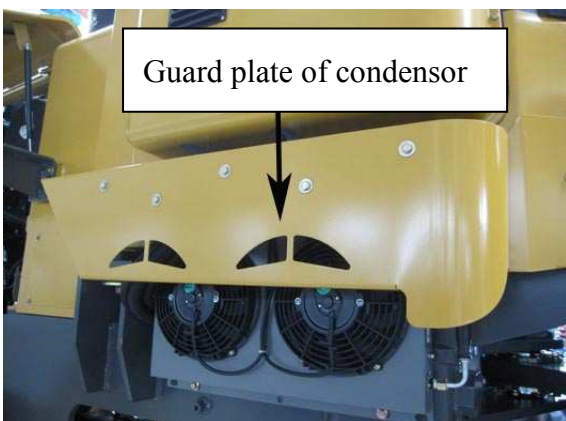


9. Install the external guard hood of evaporator.

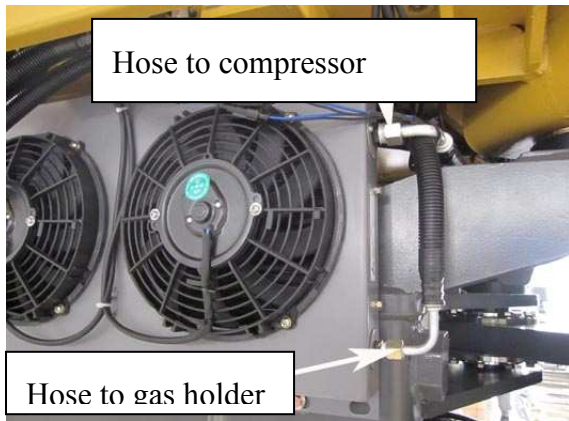


IV Disassembly of Air Conditioning Condenser

1. Remove the platform on the right of cab.

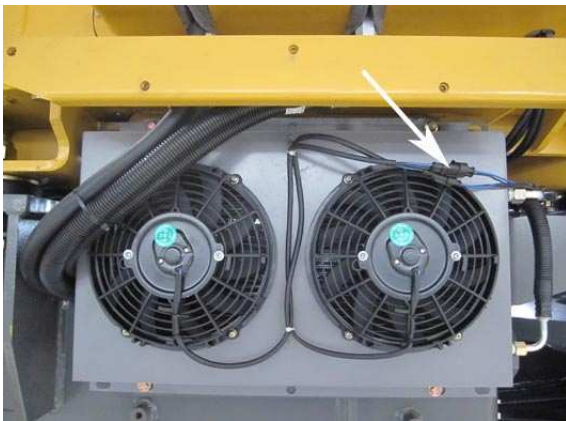


2. Remove the guard plate at the right of the cab.



3.Remove the soft hose connecting the condenser and the compressor.

Remove the soft hose connecting the condenser and the liquid storage tank.



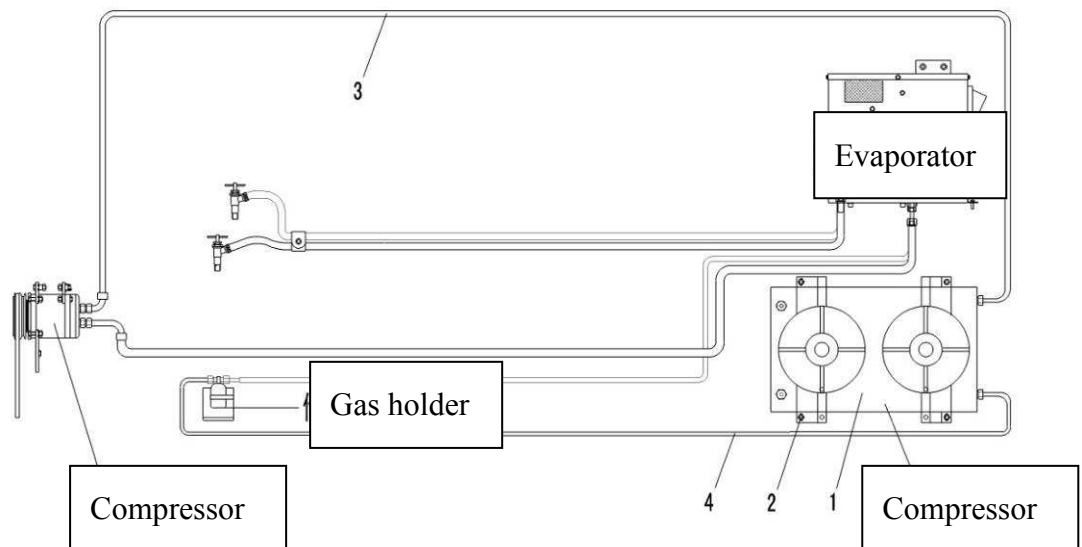
4. Unplug the power connector of air conditioning condenser.



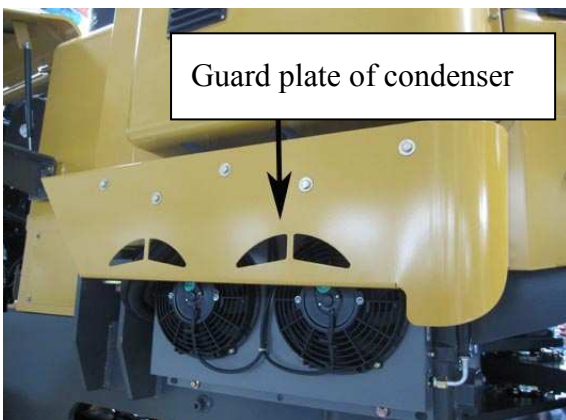
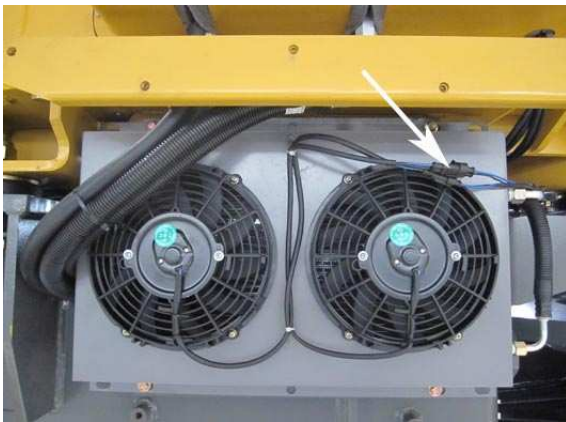
5. Remove 4 bolts connecting the condenser and the front /rear support plates.

6.Take down air conditioning condenser

IV Assembly of Air Conditioner Condenser



1. Fix the condenser on the front /rear support plates with 4 bolts--M10×25 (1) and washers.
2. Connect one end of the hose (2) from the condenser to liquid storage tank to the condenser, and the other end to liquid storage tank and tighten them.
3. Connect one end of the hose (3) from the condenser to compressor to the condenser, and the other end to compressor and tighten them.
4. Connect the power connector of up air conditioning condenser.



5. Install the exter guard plate of condenser.



6. Install the right platform.

8.5 Disassembly and Assembly of Operation Box

(This section mostly introduces how to replace the operation box; the replacing steps are as follow)

I Disassembly of Operation Box

1. Remove the air conditioning evaporator(Refer to Disassembly and Assembly of evaporator)

Remove the the external guard plate of evaporator , cut off the connection of wire harness, loose the bolts fixing the air conditioning evaporator and take the evaporator down.

2. Disassembly of pilot valve

After stopping the machine, shake the pilot valve several times to release the pressure; Remove the direct connectors connected with pilot valve and oil returning/inlet hoses and so on.

★ In the process of dumping, don't loosen the connection nuts of oil port completely, and loosen it a little until the oil overflows and contains the oil with containers; Mark the direct connector with signs.

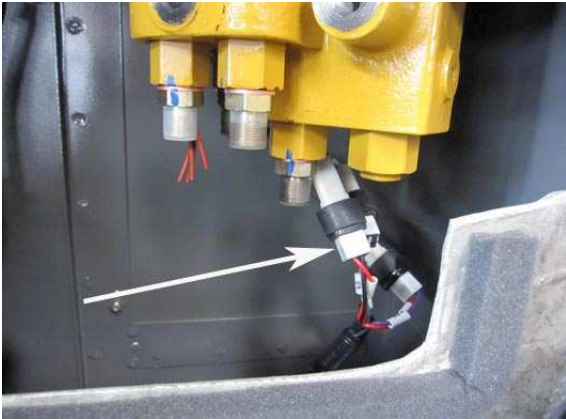


Oil returning steel pipe of priority valve

Oil pipe of priority valve

Oil inlet steel pipe of priority valve

Direct connector



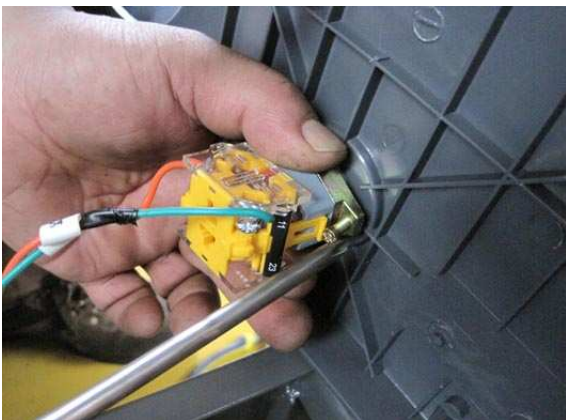
3. Disconnect the connection of wiring harness of instrument desk with wiring harness of pilot valve button switch .



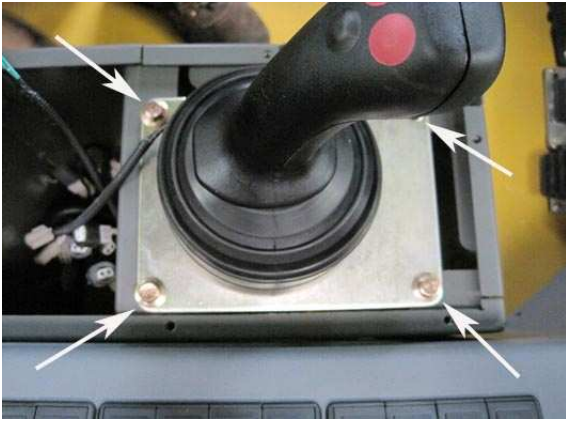
4. Unplug the connector between neutral relay with instrument gauge.



5. Remove 6 bolts fixing the cover of operation box.



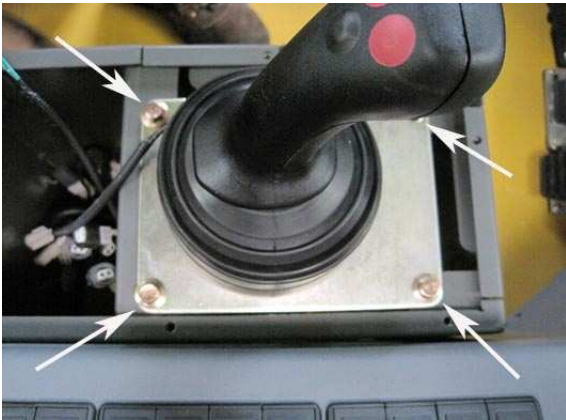
6. Remove the brake switch and power connectors.
Take down the cover of the operation box.



7. Remove the four bolts fixing the pilot valve.
Take the pilot valve down.

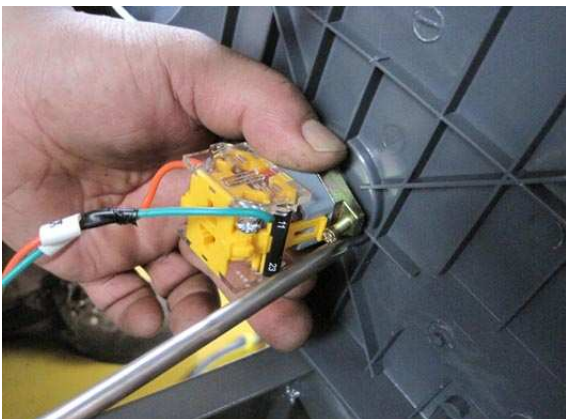


8. Remove 4 bolts fixing the cover of operation box.
Get out the operation box.



II Installation of Operation Box

1. Fix the pilot valve on the corresponding position of operation box with 4 bolts--M10×16.



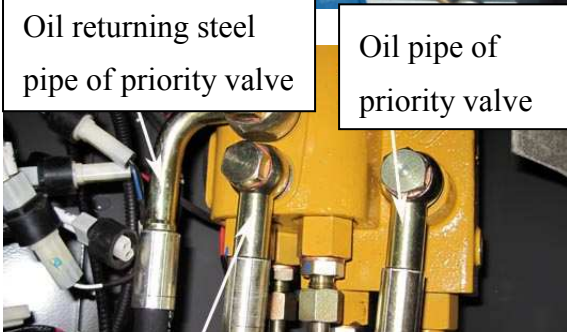
2. Install the hand brake switch and power connector on the corresponding position of cover plate of operation box with bolts.



3. Install the assembled cover plate on the corresponding position of operation box with with 6 bolts- M6×20; Put the whole operation box on the corresponding position of the right side of the cab, and tighten it with 4 bolts.



4. Fix the neutral relay inside operation box with with 6 screws- M5×12(Insert the relay that can't be fixed into the operation box.). Connect the neutral relay and the connector of wire harness of gauges.



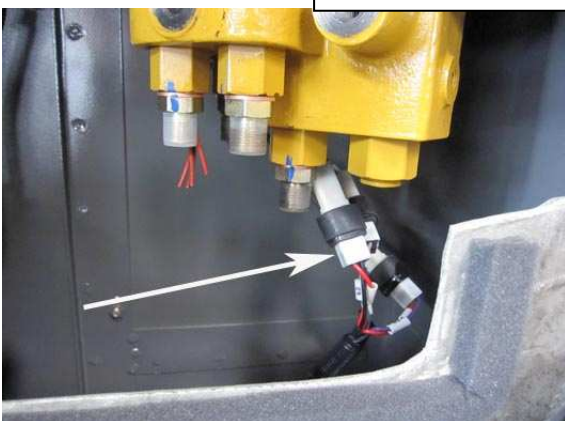
Oil returning steel pipe of priority valve

Oil pipe of priority valve

Oil inlet steel pipe of priority valve

Direct connector

5. Fix 4 straight connectors to the port of hoses on the pilot valve. And connect the oil returning hose with the pilot valve.



6. Connect the wire harness of console with the wire harness of pilot valve switch button.



7. Install the air conditioning evaporator.(Refer to Assembly of air conditioning evaporator)

8.6 Disassembly and Assembly of Seat

(This section introduces how to replace the seat. The replacing steps are as follow).

I Disassembly of seat

1. 1. Remove the seat assembly M8。



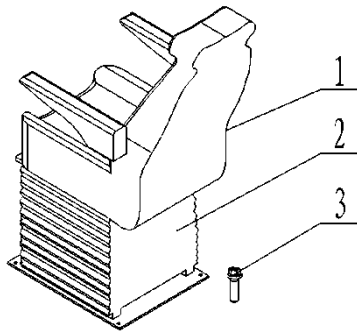
2. Lift and assemble the seat assembly.



3. Remove the frame of seat.



II Installation of seat



Fix the seat(1) to the seat frame (2) with 4bolts--M8 (3) ; Fix the seat assembly to the corresponding position with 4 bolts (3).



Tightening torque: 22~30N.m

CHAPTER IX

DISASSEMBLY AND ASSEMBLY OF ELECTRIC SYSTEM(956L)

9.1 Disassembly and Assembly of LG956L Electric System

9.1.1 Disassembly and Assembly of Rear Frame Wiring Harness

(This section introduces how to replace the rear frame wiring harness. The replacing steps are as follow)

I Disassembly of rear frame wiring harness

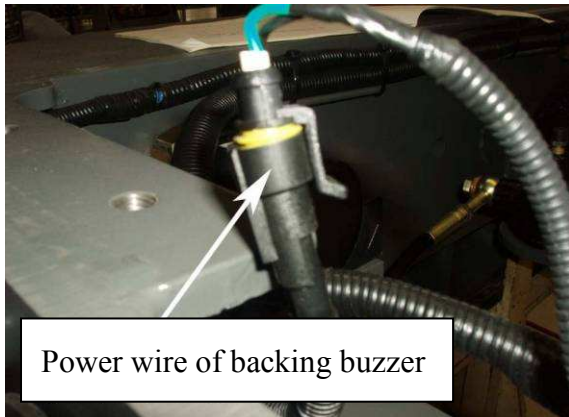
1. Turn off the power main switch. Open the battery cover. Get off the No.56a line on the place of battery positive pole of rear frame's wiring harness.



2. Unplug the connector of tail lamp at left and right of storage battery.



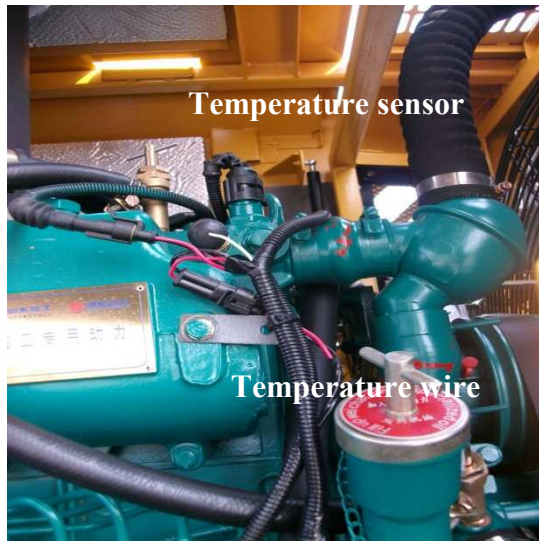
3. Unplug the plug of backing buzzer.



4. Remove the connection wire of engine oil pressure sensor.



5. Remove the connection of engine water temperature sensor



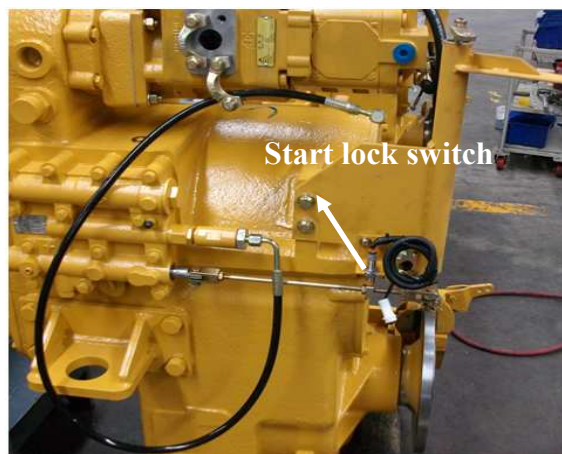
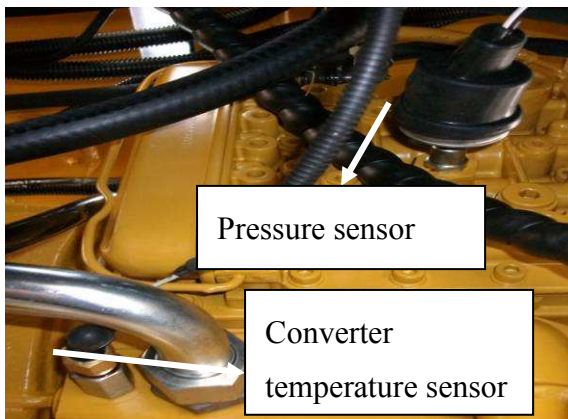
6. Remove the connection of generator on the engine.



7. Remove the connection wire on the starting motor.



8. Remove the connection wire pressure sensor and oil temperature sensor of coverter.



9. Unplug the plug of fuel level sensor.





10. Unplug the connector of rear frame's and rear cover's wiring harness.



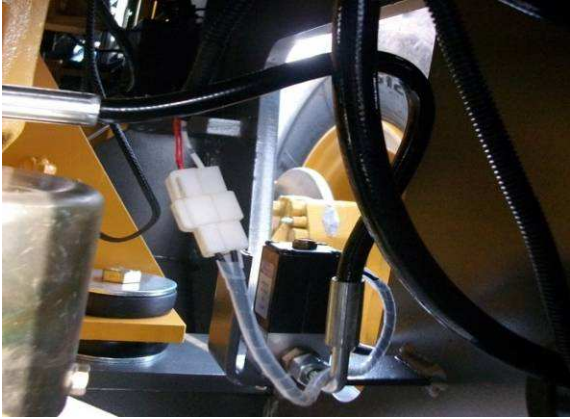
11. Unplug the connection wire of oil cut-off valve.



12. Disconnect the wiring harness of braking air pressure sensor and brake switch.



13. Remove the relay installation box on the left of rear frame and then remove the wire of battery relay and flameout relay .



14. Remove the connection wire of brake solenoid valve.



15. Remove the connection wire of brake switch on the air chamber.



16. Unplug the connector between wire harness of rear frame and wire harness of instrument panel.

17. Shear break the ligature on frame wiring harness. Then take down the rear frame wiring harness.

II Assembly of Rear Frame Wiring Harness

1. Pave the wire harness of rear frame and wires of start motor on the rear frame.

★Notice: 1) When assembling the wire harness of rear frame, fix it based on the position of battery relay as

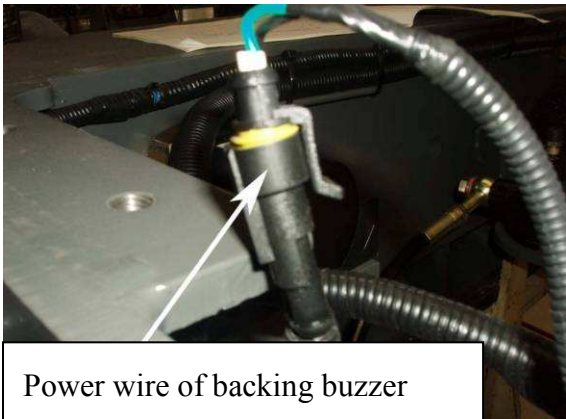
datum mark. Fix the wire rings with two bands (one for each end of wires)

2) The harness wire should be laid out reasonably and can not be out of order.

2. Install the backing buzzer on rear frame with two bolts M8×16.



3. Connect No. 0 and 9 plug of rear frame wiring harness with plug of backing buzzer.



4. Connect external connectors of rear frame wiring harness and wiring harness of starting motor.



5. Install the oil level sensor on the fuel tank and connect the connectors and wiring harness of rear frame.

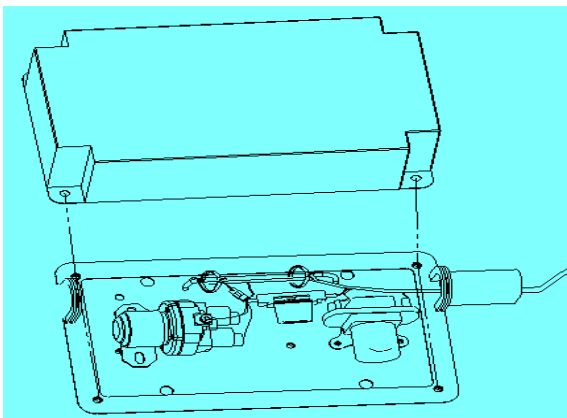




6. Install the start relay on the frame and fix the frame on the engine body. Connect the start engine and the wire harness of start motor and rear frame.



7. Connect external connectors of flameout switch and wiring harness of rear frame.

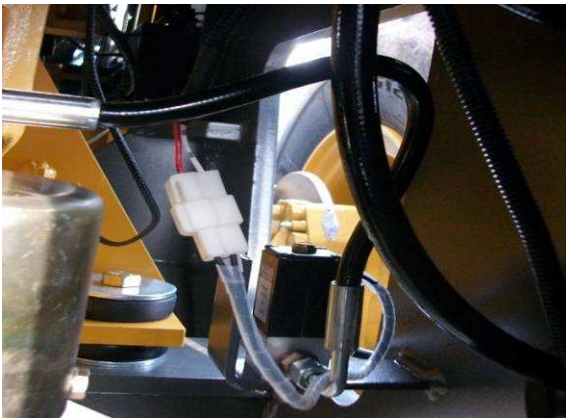


8. Install the start relay and flameout switch on the fixed plates and fix the fixed plate on the left of rear frame. Connect the wire harness of rear frame with relay and install the hood at last.





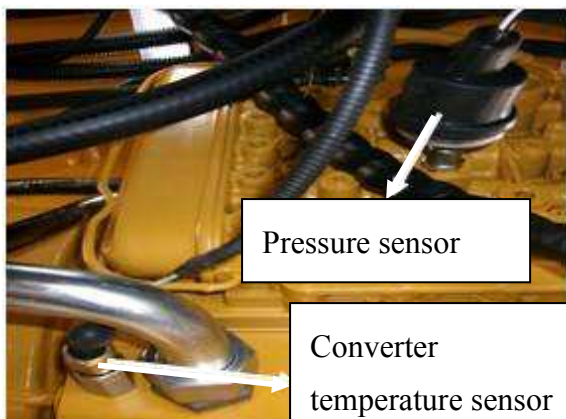
9. Install the pressure switch and emergency brake switch on the gas holder. Connect the connector of wire harness of rear frame with the two switches.



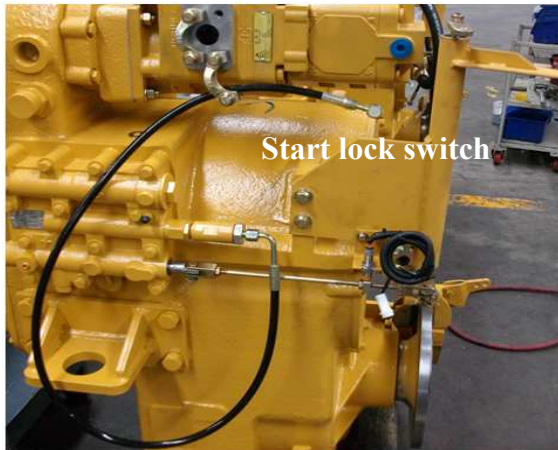
10. Connect the connector of wire harness of rear frame with external connectors of brake solenoid valve.



11. Install the air brake switch on the air chamber. Then, connect the external connectors of wiring harness of rear frame with brake switch.



12. Install the oil temperature sensor and pressure sensor on the relief valve. Then, connect the external connectors of wiring harness of rear frame with these two sensors.



13. Connect fuel level sensor with the engine. Connect the external connectors of wiring harness of rear framewith fuel level sensor.

14. Connect water temperature sensor with the engine. Connect the external connectors of wiring harness of rear framewithwater temperature sensor.

15. Connect the wiring harness of rear frame and engine.



16. Plug the wiring harness of rear frame and wiring harness of gauge panel.



17. Connect the wiring harness of rear frame in left and right battery with external wiring harness of tail light.

9.1.2 Disassembly and Assembly of Front Frame

Wiring Harness

(This section introduces how to replace the front frame wiring harness; the replacing steps are as follow)

I Disassembly of Front Frame Wiring

Harness

1. Unplug the connectors of left and right combination headlights.

2. Remove the pipe clamp fixing on the frame wire seat.

3. Remove the connecting wire on the horn relay.

4. Remove the connecting wire of backing alarming.





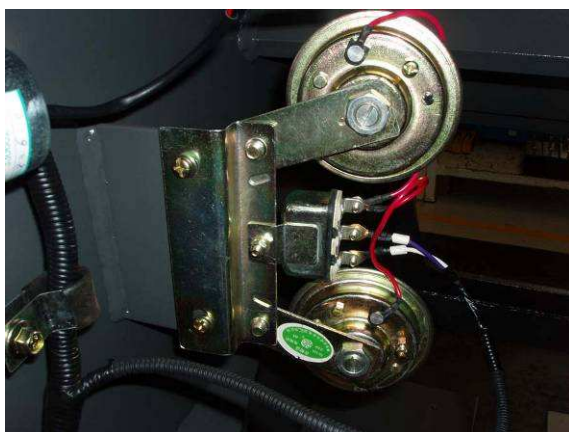
5. Unplug the connector of front frame wiring harness and proximity switch wiring harness.



6. Unplug the connector of front frame wiring harness and cab wiring harness.

7. Shear break ligature of front frame wiring harness on the pipeline. Unplug the connectors of front frame wiring harness and rear frame wiring harness. Then take down the front frame wiring harness.

II Assembly of Front Frame Wiring Harness



1. Arrange the front frame wiring harness in order and put through left and right routing rubber jackets.
2. Install two-tone basic horn on the front frame with two bolts M6×10 and washer 6, and connect No.12 and 40 of front frame wiring harness with horn wire.



3. Fix backing alarming on the frame, and connect with front frame wiring harness.

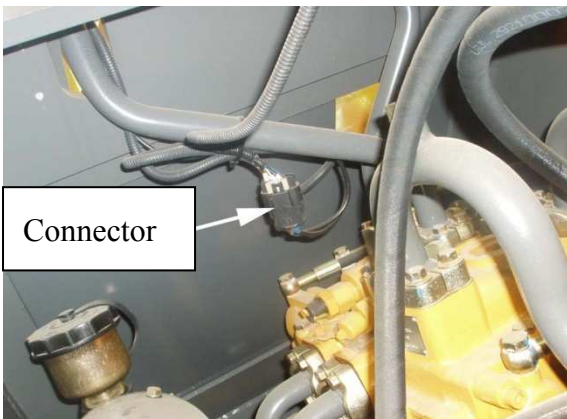


4. Fix the front frame wiring harness with five pipe clamps and five bolts M8×16.

★ Notice: When assembling front frame wiring harness, take bifurcation of left and right combination lamps as datum, and fix the front end of bifurcation on the middle wire seat.



5. Plug the connector of front combination lamp.



6. Plug the connector of wiring harness of front frame and that of wiring harness of reproaching switch.



7. Plug the connector of front frame wiring harness and connector of cab wiring harness.

9.1.3 Disassembly and Assembly of Rear Frame

Wiring Harness

(The main purpose of this section is to replace back cover wiring harness. The replacing steps are as follow)

I Disassembly of Back Cover Wiring

Harness

1. Turn off the power main switch.



2. Unplug connector of wiring harness of rear cover and the connector of wiring harness of rear frame.



3. Unplug the connector of rear light, cut off the bands and then take down the wiring harness of rear cover.



\



II Assembly of Back Cover Wiring Harness

1. Connect the wiring harness of rear cover with taillight respectively.
2. Connect the wiring harness of rear cover with rear lights respectively. Lay out the wire harness and tie them on the wire rings.
3. Plug the connector of wiring harness of rear cover and the connector of rear frame.

9.1.4 Disassembly and Assembly of Taillight

(This section introduces how to replace the taillight.

The replacing steps are as follow)

I Disassembly of Taillight

1. Unplug the connector of taillight and rear frame wiring harness.



2. Remove the fixed screw on the rear cover of rear taillight.



3. Remove the rear cover of taillight.



4. Remove the fixed bolt fixing on the taillight hood, and take down the taillight.





5. Remove the nut that fixes the taillight.



6. Disassembly of taillight bulb

1) Remove the plastic lampshade at front of taillight.



2) Take down the bulb in taillight.

II Assembly of Taillight

1. Replace the bulb in taillight



2. Install plastic lampshade at front of taillight.





3. Install the taillight in taillight hood, and tighten the nuts on taillight to fix the taillight.



4. Install lamp frame on the battery box with four bolts M8×16 and nut M8.



5. Install backboard on the lamp frame with four bolts M8×16.

Notice: The left and right taillights can be confused.



6. Connect left and right taillight wires with CN19 and CN18 plug on rear frame wiring harness respectively.

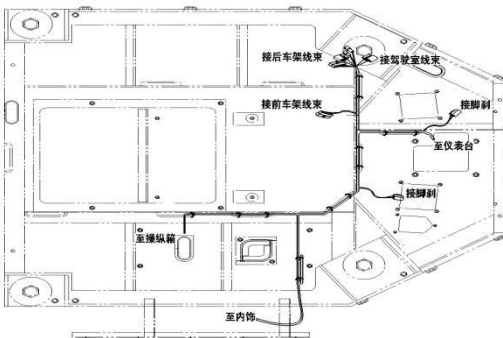


9.1.5 Disassembly and Assembly of gauge panel
(This section mainly introduces how to replace the bulb of headlight; the replacing steps are as follow)

I Disassembly of the wire harness of gauge panel

1. Unplug the connector of headlight.

Layout of platform wire assembly



2. Lay out the wire according to the platform and shear the bands under the platform.

3. Unplug the electrical connector inside the gauge panel and bands.



Shifting operation lever

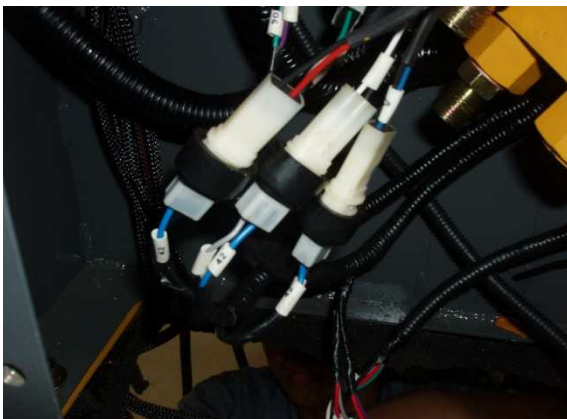


4. Unplug the electrical connector inside the left operation box and fixing bands.

(1) Remove the connection between wire harness of gauge panel and hand brake switch.

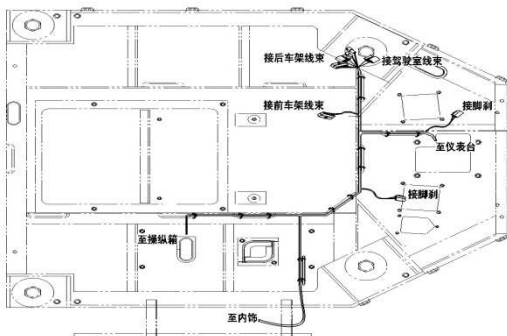


(2) Remove the connection between wire harness of gauge panel and neutral relay.



(3) Remove the connection between wire harness of gauge panel and the external connectors and the pilot valve.

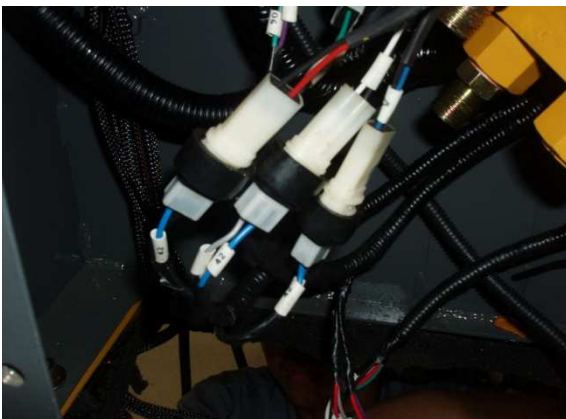
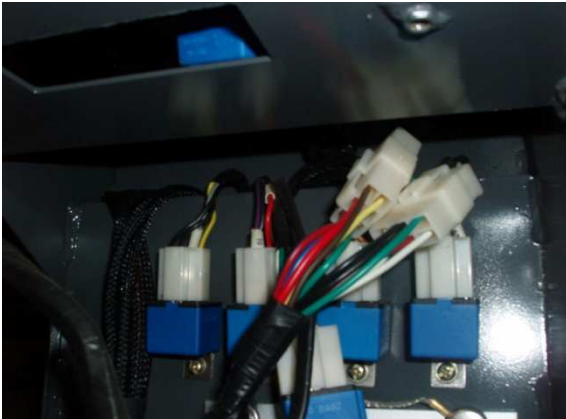
Layout of platform wire assembly



5. Shear the bands and take down the wire harness of gauge panel.

II Installation of the wire harness of gauge panel

1. Lay out the the wire harness of gauge panel according to the platform and fix it with the bands. Lay out the sub -wire harness to right trimming, operation box and gauges.



2. Lay out the the wire harness of air conditioning and right plate switch. Connect them according to the layout diagram of the plate switch. Arrange the wire harness that is not reserved.

3. Connect the connection wires of the pilot valve, brake and relay in the right operation box.

(1) Connect the wire harness of guage panel with the neutral relay.

(2) Connect the wire harness of guage panel with the neutral relay.

4. Connect the guage panel with the components in the gauge panel.

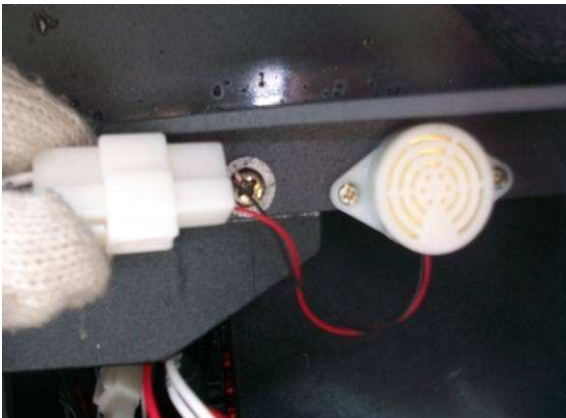
(1) Connect the wire harness of guage panel with gauge panel.



(2) Connect the wire harness of guage panel with the electrical lock.



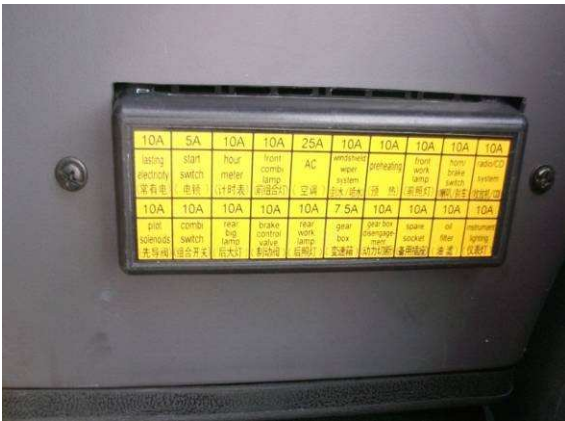
(3) Connect the wire harness of guage panel with the warning switch.



(4) Connect the wire harness of guage panel with the warning buzzer.



(5) Connect the wire harness of guage panel with the plate switch.



(6) Connect the wire harness of guage panel with the external wire of fuse box on the right of machine hood.



(7) Connect the wire harness of guage panel with the external wire of fuse box on the right of machine hood.



9.1.6 Disassembly and Assembly of Headlight

(This section mainly introduces how to replace the bulb of headlight; the replacing steps are as follow)

I Disassembly of Headlight

1. Unplug the connector of headlight.



2. Remove the guardplate behind the headlight.



3. Unplug the connector of bulb.



4. Remove the bulb.

5. Remove the bulb of turn light in the same method.

II Installation of Headlight

1. Put the bulb on.



2. Plug the connector of bulb.

3. Install the turn light in the same method.



4. Fix the guardplate on the shell.



5. Plug the connector of headlight.



9.2 Disassembly and Assembly of LG958L Electric System

9.2.1 Disassembly and Assembly of Rear Frame

Wiring Harness

(This section introduces how to replace the rear frame wiring harness. The replacing steps are as follow)

I Disassembly of rear frame wiring harness

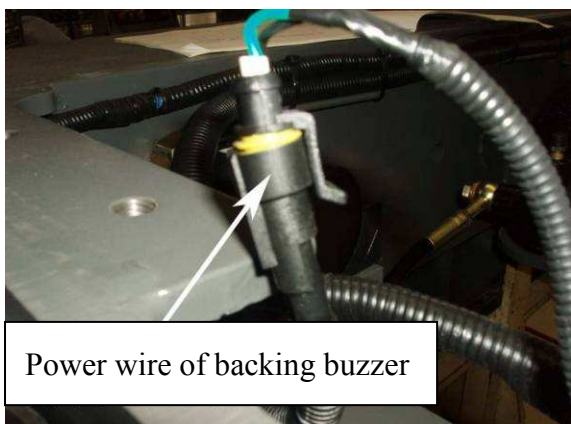
1. Turn off the power main switch. Open the battery cover. Get off the No.56a and 2a line on the place of battery positive pole of rear frame's wiring harness.



2. Unplug the connector of tail lamp at left and right of storage battery.



3. Unplug the plug of backing buzzer.





4. Remove switch connection wire of engine fuel pressure.



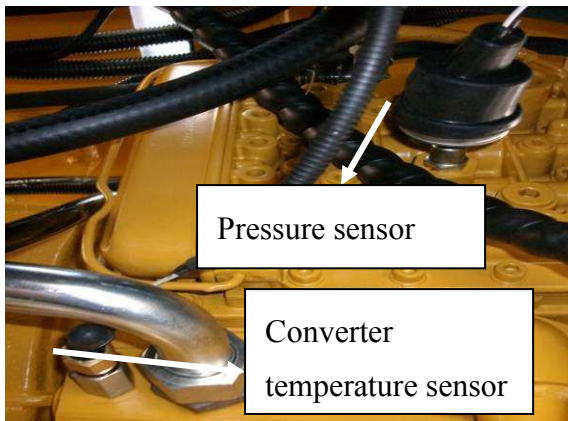
5. Remove the connection wire of engine water temperature sensor and single temperature control wire harness.



6. Remove the connection of generator on the engine.



7. Remove the connection wire on the starting motor.



8. Remove the connection wire pressure sensor and oil temperature sensor of converter.



9. Unplug the plug of fuel level sensor.



10. Unplug the connector of rear frame's and rear cover's wiring harness.



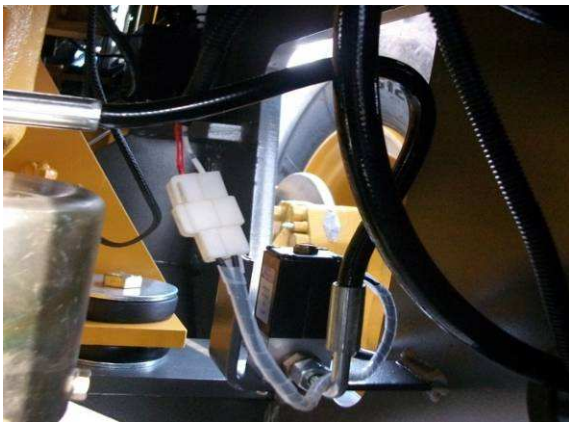
11. Unplug the connection wire of oil cut-off valve.



12. Disconnect the wiring harness of braking air pressure sensor and brake switch.



13. Remove the relay installation box on the left of rear frame and then remove the wire of battery relay and flameout relay .



14. Remove the connection wire of brake solenoid valve.



15. Remove the connection wire of brake switch on the air chamber.



16. Unplug the connector between wire harness of rear frame and wire harness of instrument panel.

17. Shear break the ligature on frame wiring harness.
Then take down the rear frame wiring harness.

II Assembly of Rear Frame Wiring Harness

1. Pave the wire harness of rear frame and wires of start motor on the rear frame.

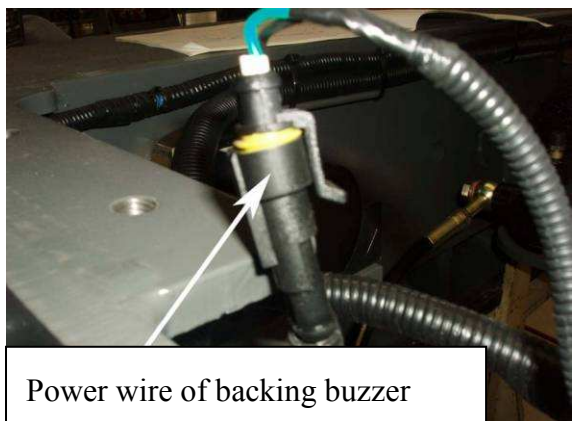
★Notice: 1) When assembling the wire harness of rear frame, fix it based on the position of battery relay as datum mark. Fix the wire rings with two bands (one for each end of wires)

2) The harness wire should be laid out reasonably and can not be out of order.

2. Install the backing buzzer on rear frame with two bolts M8×16.



3. Connect No. 0 and 9 plug of rear frame wiring harness with plug of backing buzzer.



Power wire of backing buzzer



4. Connect external connectors of rear frame wiring harness and wiring harness of starting motor.



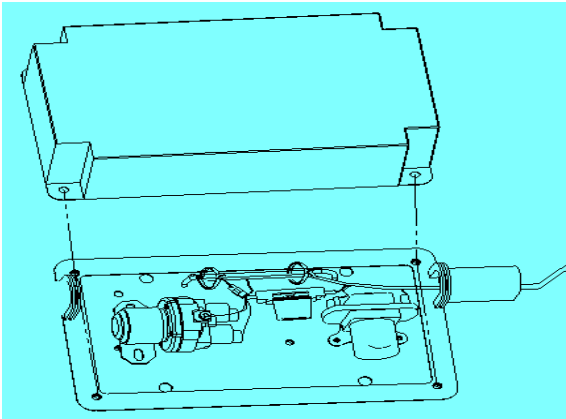
5. Install the oil level sensor on the fuel tank and connect the connectors and wiring harness of rear frame.



6. Install the start relay on the frame and fix the frame on the engine body. Connect the start engine and the wire harness of start motor and rear frame.



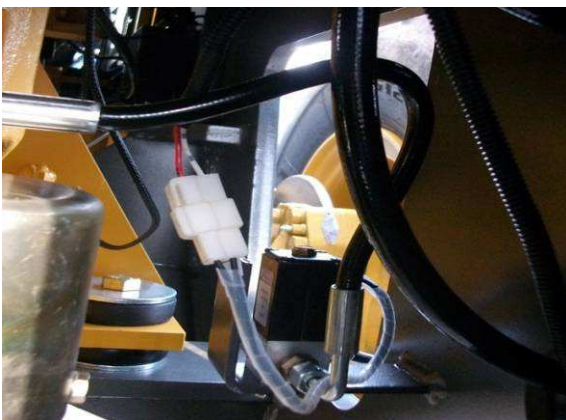
7. Connect external connectors of flameout switch and wiring harness of rear frame.



8. Install the start relay and flameout switch on the fixed plates and fix the fixed plate on the left of rear frame. Connect the wire harness of rear frame with relay and install the hood at last.



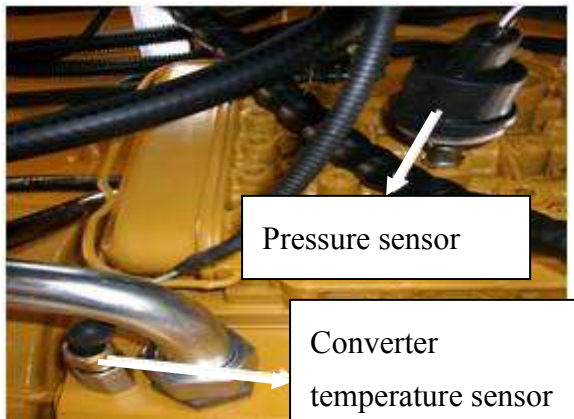
9. Install the pressure switch and emergency brake switch on the gas holder. Connect the connector of wire harness of rear frame with the two switches.



10. Connect the connector of wire harness of rear frame with external connectors of brake solenoid valve.



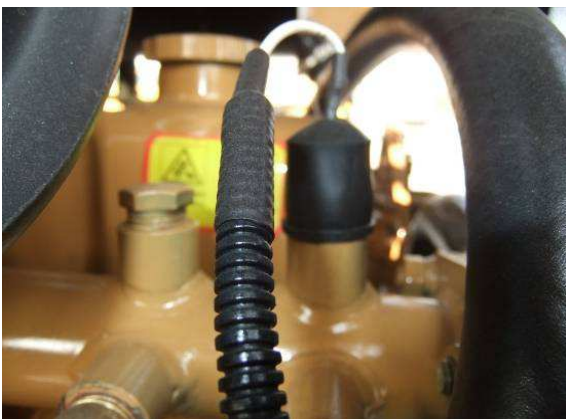
11. Install the air brake switch on the air chamber. Then, connect the external connectors of wiring harness of rear frame with brake switch.



12. Install the oil temperature sensor and pressure sensor on the relief valve. Then, connect the external connectors of wiring harness of rear frame with these two sensors.



13. Connect fuel level sensor with the engine. Connect the external connectors of wiring harness of rear frame with fuel level sensor.



14. Connect water temperature sensor with the engine. Connect the external connectors of wiring harness of rear frame with water temperature sensor.



15. Connect the wiring harness of rear frame and engine.



16. Plug the wiring harness of rear frame and wiring harness of gauge panel.



17. Connect the wiring harness of rear frame in left and right battery with external wiring harness of tail light.

9.2.2 Disassembly and Assembly of Front Frame

Wiring Harness

(This section introduces how to replace the front frame wiring harness; the replacing steps are as follow)

I Disassembly of Front Frame Wiring

Harness

1. Unplug the connectors of left and right combination headlights.



2. Remove the pipe clamp fixing on the frame wire seat.

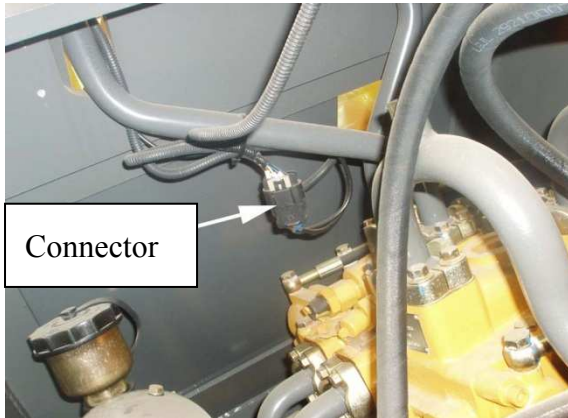


3. Remove the connecting wire on the horn relay.



4. Remove the connecting wire of backing alarming.





5. Unplug the connector of front frame wiring harness and proximity switch wiring harness.



6. Unplug the connector of front frame wiring harness and cab wiring harness.

7. Shear break ligature of front frame wiring harness on the pipeline. Unplug the connectors of front frame wiring harness and rear frame wiring harness. Then take down the front frame wiring harness.

II Assembly of Front Frame Wiring Harness



1. Arrange the front frame wiring harness in order and put through left and right routing rubber jackets.

2. Install two-tone basic horn on the front frame with two bolts M6×10 and washer 6, and connect No.12 and 40 of front frame wiring harness with horn wire.



3. Fix backing alarming on the frame, and connect with front frame wiring harness.

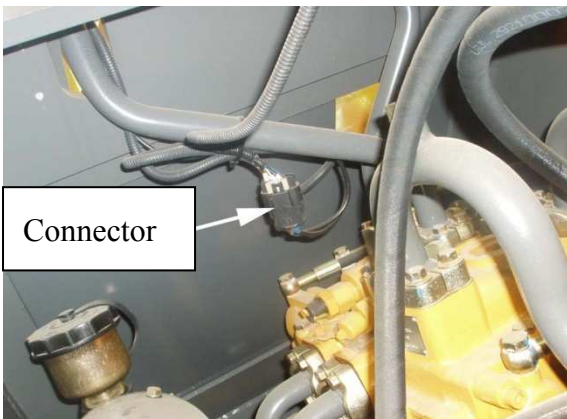


4. Fix the front frame wiring harness with five pipe clamps and five bolts M8×16.

★ Notice: When assembling front frame wiring harness, take bifurcation of left and right combination lamps as datum, and fix the front end of bifurcation on the middle wire seat.



5. Plug the connector of front combination lamp.



6. Plug the connector of wiring harness of front frame and that of wiring harness of reproaching switch.



7. Plug the connector of front frame wiring harness and connector of cab wiring harness.

9.2.3 Disassembly and Assembly of Rear Cover

Wiring Harness

(The main purpose of this section is to replace back cover wiring harness. The replacing steps are as follow)

I Disassembly of Back Cover Wiring

Harness

1. Turn off the power main switch.



2. Unplug connector of wiring harness of rear cover and the connector of wiring harness of rear frame.



3. Unplug the connector of rear light, cut off the bands and then take down the wiring harness of rear cover.





II Assembly of Back Cover Wiring Harness

1. Connect the wiring harness of rear cover with taillight respectively.
2. Connect the wiring harness of rear cover with rear lights respectively. Lay out the wire harness and tie them on the wire rings.
3. Plug the connector of wiring harness of rear cover and the connector of rear frame.

9.2.4 Disassembly and Assembly of Taillight

(This section introduces how to replace the taillight.

The replacing steps are as follow)

I Disassembly of Taillight

1. Unplug the connector of taillight and rear frame wiring harness.



2. Remove the fixed screw on the rear cover of rear taillight.



3. Remove the rear cover of taillight.



4. Remove the fixed bolt fixing on the taillight hood, and take down the taillight.





5. Remove the nut that fixes the taillight.



6. Disassembly of taillight bulb

1) Remove the plastic lampshade at front of taillight.



2) Take down the bulb in taillight.

II Assembly of Taillight

1. Replace the bulb in taillight



2. Install plastic lampshade at front of taillight.





3. Install the taillight in taillight hood, and tighten the nuts on taillight to fix the taillight.



4. Install lamp frame on the battery box with four bolts M8×16 and nut M8.



5. Install backboard on the lamp frame with four bolts M8×16.

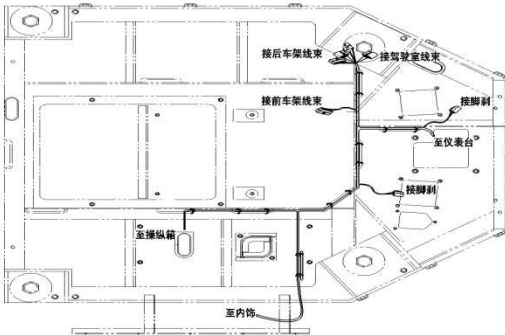
Notice: The left and right taillights can be confused.



6. Connect left and right taillight wires with CN19 and CN18 plug on rear frame wiring harness respectively.



Layout of platform wire assembly



9.2.5 Disassembly and Assembly of gauge panel

(This section mainly introduces how to replace the bulb of headlight; the replacing steps are as follow)

I Disassembly of the wire harness of gauge panel

1. Unplug the connector of headlight.

2. Lay out the wire according to the platform and shear the bands under the platform.

3. Unplug the electrical connector inside the gauge panel and bands.



Shifting operation lever

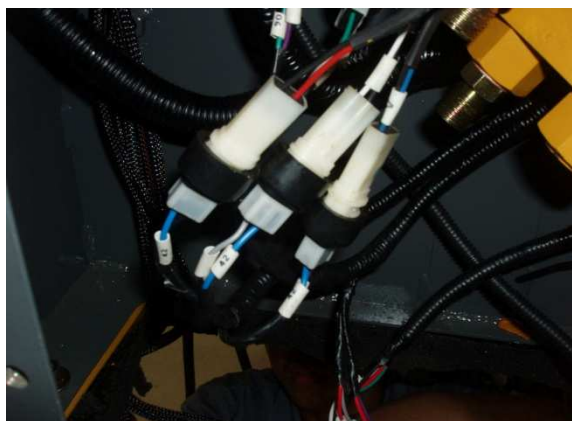


4. Unplug the electrical connector inside the left operation box and fixing bands.

(1) Remove the connection between wire harness of gauge panel and hand brake switch.

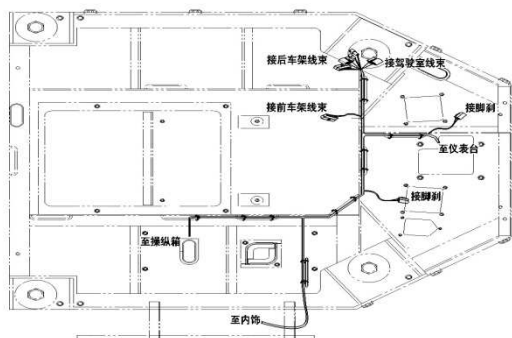


(2) Remove the connection between wire harness of gauge panel and neutral relay.



(3) Remove the connection between wire harness of gauge panel and the external connectors and the pilot valve.

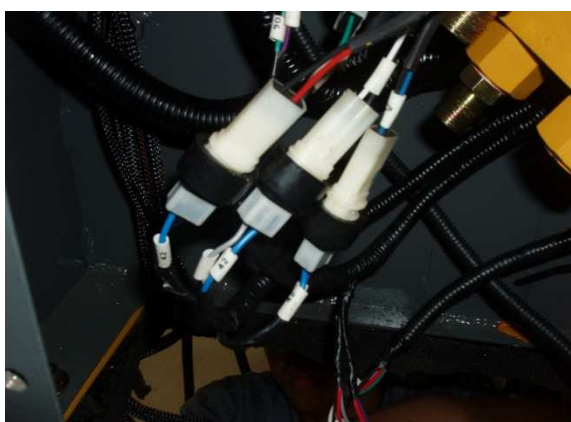
Layout of platform wire assembly



5. Shear the bands and take down the wire harness of gauge panel.

II Installation of the wire harness of gauge panel

1. Lay out the the wire harness of gauge panel according to the platform and fix it with the bands. Lay out the sub -wire harness to right trimming, operation box and gauges.



2. Lay out the the wire harness of air conditioning and right plate switch. Connect them according to the layout diagram of the plate switch. Arrange the wire harness that is not reserved.

3. Connect the connection wires of the pilot valve, brake and relay in the right operation box.

(1) Connect the wire harness of guage panel with the neutral relay.

(2) Connect the wire harness of guage panel with the neutral relay.

4. Connect the guage panel with the components in the gauge panel.

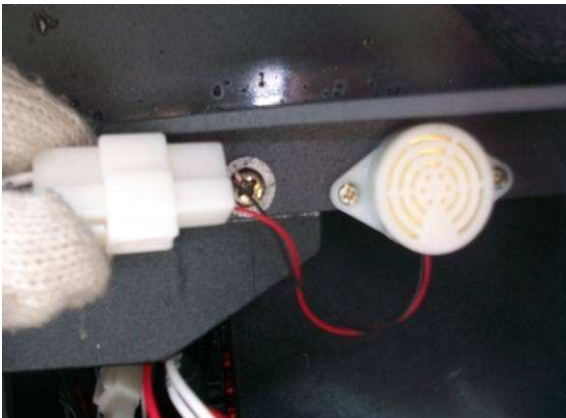
(1) Connect the wire harness of guage panel with gauge panel.



(2) Connect the wire harness of guage panel with the electrical lock.



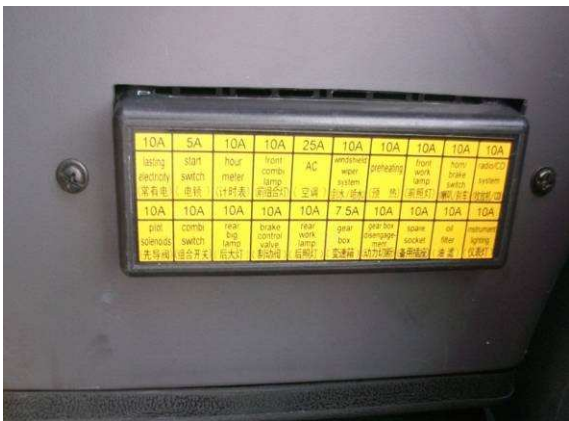
(3) Connect the wire harness of guage panel with the warning switch.



(4) Connect the wire harness of guage panel with the warning buzzer.



(5) Connect the wire harness of guage panel with the plate switch.



(6) Connect the wire harness of guage panel with the external wire of fuse box on the right of machine hood.



(7) Connect the wire harness of guage panel with the external wire of fuse box on the right of machine hood.



9.2.6 Disassembly and Assembly of Headlight

(This section mainly introduces how to replace the bulb of headlight; the replacing steps are as follow)

I Disassembly of Headlight

1. Unplug the connector of headlight.



2. Remove the guardplate behind the headlight.



3. Unplug the connector of bulb.



4. Remove the bulb.

5. Remove the bulb of turn light in the same method.

II Installation of Headlight

2. Put the bulb on.



2. Plug the connector of bulb.

3. Install the turn light in the same method.



4. Fix the guardplate on the shell.



5. Plug the connector of headlight.



CHAPTER X JUDGMENT STANDARD OF MAINTENANCE AND REPLACEMENT

- I. After disassembling, identify the parts whether discard or not. The identifying basis is whether the part totally lose the function (service performance) and unrepairable or not.**
- II. Two kinds of methods are used to identify the disassembled parts:**
 1. Visual measurement, touching by hand;
 2. Dimension measurement.
- III. Judge the disassembled parts by visual and touching firstly, the parts in the following condition must be replaced:**
 1. **Never** further use the parts which are seriously dump, having fracture and crack, or losing function.
 2. **Never** further use the oil seals, dust ring, O-ring and seal gasket disassembled owing to leakage and because of low reliability and short service life in repeated use.
 3. **Never** further use the bolts, nuts, washers, plug screws, pipe joints if they have serious corrosion, the screw doesn't work well in tightening operation, or the screw is damaged, worn out or slipping.
 4. **Never** further use locking steel wire in the connection of bolt after disassembled.
 5. **Never** further use the bearings if they could not be turned smoothly by hand, crack exists on their components or the ball race is seriously worn.
 6. **Never** further use the gears and the teeth of spline with crack, sheet exfoliation, collision or over-wearing.
 7. **Never** further use the shell with crack, bearing holes with crack, wear, elliptic or sheet exfoliation, and

screw damaged which doesn't work well in tightening operation.

8. **Never** further use bearing chock, oil seal pedestal with crack, wear, elliptic, collision or sheet exfoliation on the mating surface and spigot.

9. **Never** further use the pins with serious wear, collision or crack.

IV. Judgment method of oil service performance

1. Judge the oil by visual and touching primarily, it should be replaced if hydraulic oil appears the following situation in the process of use and inspection: present milk white in color, accompany with acid stink, turn yellow or appear turbidity.
2. If the condition allowed, regular sampling inspection is carried out on hydraulic oil according to China Petroleum and Chemical industry standard: SH/T0599-94 Oil-change Index for L-HM Hydraulic Oil.

V. If it is hard to identify by watching or touching, check it by measurement. The common easily wear parts are listed in the following table.

Unit: mm

Part Category	Check Items	Judgment Standard		Oversize Measures
		Dimension (Tolerance)	Allowable Limit	
Bearing	ID tolerance	About 0~ -0.02	+0.02	Replace
	OD tolerance	About 0~ -0.02	-0.04	
Gear Class	Wear loss of teeth thickness	About 0~ 0.10	12 percent of the reference circle thickness (usually 1.2~1.4)	Replace
Common Part	OD used in common assembly	Tolerance denoted by T	Recommend: 0.3T less than lower limit	Replace
	ID used in common assembly	Tolerance denoted by T	Recommend: 0.3 T more than upper limit	
Multiple valve	The mating clearance between valve core and valve hole		>0.02	Replace
Steering gear	The mating clearance between valve core and valve hole		>0.02	Replace
	Stator and rotor		>0.08	Replace
Monostable valve	The mating clearance between valve core and valve hole		>0.02	Replace
Priority valve	The mating clearance between valve core and valve hole		>0.02	Replace

Appendix: Tool Lists of Disassembling and Assembling Complete Appliance

General Tools	Specification	Number	Using Position
Gas trigger	BQ8, BQ10, BQ16, BQ30, MI-17HE	1 group	Select different specification according to the size of assembly bolts
Sleeve	10, 13, 15, 16, 18, 21, 24, 36, 46	1 group	Select different specification according to the size of assembly bolts
Soft hammer		1	Lightly beat the parts with assembly magnitude of interference
Solid wrench	5.5×7, 8×10, 10×13, 11×13, 12×14, 13×15, 13×16, 14×16, 16×17, 16×18, 17×19, 18×24, 18×21, 22×24, 24×27, 24×30, 27×32, 30×34, 36×41, 41×46	1 group	Select different specification according to the size of assembly bolts
Copper rob		1	Lightly beat the parts with assembly magnitude of interference
Feeler gauge		1 group	Adjust measuring the position of clearance.
Slotted screwdriver		1	Slotted screw
Phillips screwdriver		1	Phillips screw
Pliers		1	
Adjustable wrench		1	
Crowbar		1	

Special Tool	Specification	Number	Using Position
Support	Prepare disassembly support yourself without it	Two kinds	Disassembly and assembly work device and axle assembly
Trolley		1	Disassembly and assembly the axle assembly
Wood wedge		1	Fix the complete appliance when maintenance