



Service Manual

LG958L COMPLETE APPLIANCE

**SHANDONG LINGONG CONSTRUCTION
MACHINERY CO., LTD.**

Complete Appliance Service Manual

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PREFACE

This service manual, which shows the structure, principle and the maintenance technology of the loader, will help the maintenance persons understand the disassemble and assemble method of the loader more deeply and bring the maintenance persons solid technology foundation of locating faults and maintaining 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 parts, which establish the basis of assembling and disassembling loader. Furthermore, it also could be used as the reference of locating faults.

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

Forgiving without further notice about the specification's changing of the parts in this manual, which are caused by the development of complete appliance. The latest information could be get from Shandong Lingong Construction Machinery CD., LTD.

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CHAPTER I INTRODUCTION

1.1 Safety Considerations



IMPORTANT SAFETY WARNING

It's very important for operating the vehicle safely to keep maintenance and repair. 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 is coming.



Security Warning

On the process of assembling and disassembling, parts damaging, life losing, properties failure would be caused by the incorrect operations. 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 special region for placing the parts during assembling and disassembling should be placed. Put the corresponding tools and parts on the appropriate 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 special persons who are trained by professional welding training. Before welding operation please shut up start switch of engine , remove the cables connecting with the battery,and make sure that all kinds of pipes, seals and cables is safe. 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 be cleared up to avoid polluting the parts in the course of disassembling.

5. In the progress of operation, safety shoes and safety helmets must be 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 this 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 blow out; 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	Using Positions
Engine Oil	Environment Temperature $\geq 15^{\circ}$ CD 15W-40 GB11122 Environment Temperature $\geq 15^{\circ}$ CD 5W-30 GB11122	27.5L	Engine
hydraulic transmission oil	CALTEX Delo Gold Multi-grade Engine Oil 15W-40	45L	Torque Converter and Gearbox
Gear Oil	Heavy Loading Vehicle Gear Oil(GL-5) 85W-90 GB13895	2×32L	Axle Main Transmission and Wheel Side Reducer
Hydraulic Oil	Super Temperature Range and Anti-wear Hydraulic Oil 46	210L	Hydraulic Oil Tank
Fuel	Environment Temperature $\geq 4^{\circ}\text{C}$ 0#Light Diesel Oil GB252 Environment Temperature $\geq -5^{\circ}\text{C}$ -10#Light Diesel Oil GB252 Environment Temperature $\geq -14^{\circ}\text{C}$ -20#Light Diesel Oil GB252 Environment Temperature $\geq -29^{\circ}\text{C}$ -35#Light Diesel Oil GB252	300L	Fuel Tank
Brake Fluid	Auto Brake Fluid HZY3 (DOT3) GB12981	2×2L	Brake Oil Cup
Grease	2# or 3# Lithium Based Grease GB7324	2.8kg	Pins in Every Joint Points of the Work Equipment
Coolant	Engine Coolant of Glycol Type SH0521	45L	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
	Glycol	Alcohol	Glycerin	Water	Units of Composition Ratio	
Glycol Antifreeze	60			40	Cubage Ratio	-55
	55			45		-40
	50			50		-32
	40			60		-22
Alcohol		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)			
	CALTEX	SHELL	MOBIL	ESSO
Diesel Engine oil CD and more than that. 15W-40 GB11122	CALTEX Delo Gold Multigrade Engion Oil 15W-40	RotellaSX 40; Rotella TX 40, 20W/40; Rotella DX 40	HEIBAWANG 1300 (SAE15W-40) (-15°C ~ 50°C)	Essolube XT-3 ; Essolube XT-2
Diesel Engine oil CD and more than that. 5W-30 GB11122		Rotell SX30, 10W/30; Rotella TX30; Rotella DX30	HEIBAWANG 1300 (SAE10W-30) (-20°C ~ 40°C) ; DUOWEILI 1# (More than-40°C)	Essolube XT-5

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● **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-kinetic 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.API standard, GL-5)				
	CALTEX	FUCHS	MOBIL	ESSO	SHELL
Heavy Loading Vehicle Gear Oil (GL-5) 85W-90 GB13895	Special Extreme-pr essure Gear Oil 90 Thuban GL5 EP 90	Titan Gear LS90	MOBIL Gear Oil HD80W-90 (-20℃～40℃); MOBIL Gear Oil HD85W-90 (-10℃～50℃)	Gear Oil GX 85W-90	Spirax EP Heavyduty HD90 HD80W-90

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● **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	1545 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.
	1262 pipe-thread fixed sealant	It's used to fix and seal the M10~M20 screws and the ones be endured intense vibration and impact.
	1596 silicone rubber plane sealant	It's used to seal the joint surface between different components such as reducers, bumps,internal combustion engine.
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 ℃.

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Cleaning agent	1755 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.
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1.3 Tightening Torque and Correlation Criterion

Torque control classification table of the bolts of LG958L loader

Importance					
A (Most Important)		B (Important)		C (Less important)	
Position	Size	Position	Size	Position	Size
Flanges of the Front Frame Articulated Hole	M12	Multi-way Valve Fixed Plate	M12	Balance Iron	M30
Flanges of the Rear Frame Articulated Hole	M12	Gland Bolts on Valve Blocks	M12		
c Bolts on Rear Frame	M16	The Big and Small steel Tubes of the Boom Cylinder	M10	Bolts Used to Fix Valve Blocks	M12
Front and Rear Axle Bolts	M30	Gland Bolts on Multi-way Valves	M12 M10	Bolts Used to Fix Two-way Pipe Group	M12
Fixed Multi-way Valve	M12	Gland Bolts on Priority Valve	M12 M10	Oil Circuit Block Assemblies	M10
Front, Middle and Rear Transmission Shaft Locknuts	M12	Rear Axle Panel Bush	M16	Articulated Bolts on Rear Frame	M16
The Middle Supporting Bolts of the Transmission Shaft	M14			The Right and Left Supporting	M12
Hub Nut	M20	Booster Assembly	M10	The Right and Left Ladders	M12
		Bolts of Fixing Air Tank Assembly	M12	The Right and Left Handles	M12
		Gland Bolts of supply and return Oil pipes connecting with Multi-way Valves	M12	The Indicator Rod of Bucket, Guard	M10
		Engine Cover Assembly Assembling Bolts	M12 M16	The Right and Left Front Headlights	M10
		Oil Tank	M16	The Right and Left Light Frames	M12
		Rubber pipes and Big Steel pipes Attached to Tilting Cylinder	M10	The Right and Left Fender	M12
		Priority Valves Assembly	M14	Bolts Fixing Pins	M16
		Gland Bolts of supply and return Oil pipes connecting with Radiator	M12		
		Gland Bolts of supply Oil pipes connecting with Working Pump and Steering Pump	M10	Pins of Steering Pump	M12
		Steering Gear	M10		
		Supporting of Gear Shift Mechanism	M12	The Supporting Plate of Oily Water	M10

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				Separator	
		Controlling Box Assembly	M12		
		Seat Steadier	M12	Trai Lamp Shade	M10
		Bolts of Fuel Tank Assembly	M24		
		Bolts of Control Mechanism Assembly	M12		

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) Front and rear axle bolts M30: tightening torque: 730 ± 70 Nm
- 2) Hub bolts M20: tightening torque: 530 ± 50 Nm

B (Important):

Oil tank bolts M24: tightening torque: 320~480 Nm

C (Less important):

Balance iron M30: tightening torque: 660~800 Nm

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

1)Bolts of engine and duplex transmission assembly M20(24): tightening torque: 120~200 Nm.Fixing bolts of gearbox M27:530 ~50Nm. Fixing bolts of gearbox's vibrating absorber M16:90 ~110Nm.Radiator assembly bolts M12: tightening torque: 15~35 Nm.

2)Cab assembly bolts M30: tightening torque: 220~350 Nm.

Attention:Because properties of the elastic parts of cab are different owing to the changes of weather and material, above tightening torque maybe contain some errors. We can consider the deformation of elastic parts as a reference.

6. The size of fixing bolts used on glass fibre reinforced plastic shield of cabin's air conditioner is M16:tightening torque: 3~5Nm.

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

The bolts of A and B 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 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 assemble the joint, 24° taper seal and joint bolts, the tightening torque should follow the table 4, 5, 6.

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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

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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

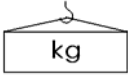
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Table 6: Tightening Torque of Joint Bolts

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 fixing bolts of the part have been disassembled.
- Check whether the disassembly 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 lifting 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 figure 1-1.

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

the heavy.

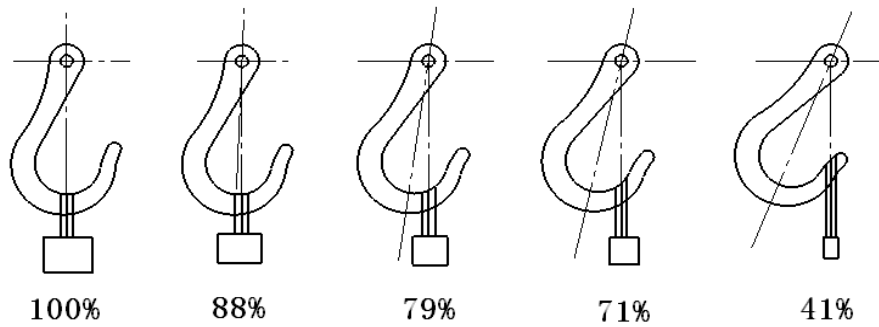


Fig. 1-1

⚠ 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 angle between wire rope and hook is, the heavier of each rope loads. The figure 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.

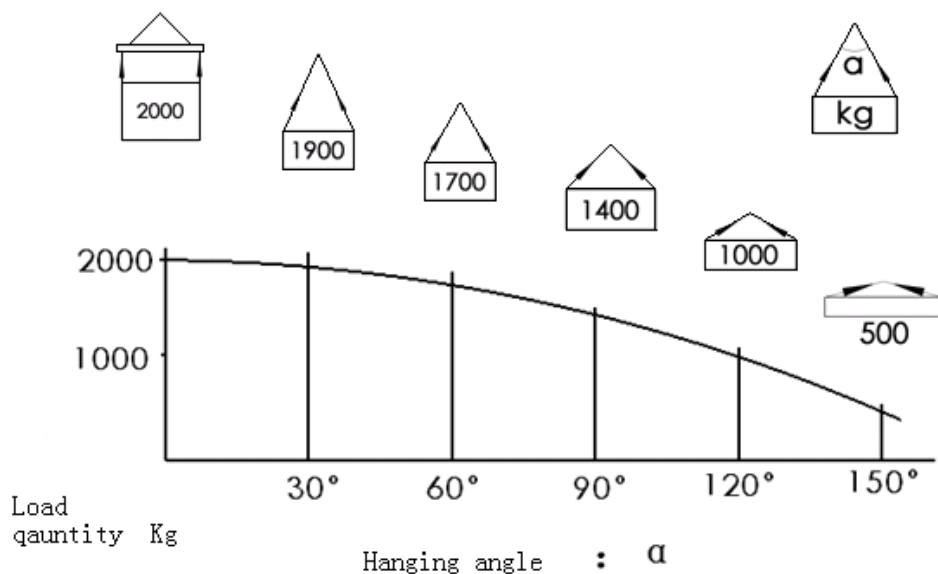


Fig. 1-2

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 Bucket Oil Cylinder and Front Frame	0.5~1.5	1~2
6	Joint of Bucket Oil Cylinder and Back Frame	0.5~1.5	1~2

1.7 Related Parameters of Electric Circuit

No.	Name	Section Area (mm ²)	Color	Remark
0	Grounding Line	5.00	Black	
0	Grounding Line	2.00	Black	
2	Fuse Box Upper End Connection	5.00	Red	
2	Accumulator Relay to Fuse Box Upper End Connection	5.00	Red	
3	Power Supply Line of Whole Vehicle Line	2.00	Yellow	
4	Back Headlight High Beam Connection	1.25	White	
4	Prying Plate to Back Headlight High Beam Connection	1.25	White	
5	Back Headlight Low Beam Connection	1.25	Red	
5	Prying Plate to Back Headlight Low Beam Connection	1.25	Red、Blue	
6	Right Turn Lamp wire	0.85	Yellow	
7	Left Turn Lamp wire	0.85	Blue	
8	Brake Switch Wire	0.85	Red	
8	Brake Lamp Wire	0.85	White	
9	Reversing Signal Wire	0.85	Green	
9	Reversing Buzzer, Reversing Lamp Connection	0.85	Green	
10	Front Headlight High Beam Connection	1.25	Purple	
11	Front Headlight Low Beam Connection	1.25	Orange	
12	Horn Button Wire	0.85	White	
12	Electric Horn Control Wire	0.85	White	
13	Hand Brake Switch Lamp Connection	0.85	Gray	
14	Engine Water Temperature Thermometer Signal Wire	0.85	Brown	
14	Engine Water Temperature Sensor	0.85	Brown	

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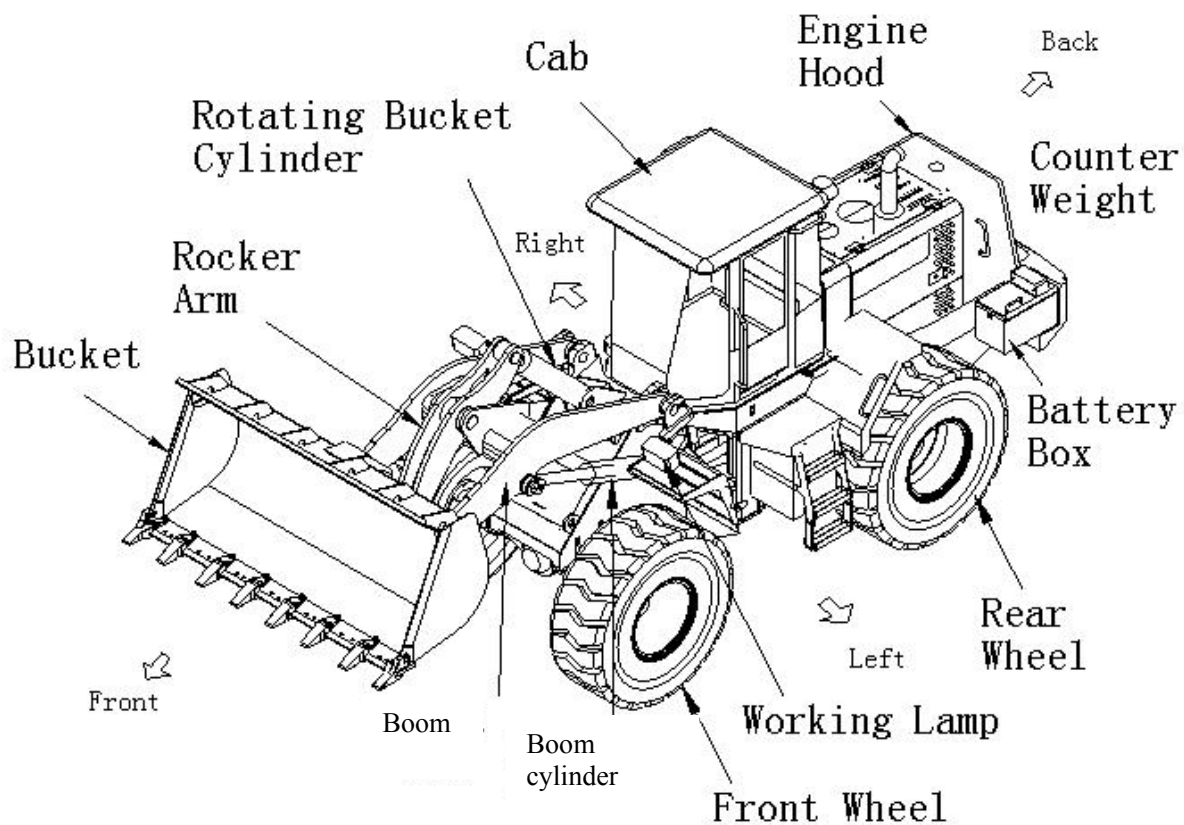
	Wire			
15	Torque Converter Oil Temperature Thermometer Signal Wire	0.85	Yellow	
15	Torque Converter Oil Temperature Sensor Wire	0.85	Yellow	
17	Gear Box Pressure Sensor Signal Wire	0.85	Gray	
18	Brake Air Pressure Sensor Wire	0.85	Brown	
18	Brake Air Pressure Sensor Wire	0.85	Orange	
19	Oil Gauge Signal Wire	0.85	Red	
19	Oil level Sensor Wire	0.85	Red	
20	Charge Signal Wire	0.85	Purple	
20	Charge Alarm Lamp Wire	0.85	Purple	
21	Fuse Box Upper End Connection	2.00	Brown	
22	Electric Lock to Starting Relay Connection	0.85	Red	
23	Water Spraying Electromotor Control Wire	0.85	Purple	
24	Scraper Reposition Wire	1.25	Black	
25	Scraper Low Speed Connection	1.25	White	
26	Scraper High Speed Connection	1.25	Blue	
28	Accumulator Relay Loop Connection	0.85	Red	
28	Accumulator Relay Loop Anode Wire	0.85	Red	
29	Wire From Oil-cutting Valve Relay to Oil-cutting Valve	2.00	White	
30	Indicating Width Lamp and Backlight Wire	1.25	Red	
30	Indicating Width Lamp Wire	0.85	Red	
30	Indicating Width Lamp and Backlight Wire	0.85	Red	
31	Engine Oil Pressure Alarm Lamp Connection	0.85	White	
31	Engine Oil Pressure Alarm Wire	0.85	White	
32	Brake Air Pressure Alarm Lamp Connection	0.85	White	
33	Flasher Signal Out-wire	1.25	White	
34	Headlamp Connection	1.25	Orange	
35	Front Headlight and Backlight Power Wire	2.00	Red	
36	Air-condition and Warm Wind Power Connection	3.00	Green	
37	Scraper Power Wire	1.25	Red	
38	Reserved Cold Starting Power Wire	1.25	Blue	
39	Headlamp Power Wire	1.25	Brown	
40	Fuse Box Out-wire	0.85	Purple	
40	Brake、Horn Power Wire	0.85	Green	
41	Radio Recorder and CD Power Wire	1.25	Brown	
42	Pilot Valve Power Wire	1.25	Red	
43	Stopwatch Power Wire	0.85	Gray	
44	Combination Switch Power Wire	1.25	Yellow	
45	Back Headlamp Power Wire	1.25	Red	
46	Brake Electrical Valve Power Wire	0.85	Purple	
47	Rear Lamp Power Wire	1.25	Brown	
48	Control Unit Power Wire	0.85	Red	
49	Wire Conneting Cubicle Switch to	0.85	Brown	

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	Auxiliary Relay			
50	Wire Conneting Cubicle Switch to Auxiliary Relay	0.85	Orange	
52	Operation Indicating Lamp Connecting Wire of Control Unit	0.85	Green	
53	Warm Air Blower Connection Wire	1.25	Red	
54	Wire From Emergency Brake to Hand Brake	0.85	Orange	
55	Wire From Brake Electrical Valve to Hand Brake	0.85	Green	
57	Power Cutting Off Signal Wire of Controll Unit	0.85	Brown	
58	Reverse Gear Signal Wire of Control Unit	0.85	Gray	
59	Starting Unit Lock Signal Wire of Control Unit	0.85	Blue	
60	Wire From Electrical Lock to Approaching Switch	0.85	Gray	
61	Preheating Indicator Connection Wire	0.85	Yellow	
62	Wire From Middle Relay to Electrical Valve (Boom)	0.85	Gray	
63	Wire From Middle Relay to Electrical Valve (Bucket)	0.85	Purple	
64	Approaching Switch (Boom) Wire	0.85	Orang	
65	Approaching Switch (Bucket) Wire	0.85	Brown	
69	Charge Alarm Lamp Connection Wire	0.85	Orange	
70	Charge Middle Relay Connection Wire	0.85	Gray	
71	Rear Lamp Wire	1.25	Gray	
72	Roof Lamp Connection Wire	0.85	Yellow	
73	Signal Wire of Stopwatch	0.85	Gray	
76	Power Cutting-off 、 Reverse Gear、 Starting Relay Power Wire	0.85	White	
77	Standby Socket Power Wire	1.25	Yellow	
80	Instrument Light Power Wire	1.25	Red	
82	Coarse Filter Alarm Signal Wire	0.85	Yellow	
92	Reserved (Electronic Lock Starting) Signal Wire	1.25	Blue	
96	Emergency Steering Signal Wire	0.85	Green	
121	Power Wire From Fuse Box Upper End to Electronic Lock	1.25	Red	
142	Approaching Switch Power Wire	0.85	Red	
2a/2b	Engine Charge Wire	5.00	Yellow	
56/56a	Accumulator Relay Anode Wire	5.00	Brown	

CHAPTER II STRUCTURE AND WORKING PRINCIPLE OF THE LOADER

2.1 Outside View



2.2 Complete Appliance Performance and Parameter

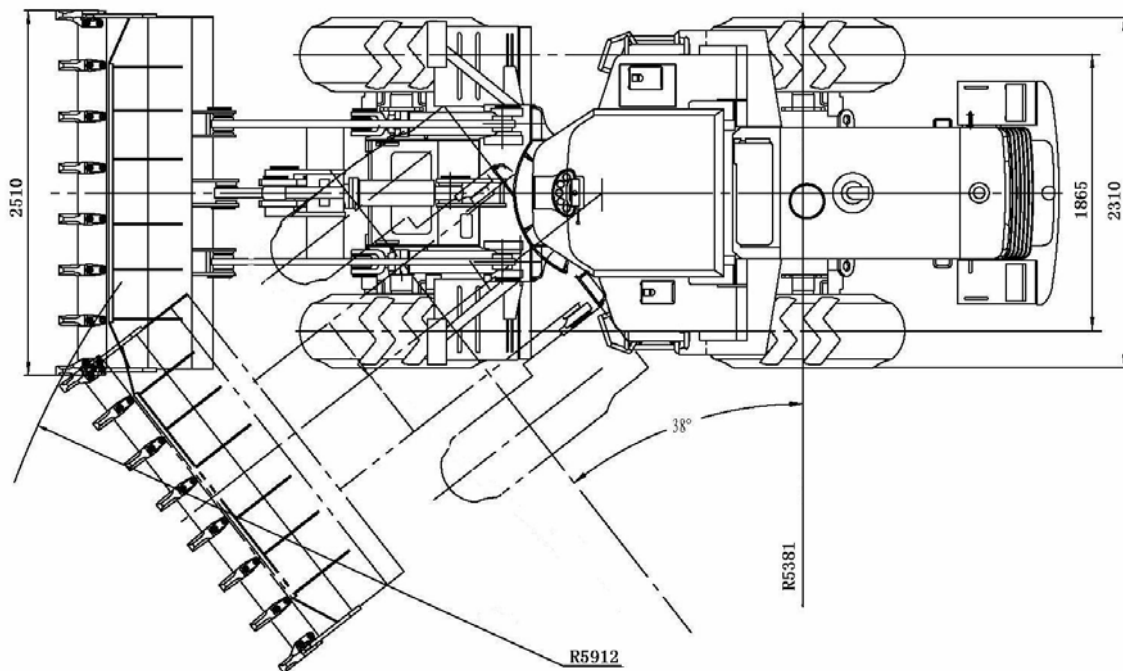
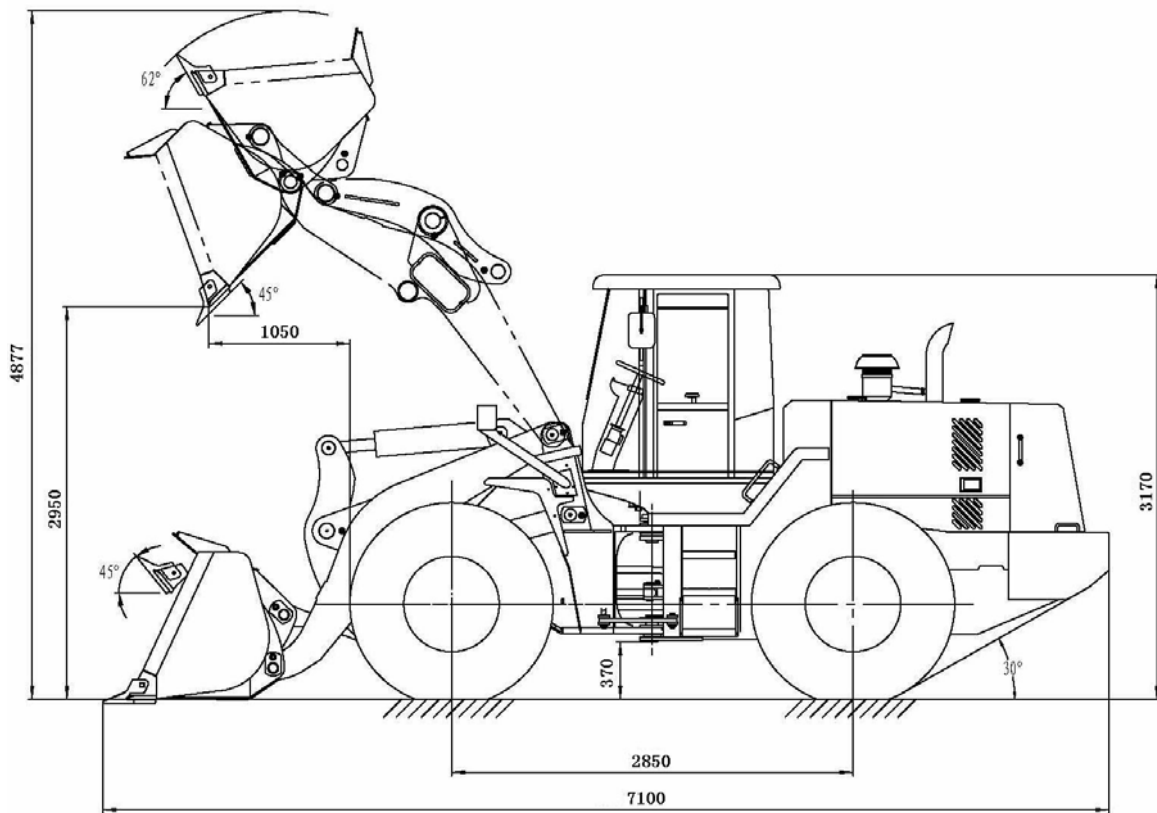
Bucket Capacity m ³			3.0
Rated Loading Capacity Kg			5000
Lifting time (full load) S			≤6.4
Lowering time (empty bucket) S			≤3.6
Dumping time (empty bucket) S			≤1.3
Travel speed km/h	Forward	Gear I	0～6.5
		Gear II	0～11.5
		Gear III	0～23
		Gear IV	0～38
	Reverse	Gear I	0～6.5
		Gear II	0～11.5
		Gear III	0～23
Max. Breakout force kN			≥180
Max. Tractive (rim-pull) force (supplied by engine) kN			≥150
Max. Tipping load (fully turning) kN			≥110
Max. Grade ability			30°
Min. turning radius (outside of the rear wheel) mm			6036
Level passing radius (outside of bucket) mm			6746
Max. Angle of rotation			38°
Wheel tire inflation pressure MPa		Front Wheel	0.38～0.40
		Rear Wheel	0.32～0.34
The length of machine (The bucket keeps flat on ground) mm			8079
The width of machine (Outer flank of wheel) mm			2785
The width of bucket mm			3024

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The height of vehicle mm	3382
Tread mm	2190
Wheel base mm	3200
Min. ground clearance mm	457
Max. unloading height (-45°Unloading angle) mm	2950
Unloading distance (-45°Unloading angle) mm	1120
Unloading angle	$\geq 45^{\circ}$
Complete vehicle operation weight kg	16600

2.3 General View

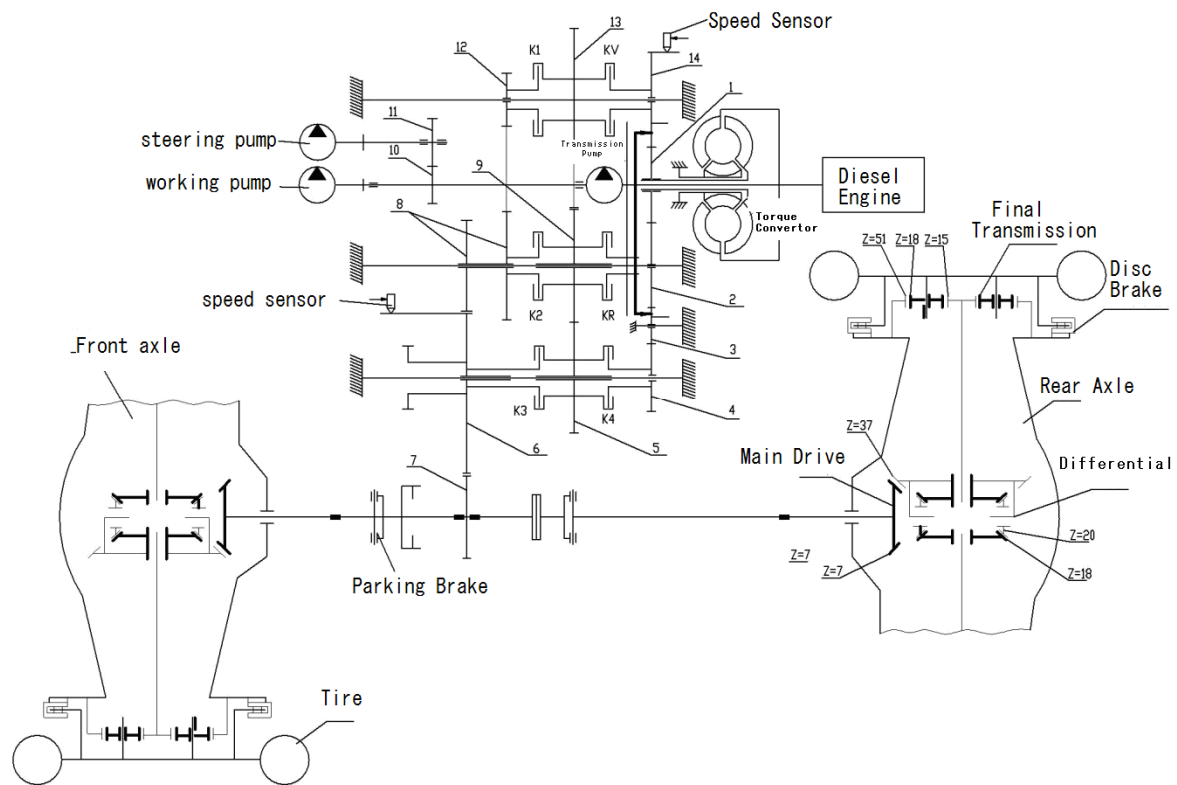
Unit: mm



2.4 Working Principles

2.4.1 Transmission System

The transmission system consists of hydraulic torque converter, gear box, transmission shaft, front and rear drive axle, wheels etc. The principle of transmission is showed in figure 5-1.



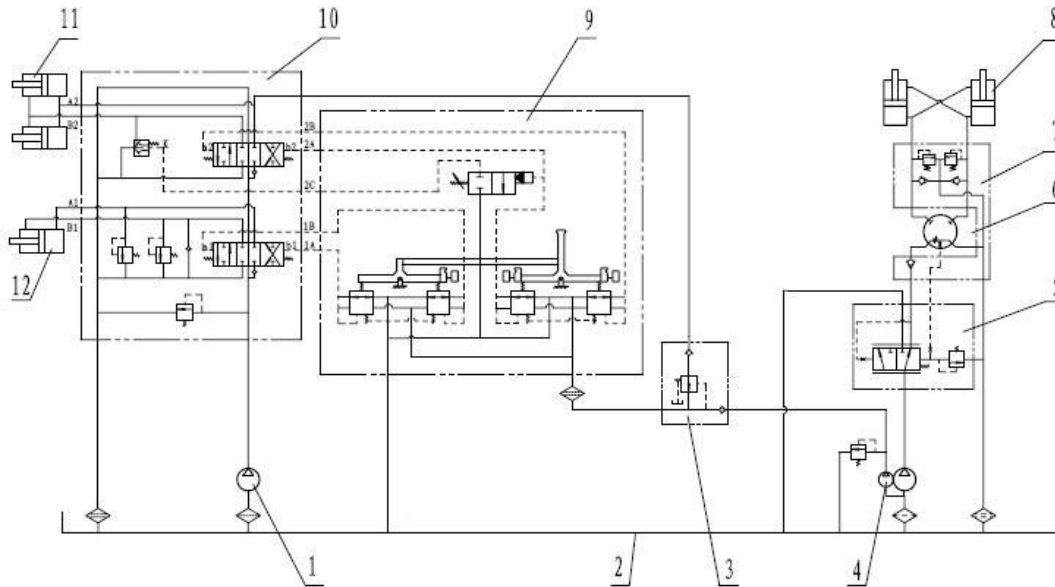
1. input gear 2. KR steering gear 3. intermediate shaft gear 4. the fourth speed gear 5. K34 ring gear 6. the third speed gear 7. output gear 8. the second speed gear assembly 9. KR2 gear 10. gear driven by working pump 11. gear driven by steering pump 12. the first speed gear 13. KV1 gear 14. KV reversing gear

Figure 5-1 Schematic Diagram of Transmission System

2.4.2 Hydraulic System

As shown in figure 5-2, hydraulic system includes working device hydraulic system and steering hydraulic system, which is made up of working pump, multi-way valve, pilot valve, pressure choosing valve, boom oil cylinder, turning bucket oil cylinder, hydraulic oil tank and pipeline accessory.

Hydraulic operating system which uses hydraulic pilot control is light and flexible.. Turning bucket unit includes three positions: dumping, neutral, tilt-back; Boom unit includes four positions: float, lower, neutral, lift. The adjustable pressure of hydraulic system safety valve is 18~18.5 MPa. The overload pressure of turning bucket large cavity is 20.5 MPa and small cavity is 12 MPa.



1. Working Pump 2.hydraulic oil tank 3.pressure selector valve 4.double pump
5.priority valve 6.steering gear 7.combination valve block 8.Steering cylinder 9.pilot valve 10.muti-way valve 11. boom cylinder 12. bucket cylinder

Figure 5-2 Figure of Hydraulic System Principle

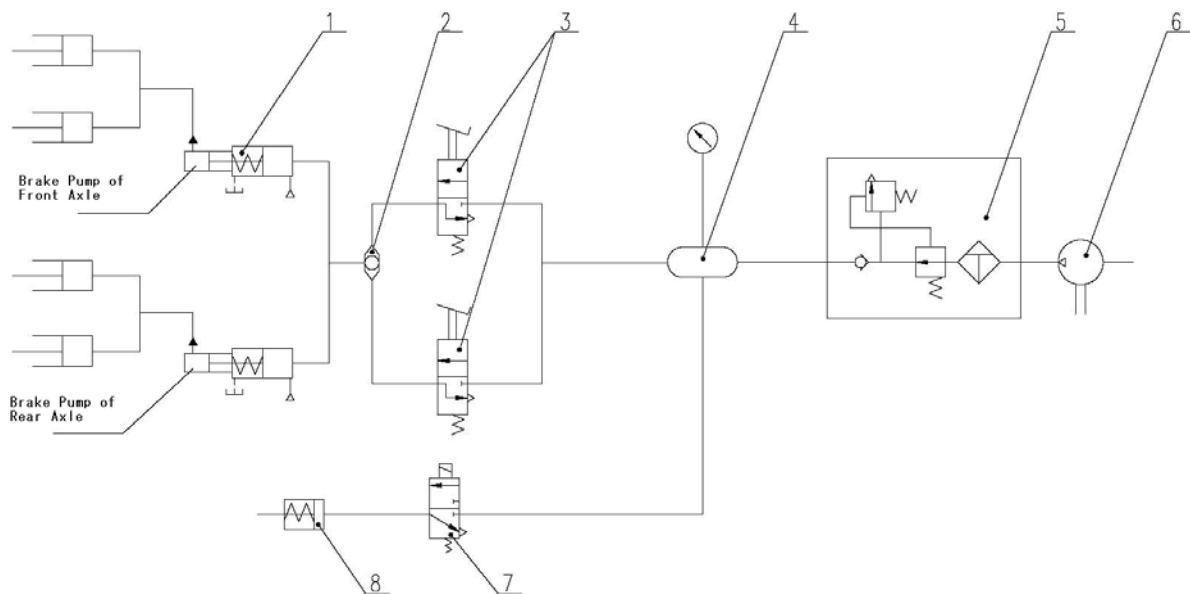
Hydraulic steering system is load sensing hydraulic system and consist of double pump、priority valve、steering redirector、steering oil cylinder and the pipeline accessory. In steering, this system makes sure that supply oil to steering hydraulic system first, and the surplus oil return to tank by radiator. Safety valve is fixed on the priority valve, and the set pressure of which is 16 MPa.

2.4.3 Brake system

The brake system can make LG958L slow, stop and stay on the ground or slope for a long time. The wheel loader has two independence brake systems: traveling brake system, emergency and parking brake system.

1. Traveling Brake System(Double-pedal Brake):

Traveling brake system of LG958L is made up of double braking pedal and air-pushing-oil four wheels clamp-disc equipment. There are four, two front and two rear, braking clamps, which improve the safety of the complete machine,The principle is shown in figure 5-3.



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

Fig 5-3 LG958L Brake System

In traveling, after treading 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 fluid pushes the piston of caliper 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 compress air in the intensifier pump is discharged to the atmosphere by the brake valve. Then the brake relieves.

2. Emergency and Parking Brake System:

This system is the electrical pneumatic control internal shoe type brake system. In the process of driving, rotating the button of the braking electrical valve, the button will pop up automatically. The compressed air in the gasholder enters into the parking brake air ventricle by the braking electrical valve, which will make the spring push the piston and release the arrester. The braking situation will be ended. In the process of parking, pressing the button of the braking electrical valve, the compressed air in the parking brake air ventricle will be released to the environment by the vent of the braking electrical valve. Under the function of spring force, the arrester will be pulled and the machine will brake. At

the same time, the air pressure signal will be sent out, which will turn on the parking brake indicator lamp. And the power of gear box will be cut off.

When the system air pressure is lower than 0.4 Mpa, the braking electrical valve will be cut down automatically, which causes the compressed air in the parking brake air ventricle 8 releases to the environment, and the emergency brake will come true and the safe of machine and human will be ensured.

2.4.4 Electric System

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

The complete appliance system voltage 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 Figure 5-4 (electric system circuit principle figure).

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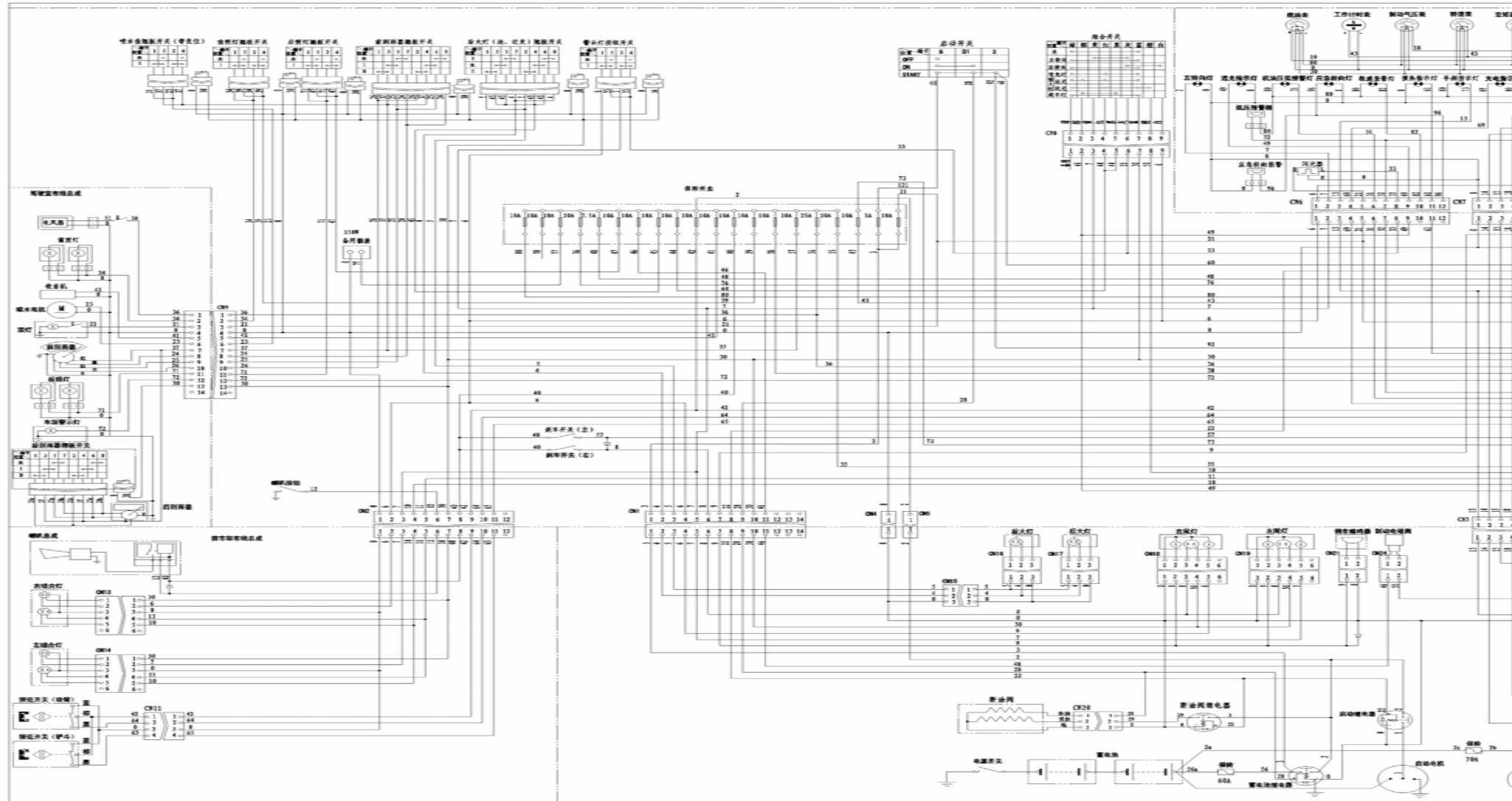
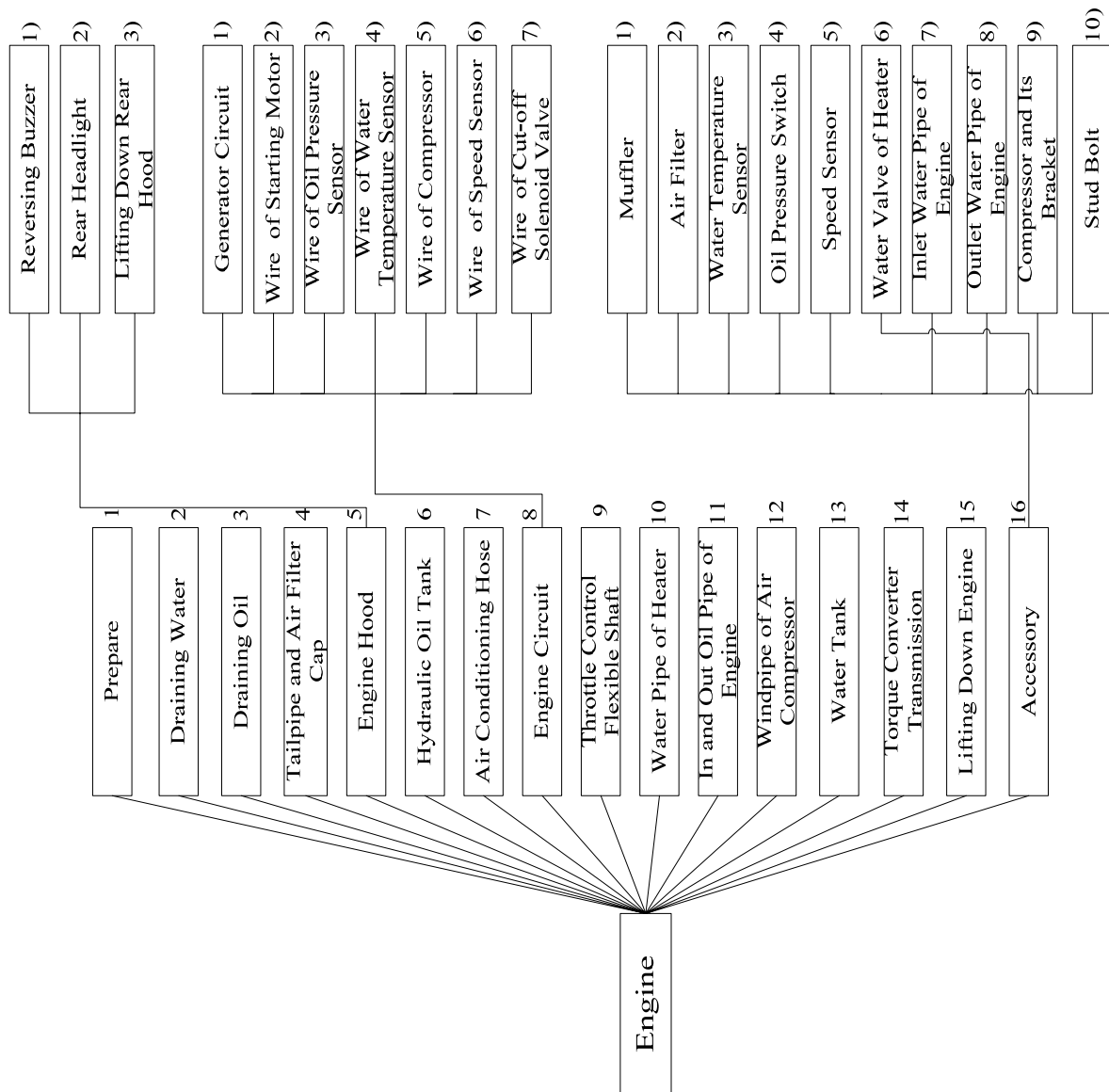


Figure 5-4 LG958L Electric System Principle Figure

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 replacing 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 off the electrical power of the whole machine and stall the engine. 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 water outlet plug on the water tank and the engine. Drain the coolant and get them with clean vessel.

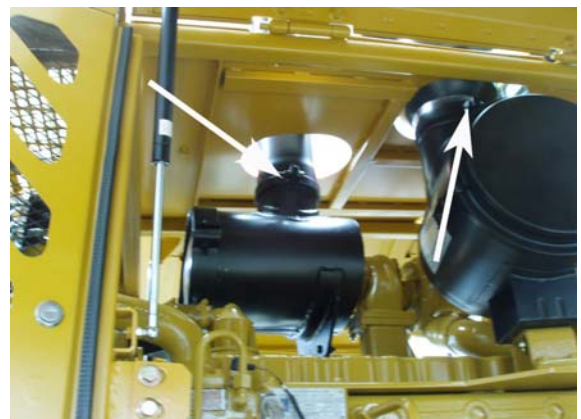


Screw Plug Draining

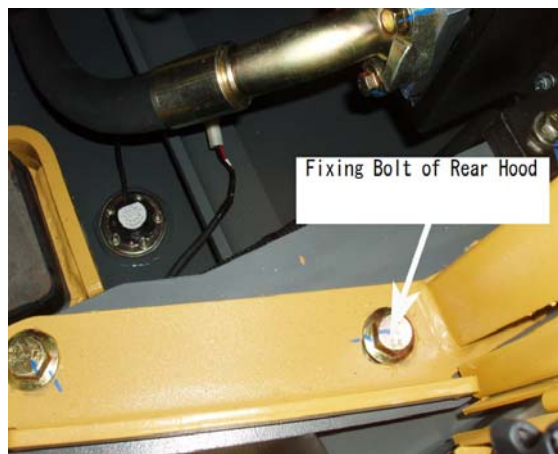
3. Open the outlet oil plug of engine oil bottom tank and drain the engine oil, being gotten with clean vessel.



4. Loosen the tightening bolts connecting the engine exhaust pipe and the cap of engine air filter respectively. And get it off from the engine.



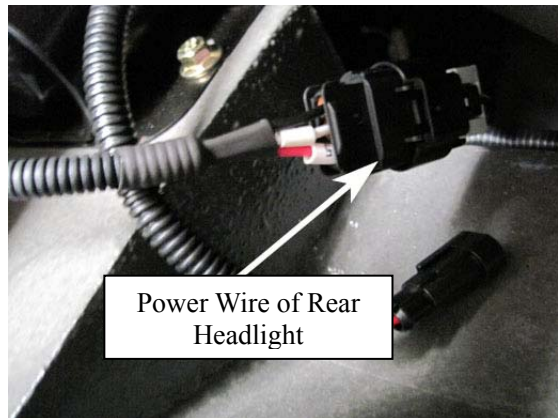
5. Loosen the fixing bolts of the engine hood.



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



2) Cut off the connection of the rear headlight circuit and rear frame wiring harness.



3) Hang the engine hood off.

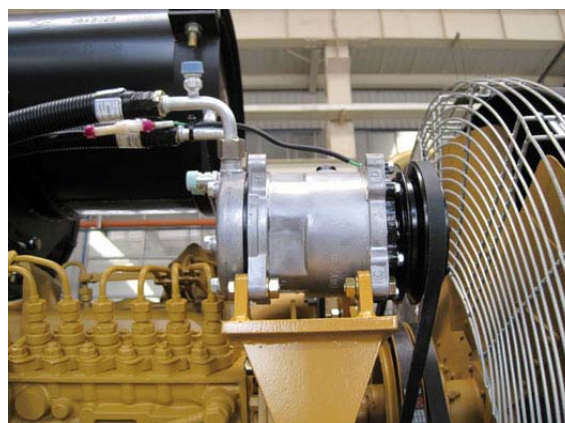


6. Disassemble the hydraulic oil tank (refer to the disassembling and assembling of the hydraulic oil tank).



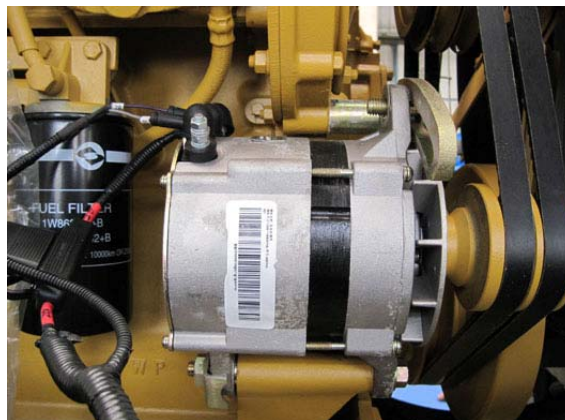
7. Cut off the connecting of the soft pipe of air-conditioning and the compressor.

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



8. Cut off the connection of the engine and the circuits.

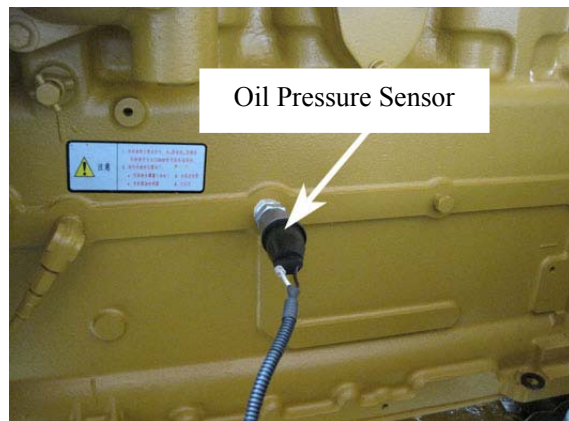
1) Disconnect the connection of the engine and the wiring harness.



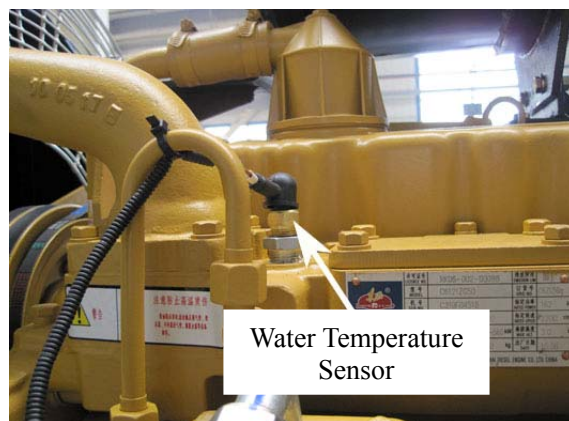
2) Disconnect the connection of the starting motor and the wiring harness.



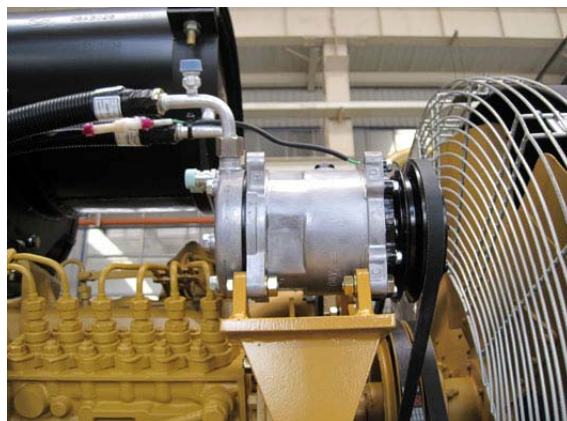
3) Disconnect the connection of the engine oil pressure sensor and the wiring harness.



4) Disconnect the connection of the water temperature sensor and the wiring harness.

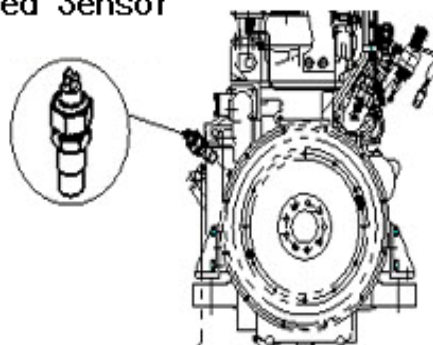


5) Disconnect the connection of the air compressor and the wiring harness.



6) Disconnect the connection of speed sensor and the wiring harness.

Speed Sensor



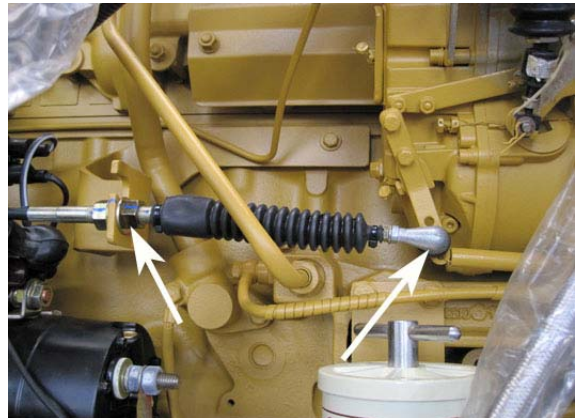
7) Cut off the connection of oil cut-off Solenoid valve and the wiring harness.



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

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

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



10. Cut off the connection of water pipes and valves of heater.

Loose the tightening clamp of the unit heater water pipe on the engine's water valve and get off the water pipes.



11. Cut off the connection of the engine oil inlet and oil outlet pipes and the engine.

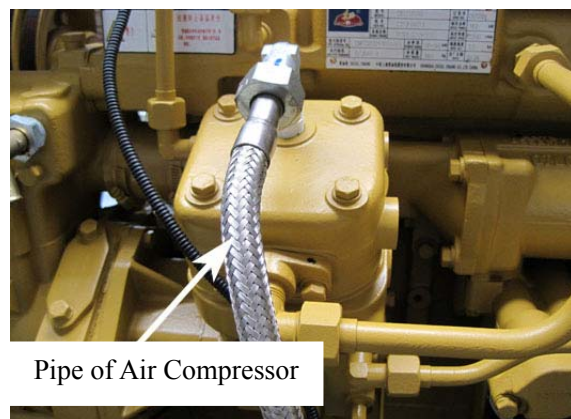
1) Disconnect the connection of oil inlet pipes and the oil and water separator.



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



12. Disconnect the connection of the air compressor's pipes and the air compressor.



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

14. 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)

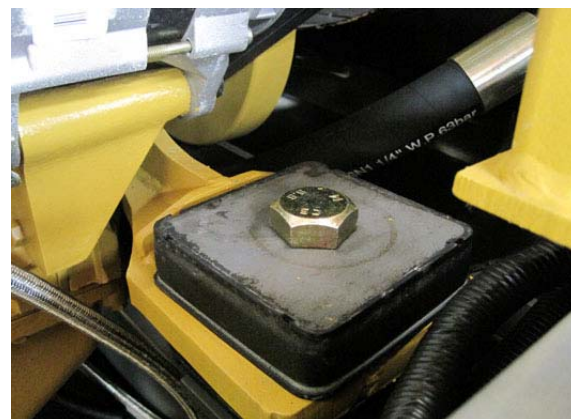


15. Loosen fixing bolts of the engine supporter.

Lift off the engine.



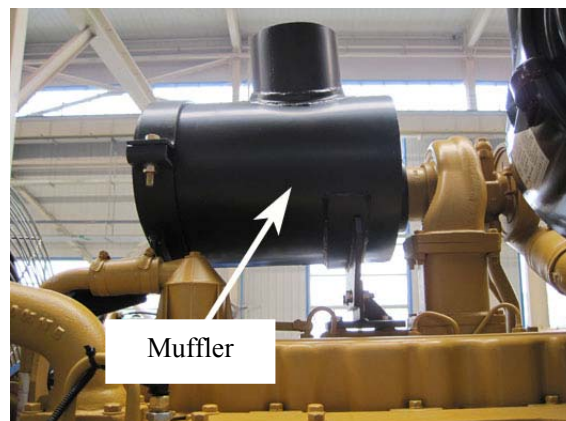
Engine



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16. Disassembly of engine other accessory.

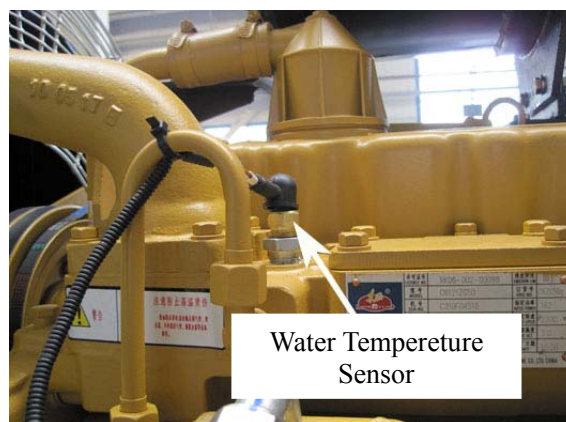
1) Disassemble the bolts which connect muffler pipe and engine, muffler pipe and muffler, muffler and frame independence. Then get off muffle and muffle pipe.



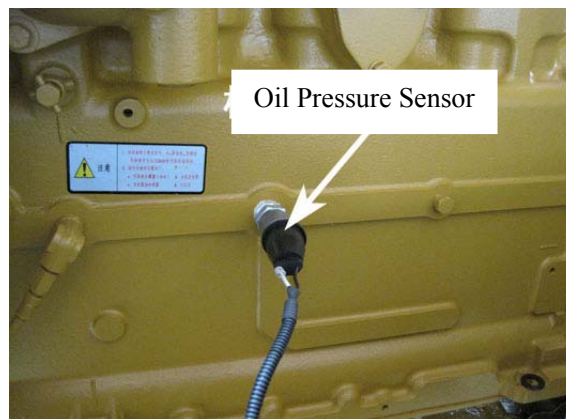
2) Loosen the fastening clamp hoop connecting the air filter and compressor rubber hose, the air filter and engine air entering rubber hose. Remove the bolts connect air filter and bracket and get off air filter and bracket.



3) Remove the water temperature sensor.

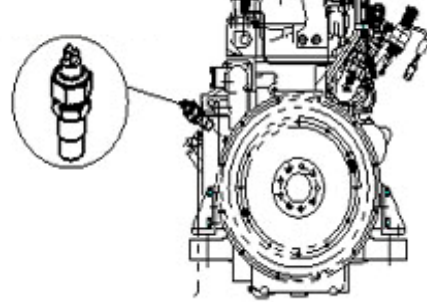


4) Remove the engine oil pressure sensor.



5) Remove the speed sensor.

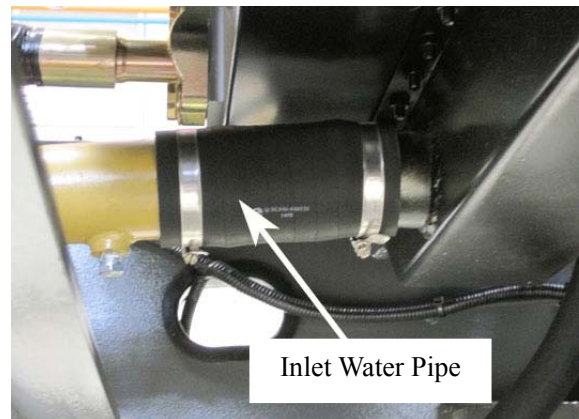
Speed Sensor



6) Disassemble the water valve of heater.



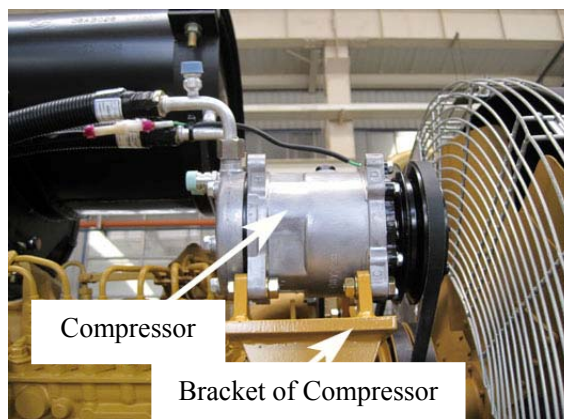
7) Disassemble the water inlet pipe of engine.



8) Disassemble the water outlet pipes of engine.



9) Remove the compressor and its bracket.

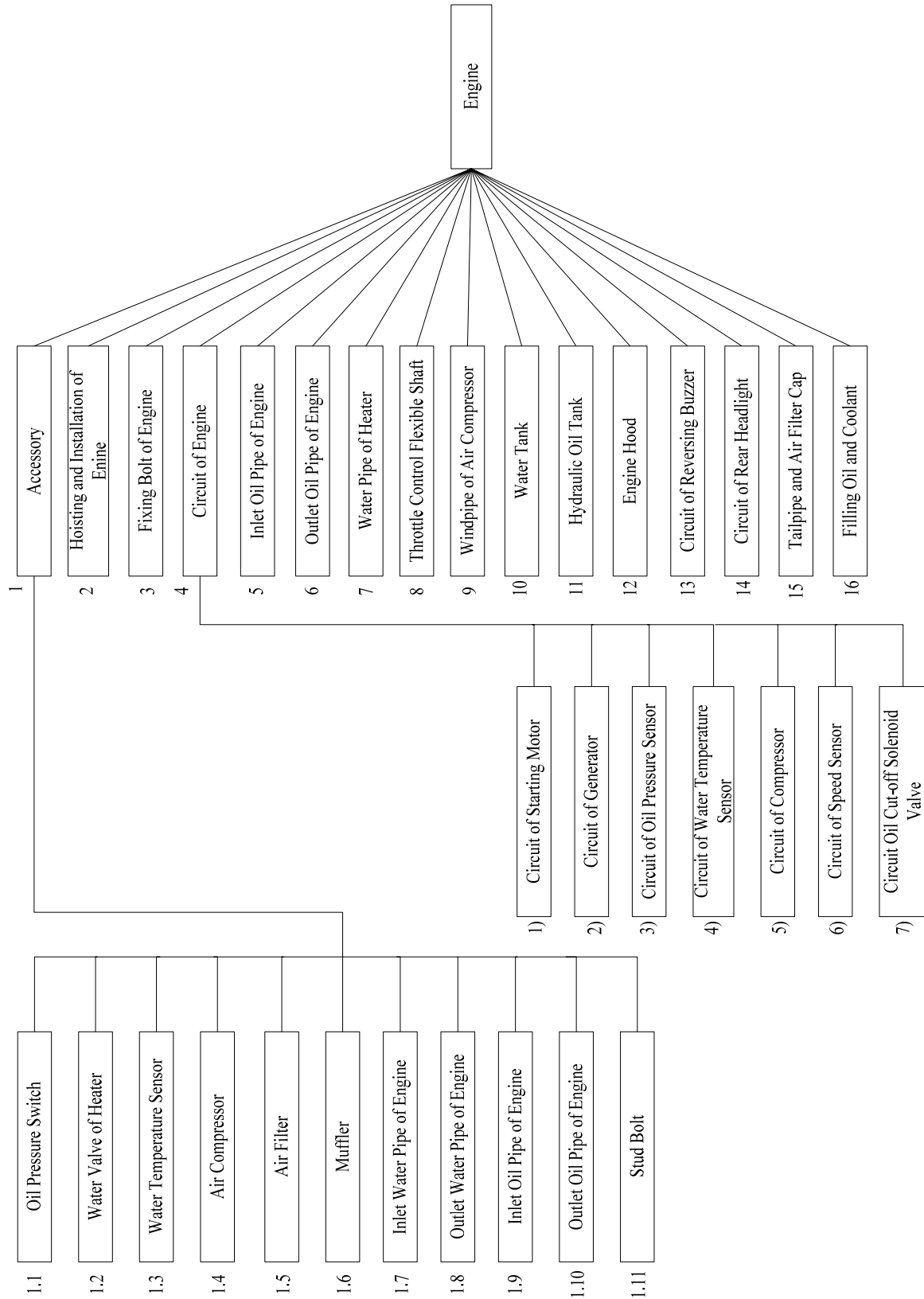


10) Loosen stud-bolt.

★**Notice:** The pliers are forbidden during loosening. Loosen the two nuts comparatively. Remove the internal nuts with wrench.



II 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.)



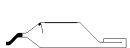
1. Assembly of engine accessory.

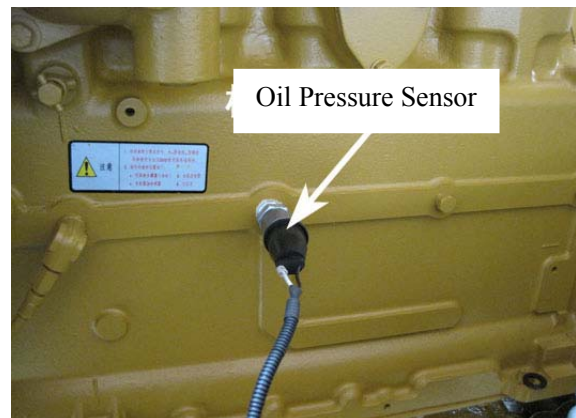
Coating process of 1545 oxygen-weary pipe screw sealant should be followed as these:

- 1) Clean the foreign matters on the screw with no hair-falling paper 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 on the outside screw and the threaded hole.
- 3) The coated part should be tightened with hand wrench but not impact wrench.

1.1 Assembly of the engine oil pressure sensor.

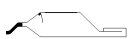
Coat KESAIXIN 1545 sealant on the connection position of engine oil pressure sensor and assemble it on the corresponding position of engine.

 1545 sealant



1.2 Assembly of heater unit water valve.

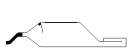
Coat KESAIXIN 1545 oxygen-weary pipe screw sealant on the heater water valve and assemble it on the corresponding position of engine.

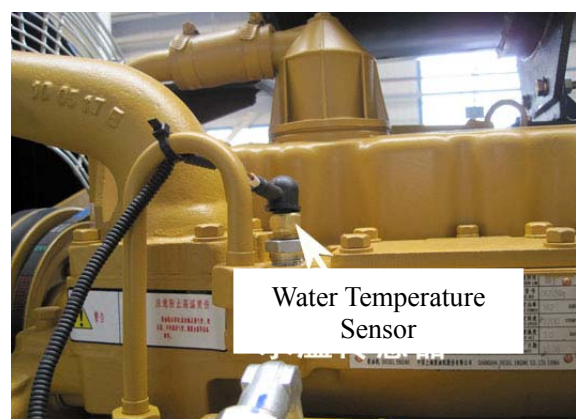
 1545 sealant



1.3 Assembly of the water temperature sensor.

Coat KESAIXIN 1545 oxygen-weary pipe screw sealant on the water temperature sensor and assemble it on the corresponding position of engine.

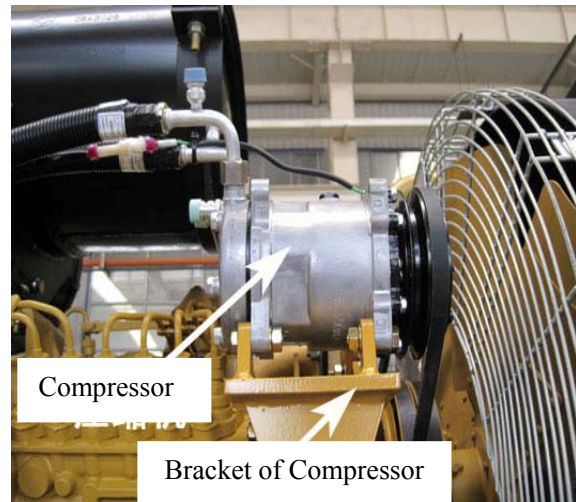
 1545 sealant



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.



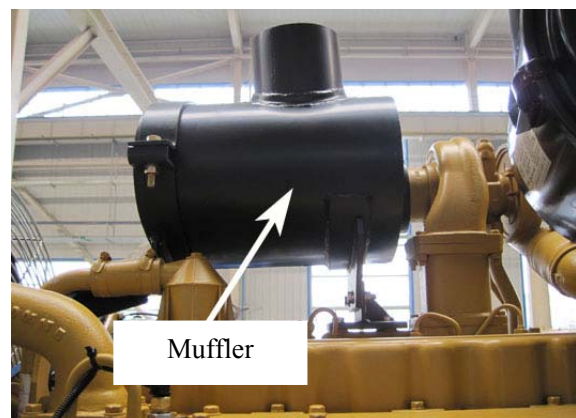
1.5 Assemble the air filter

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. Fix the other end on the engine interface with T shape hoop.



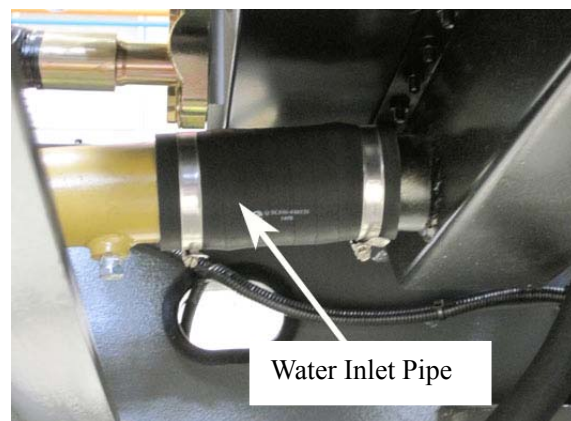
1.6 Assemble the muffler

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 V shape hoops.



1.7 Assemble the water inlet hose of engine.

Assemble the water inlet rubber hose on the corresponding position of engine and fix them with laryngeal hoop.

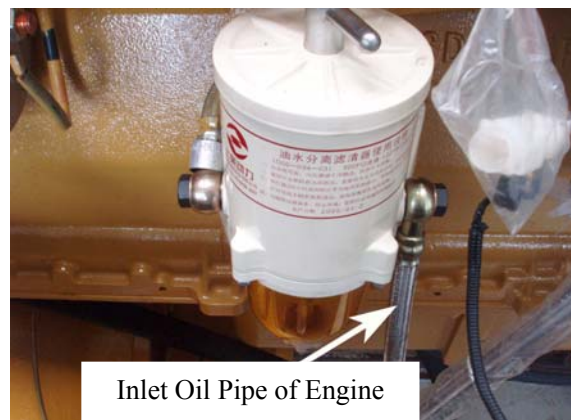


1.8 Assemble the water outlet hose of engine.

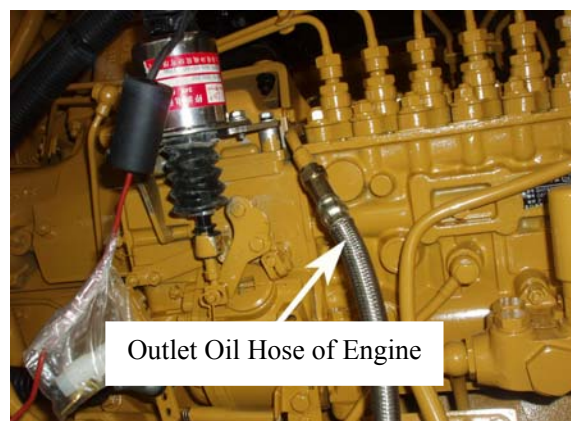
Assemble the water outlet rubber hose on engine and fix them with laryngeal hoop.



1.9 Assemble the oil inlet hose of engine.



1.10 Assemble the oil outlet hose of engine.



1.11 Assemble stub-bolts.

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

★Screw in the thin screw end

★Assemble them without using hand pliers, and tighten them comparatively. Tighten them by rotating the outside nuts with wrench.

2. Hoist the engine to the rear frame.



Engine

1) Take apart the top cover of torque converter 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 connection bolts connecting engine flywheel and duplex-transmission.

2) Check out and install the top window cover of torque converter and tighten it. Coat the 609 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.



Tightening torque: M10: 45~59 Nm.

M12: 78~104 Nm.

3. Assemble and fasten fixing bolts of engine.



4.Connection of the engine and wiring harness.

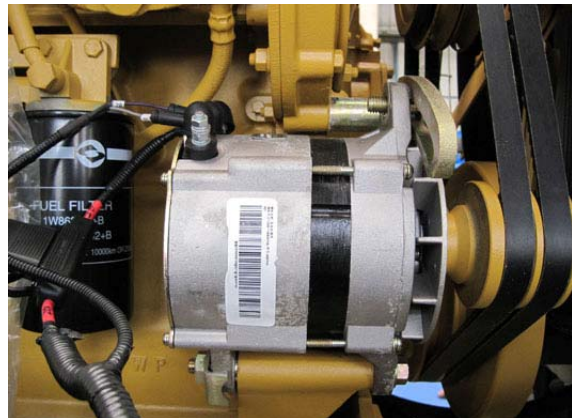
1) The connection of starting motor electric circuit.

Connect rear frame circuit to the starting relay. Connect No.22 wire of motor coils to the starting relay.



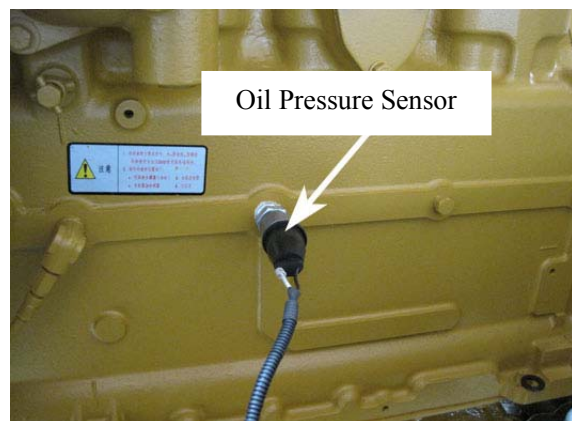
2) The connection of generator electric circuit.

Connect No.2a-wire with B+ terminal;
Connect No. 20-wire with D+ terminal;
Connect No. 73-wire with N terminal.



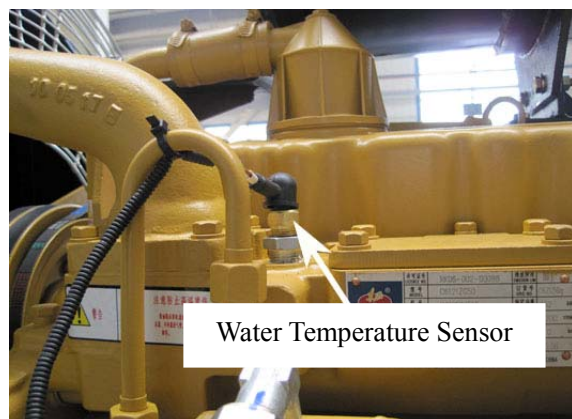
3) Connect electric circuit of engine oil pressure sensor.

Connect the No.31 and No. 0 wire to the corresponding terminals of the engine oil pressure sensor.



4) Connect electric circuit of water temperature sensor.

Connect the No.14 wire to the engine water temperature sensor.

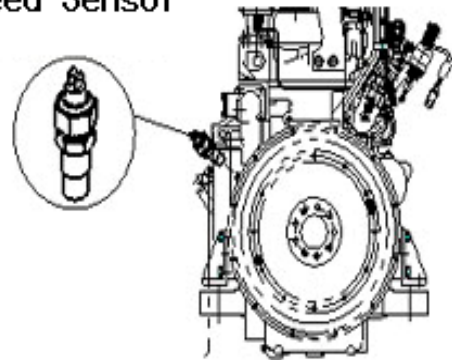


5) Connection of the compressor circuit.



6) Connection of speed sensor and wiring harness.

Speed Sensor



7) Connection of oil cut-off solenoid valve circuit.

Insert the CN20 connection-peg of the rear frame wire to cut-off solenoid valve pin.

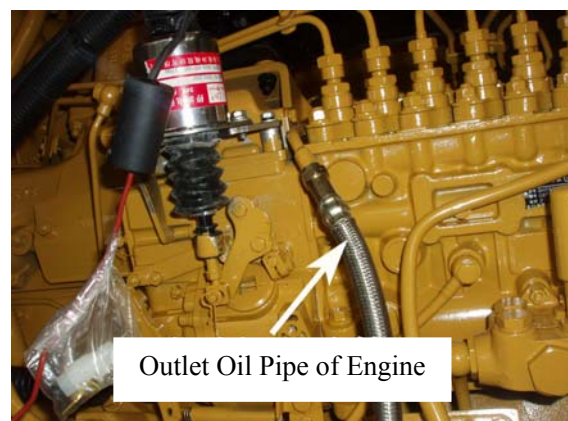


5. Connection of engine oil inlet pipes.



6. . Connection of engine oil outlet pipes.

★Notice: When disassemble or assemble the oil bolts of oil absorbing and outlet 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.



7. Connection of water pipe of warm air heater.



8. Connection of engine gun operation soft axis.



9. Connection of air compressor and the pipe of air compressor.



1272 screw locking sealant.



10. Assemble the water tank (refer to “Assembly of water and oil tank”).



11. Assemble the hydraulic oil tank.(refer to “assembly of hydraulic oil tank”).

12. Assemble the engine hood.

Hang engine hood assembly above the engine. Pay attention to avoid it bumping engine and water tank in the falling process. And install it to be as rear 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.

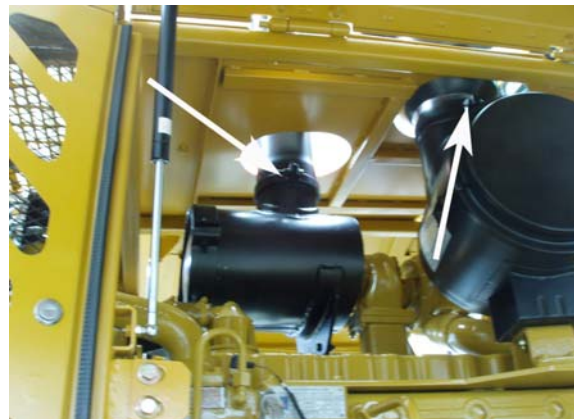


13. Connection of the reverse buzzer circuit.

14. 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 tightly.



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 (change oil tank or disassemble 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.

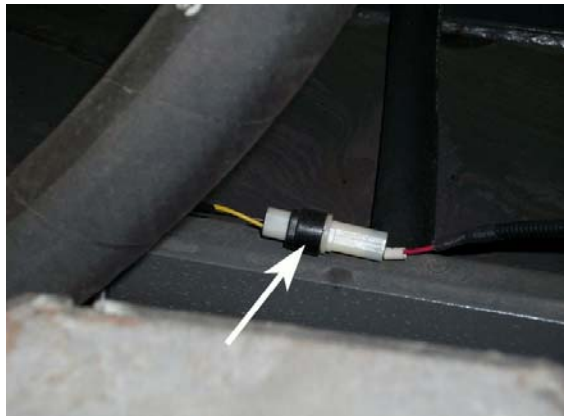
2. Get off the Plug on the bottom of tank and drain the oil. Get oil with clean vessel. Cover the vessel to avoid falling sundries.

★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 port of engine hood, unplug the connecting circuit of the oil level sensor and disassemble the oil level sensor.



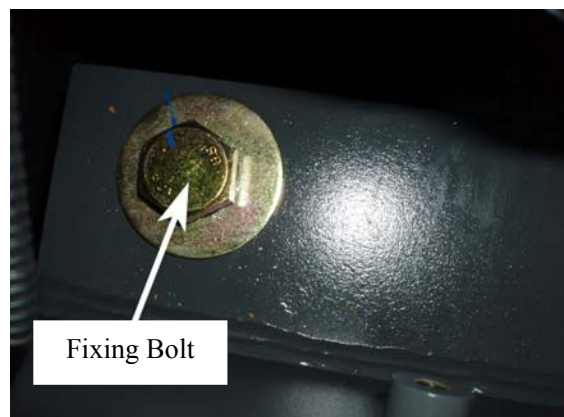
4. Remove the oil inlet pipes of engine from the fuel oil tank.



5. Remove the oil returning pipes of engine from the fuel oil tank.



6. Disassemble the fixing bolts of the fuel oil tank.



7. Hang the fuel oil tank down.



Fuel Oil Tank



8. Remove the upper hose of oil tank.



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

1. Assembly of the fuel oil tank

Connect the rubber pipe to the oil tank with hoop clamp.

2. Lifting of oil tank.

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

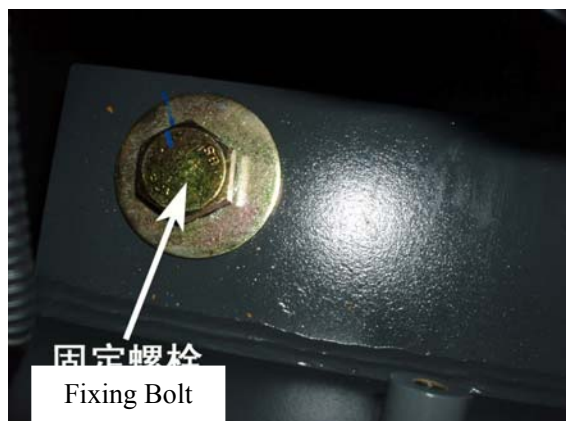


Oil tank

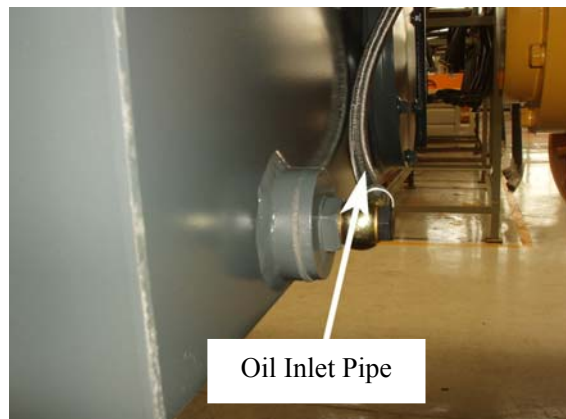


3. Fixation of the fuel oil tank.

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



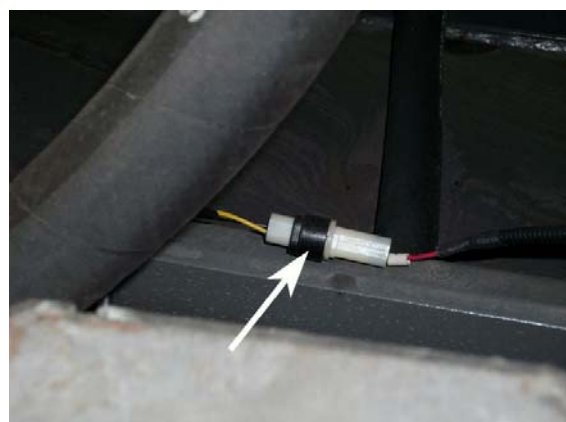
4. Screw down the engine fuel oil inlet and outlet pipe on the fuel oil tank with bolts and gaskets.



5. Tighten the oil returning pipe on the fuel oil tank with bolts and gasket.



6. Install the oil level sensor on fuel oil tank, insert the connection-peg to the rear frame wiring harness.



7. Add fuel oil into the oil tank.

Add light diesel oil into the oil tank.

Ambient Temperature $\geq$ 4℃	0#Light Diesel Oil
Ambient Temperature $\geq$ -5℃	-10#Light Diesel Oil
Ambient Temperature $\geq$ -14℃	-20#Light Diesel Oil
Ambient Temperature $\geq$ -29℃	-35#Light Diesel Oil

3.3 Disassembly and Assembly of Water Tank and Oil Radiator

I : Disassembly of water and oil tank (change 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.

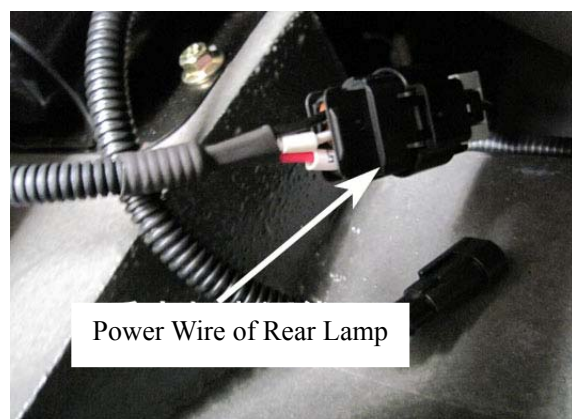
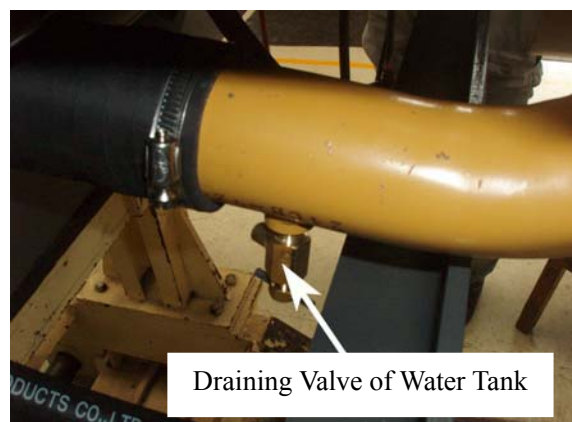
2) In the process of disassembly, the joints of each pipeline should be under safeguard measure to avoid the sundries entering into the pipeline.

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

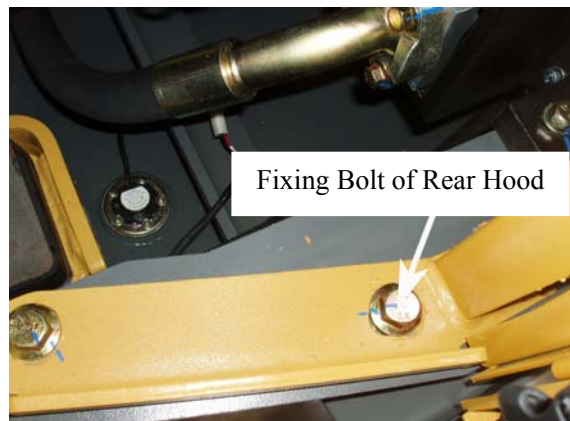
3. Disassemble the engine rear hood.

1) Disconnect the connection of the reversing buzzer circuit.

2) Disconnect the connection of rear lamp circuit.



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



4) Hang away the engine rear hood assembly.



Engine rear hood

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



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



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

★Notice: When disassemble the hydraulic connection, do not loosen the connection bolts completely to avoid the oil bursting out. Loosen them off a little while the oil overflowing, and then disconnect them

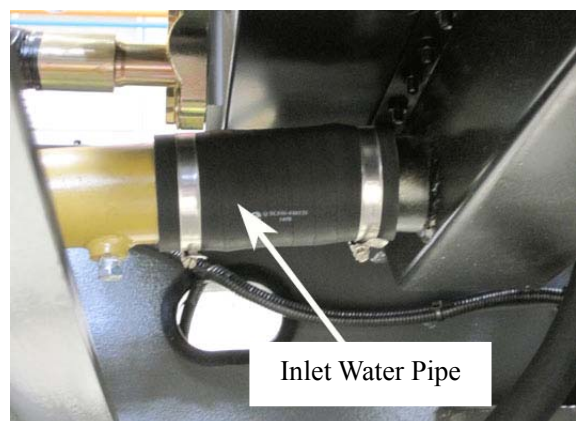


completely.

6. Loosen the tightening hoop of the connection water pipe of the water tank and the engine. Disconnect it.



7. Loosen the tightening hoop of the inlet water pipe that connects the water tank and the engine. Disconnect it.



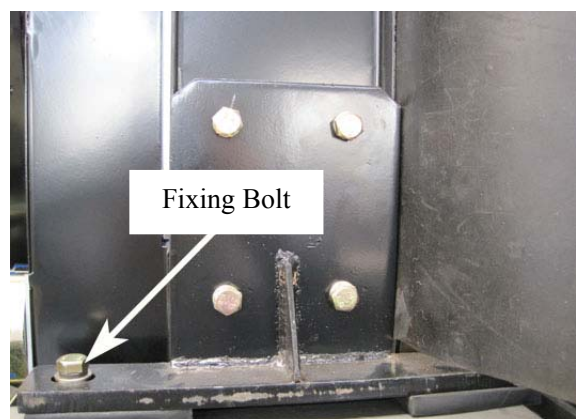
8. Loosen the fixing bolts of the fan cover and get off the cover.



9. Lift the radiator assembly. Disassemble the fixing bolts of the water tank.

10. Lift the radiator assembly down, and disassemble oil tank and wind shield cover of water tank.

★**Notice:** When lifting radiator assembly down, move the radiator to back certain distance first, to avoid the wind shield cover



hit the engine fan blade.

II Assembly of water tank and oil radiator (change water tank and oil radiator, assembling them to complete appliance could be referred to the following steps)

1. Loosen the bolts of the wind guide cover. Fix the oil and water radiator together.

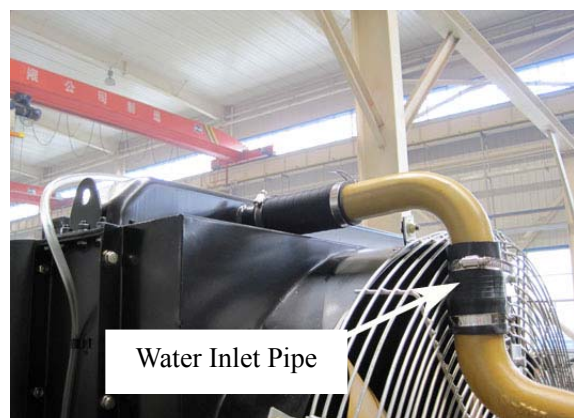
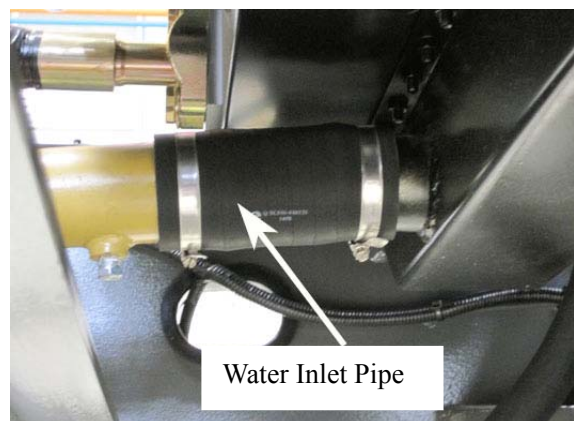
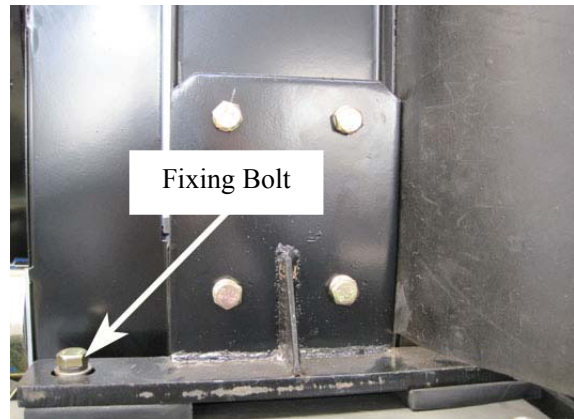
2. Fix the radiator on the rear frame with bolts.

★**Notice:** Do not tighten the bolts first. Adjust the position. Make sure that the distance between engine fan end and water wind guide cover end is the same as $1/3 \sim 1/2$ of the fan thickness. Adjust the distance of the wind guide cover in the radical direction and the fan equally and tighten the bolts.

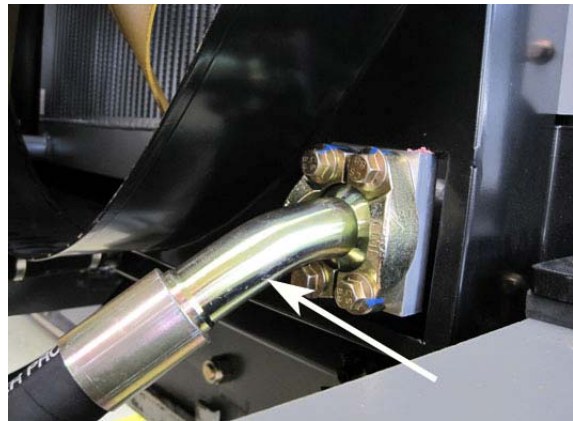
3. Install the guard of the fan on radiator assembly.

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

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



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



7. Fix the oil returning pipes of the transimssion oil on the corresponding oil ports of the transimssion oil radiator and tighten them.



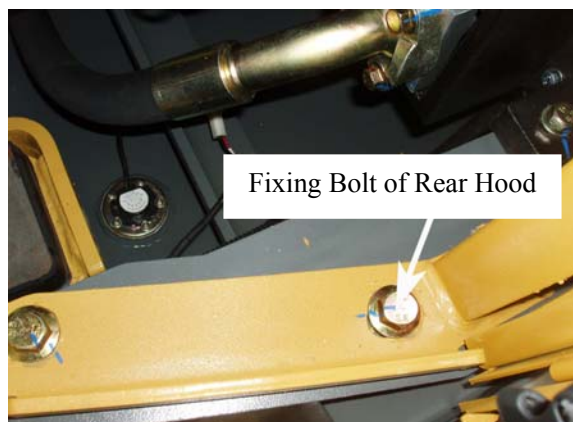
8. Assemble the engine rear hood.

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



The rear one of the 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) Insert the rear headlight wire into the rear frame wire.



3) Connect the reversing buzzer wire with rear cover wiring harness.



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

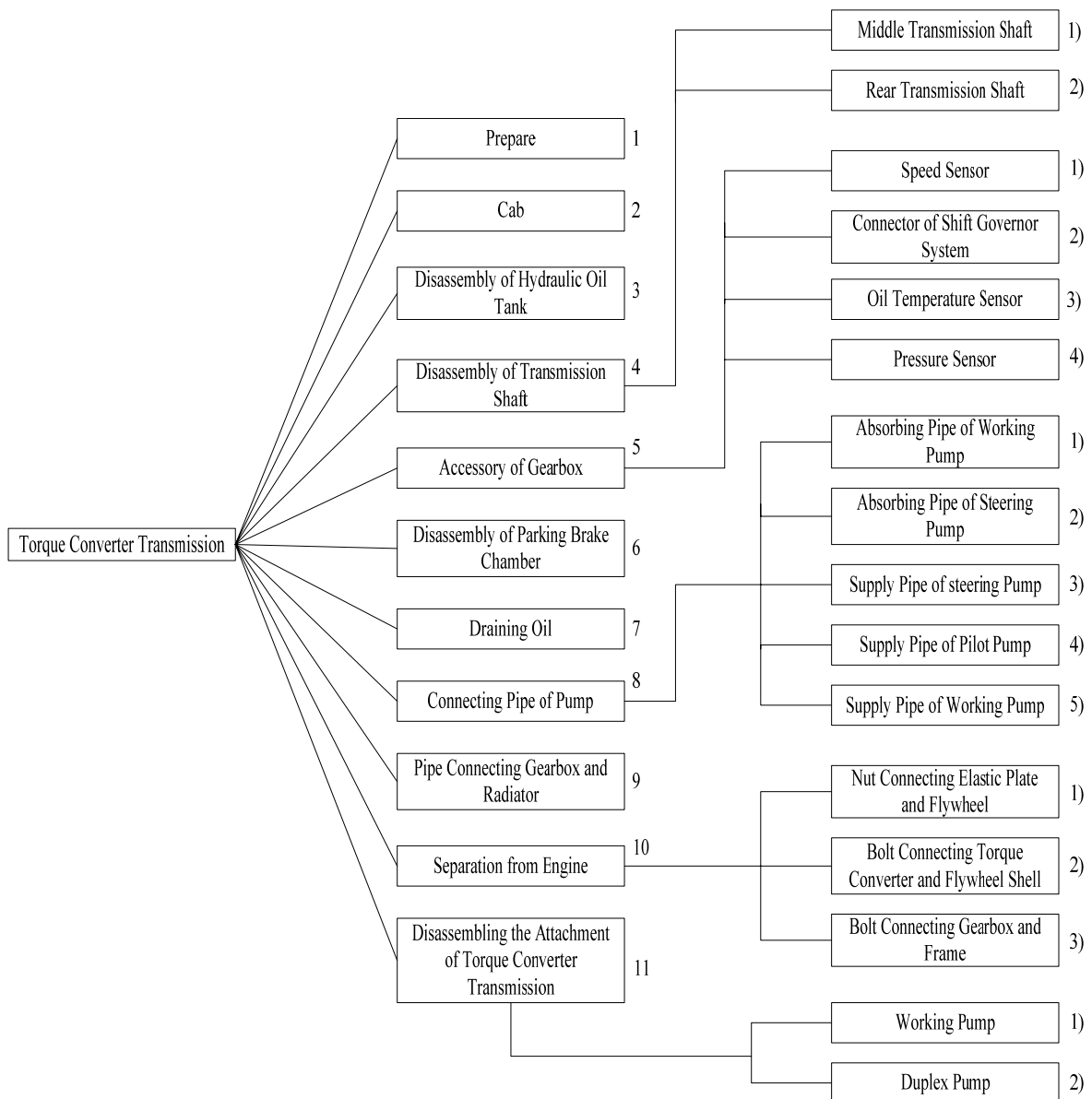
1) Add glycol coolant ($31 \pm 2\text{L}$), which is use in the temperature -35°C into the water tank. Add the coolant still the level reaches the lower edge of the inside of the water port.

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 Duplex-Transmission

I Disassembly of the Duplex-Transmission (change duplex-transmission assembly, examine and repair the interior of duplex-transmission assembly, disassemble the duplex-transmission from complete appliance,as the following steps)



Drain 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 operation handle 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 tilting to rear for 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 is shown in “Disassembly of cab assembly”.



2. Disassemble the hydraulic oil tank.

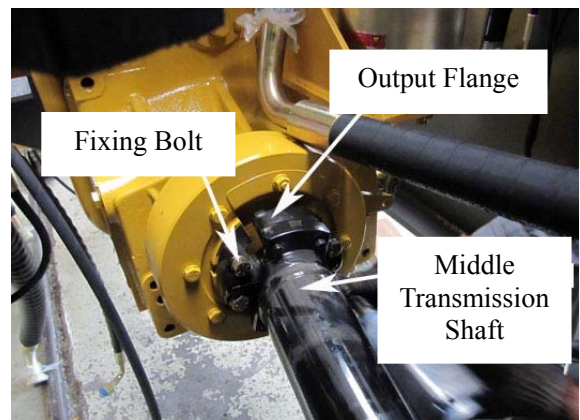
As is shown in “Disassembly of hydraulic oil tank assembly”.



3. Disassembling the connection bolts of the middle transmission shaft and gearbox.

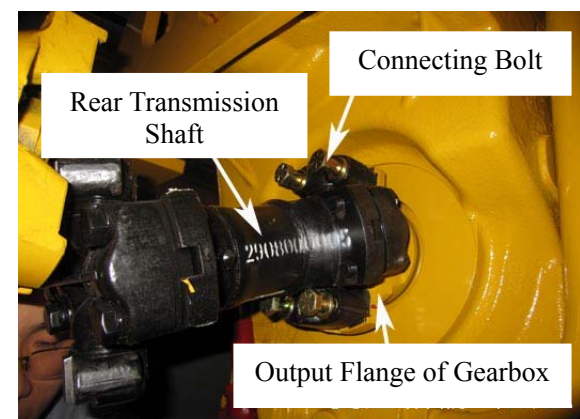
Disconnect their connection.

Don't need to disassemble the connection of middle transmission shaft and middle supporter.

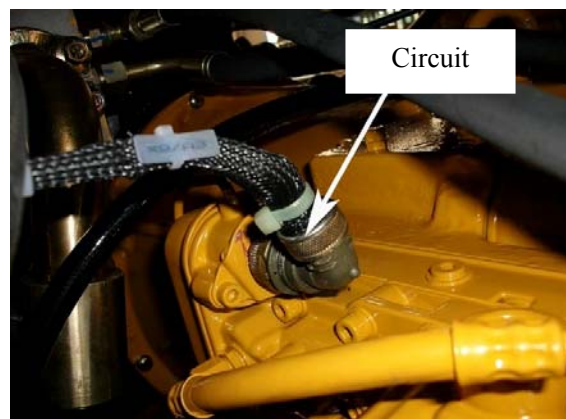


4. Get off the connection bolts of the rear transmission shaft and the gear box, disconnect their connection.

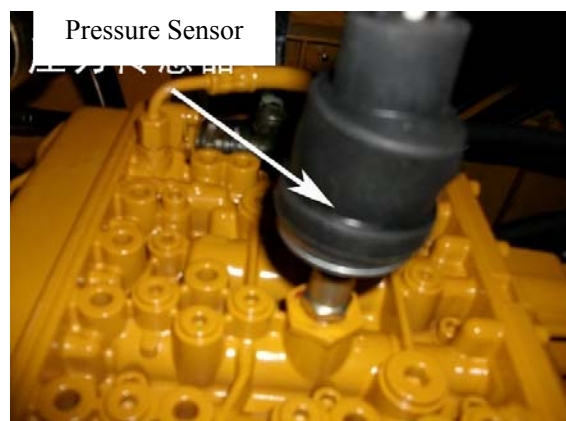
Don't need to get off the connection of transmission shaft and middle supporter.



5. Get off the plug of speed governor system, disconnect the connection of the gearbox and cab circuit.



6. Get off the pressure sensor circuit connector of gearbox, disconnect the connection of circuit and sensor.



7. Get off the temperature sensor circuit connector of the torque convertor.

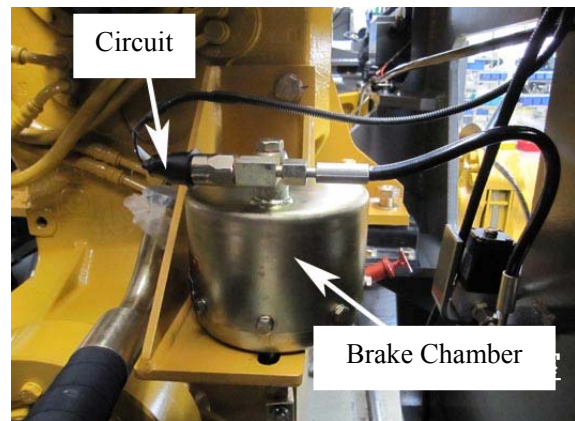


8. Get off the speed sensor circuit connector, disconnect the connection of circuit and speed sensor, remove the sensor.

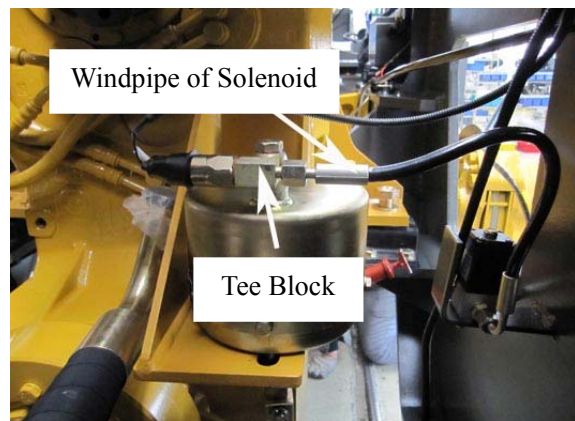


★ Pay attention to the protection of sensor joint.

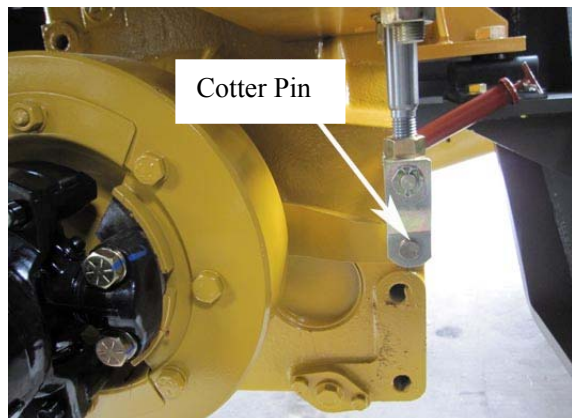
9. Turn down the Parking brake switch, disassemble the circuit connector of brake chamber and parking brake switch, disconnect the connection of circuit and brake switch.



10 Disassemble the connection bolts of the outlet tube of electromagnetic valve and the tee block of brake chamber, disconnect the connection of brake chamber and outlet tube of electromagnetic valve.



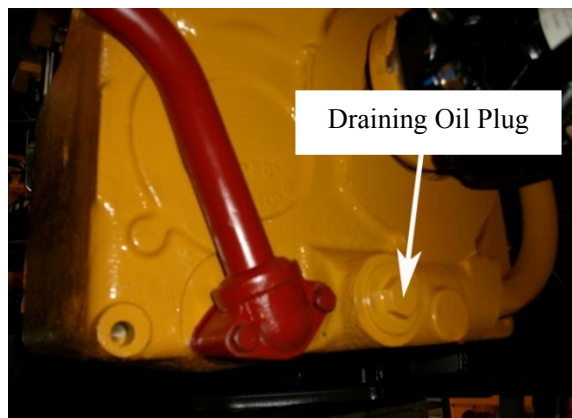
11. Disassemble the cotter pin of parking brake.



12. Disassemble the draining oil plug on the bottom of gearbox's left side, and drain the transmission oil.

Remark: 1) Get oil with clean vessel, and cover it to avoid falling sundries.

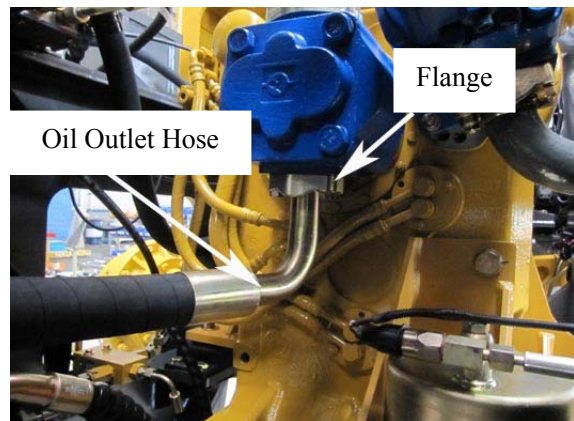
2) Pay attention to avoid oil splashing from gun.



13. Disassemble the connector nut of oil returning hose of the pilot valve, disconnect the connection of hose and duplex pump.

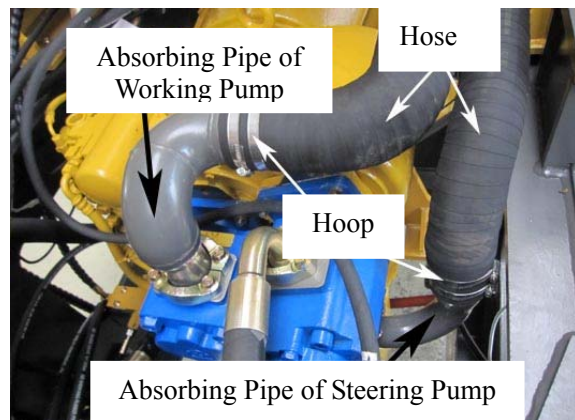


14. Disassemble the connection bolts of supply hose of working pump, get off fission flange, disconnect the connection of working pump and supply oil hose of working pump.

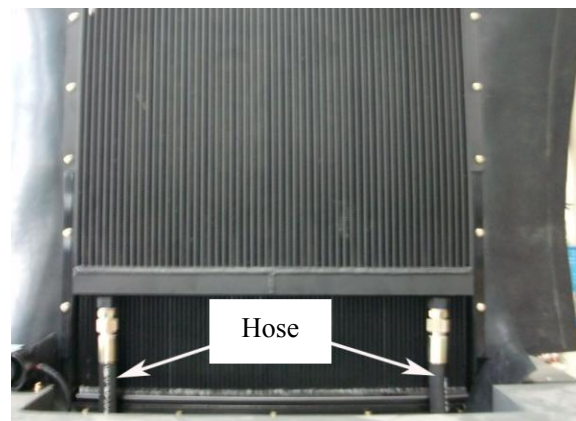


15. Disassemble the hoop of working pump hose, disconnect the connection of hose and absorbing iron pipe.

Disassemble the hoop of absorbing hose of steering pump, disconnect the connection of hose and absorbing iron pipe of steering pump.



16. Disassemble the hose connecting torque convertor and radiator, disconnect the connection of hose and radiator.

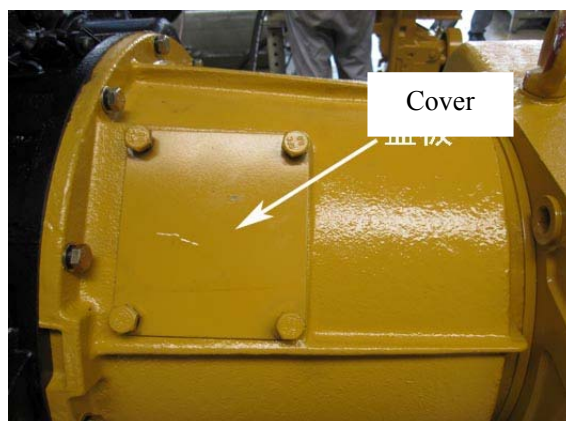


17. Disassemble the fixing bolt of gearbox's oil filling pipe, and remove the oil filling pipe of gearbox.

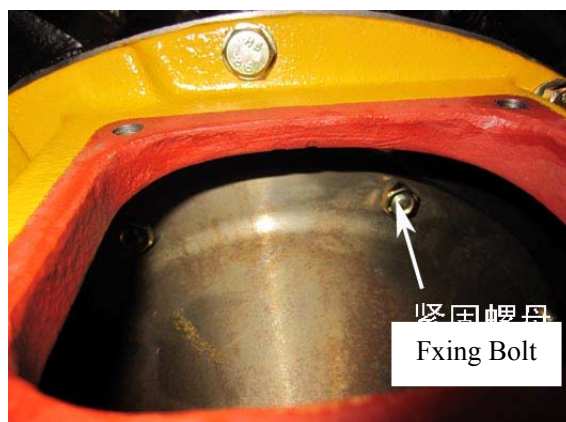
Loosen the supporter of engine a little, hang the duplex pump a little, placed block between the frame and engine to support the engine.



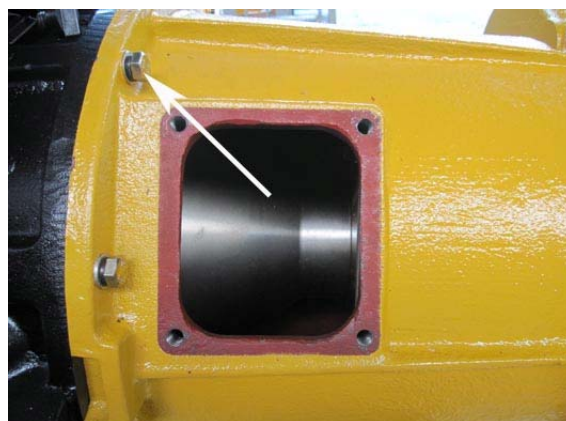
18. Disassemble the top cover of torque convertor.



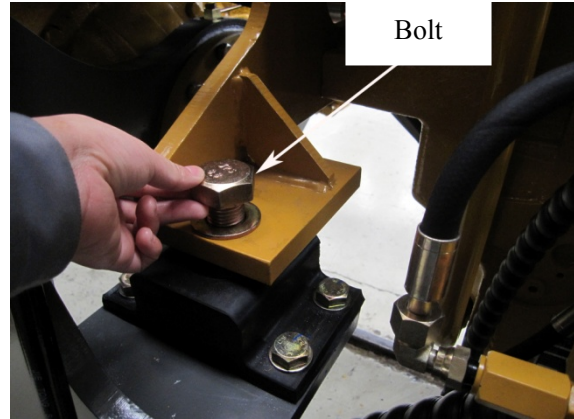
19. Disassemble the nuts connecting flywheel of engine and elastic plate of torque convertor from the viewpoint of torque convertor.



20. Disassemble the bolts connecting the shell of torque convertor and flywheel shell of the engine flywheel.



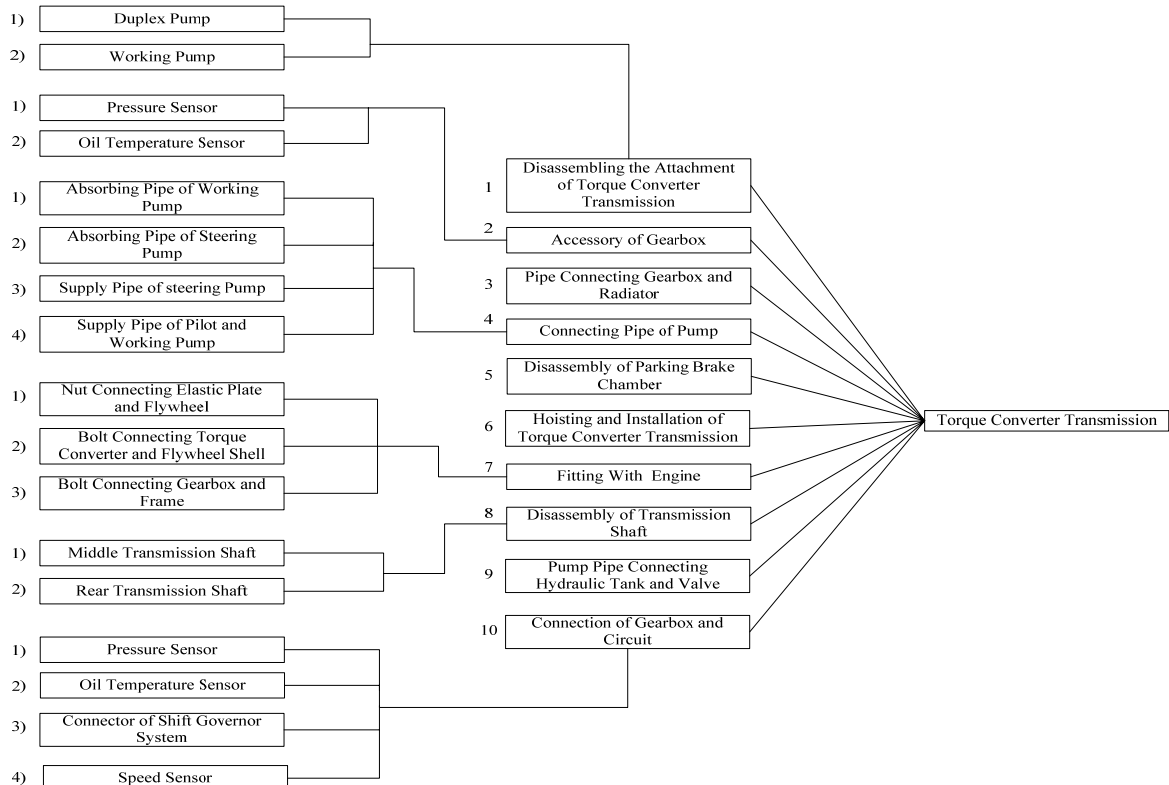
21. Disassemble the bolts fixing frame and the bracket of gearbox.



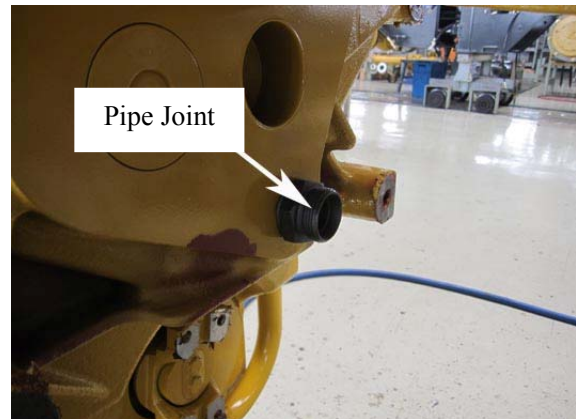
22. Hang the duplex slowly, disassemble the duplex from engine, and hang out the duplex.



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



1. Assemble the pipe joint on the gearbox.



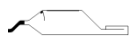
2. Assemble the hose connecting gearbox and radiator to the gearbox with pipe joint.



3. Assemble the oil temperature sensor accessory.

1) Clear up the oil in the threaded hole of oil temperature sensor on the torque convertor with glabrous paper towel, then spray KESAIXIN 1755 high efficient cleaner one cycle around threaded hole, coat KESAIXIN 1545 oxygen-weary pipe screw sealant on the oil temperature sensor of torque convertor, Coating technology as the following steps:(1) 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 on the edge of threaded hole and external thread. (2) The coated part should be tightened with hand wrench but not impact wrench. Screw it on the corresponding position torque convertor, as is shown in the right figure.





1545 sealant.

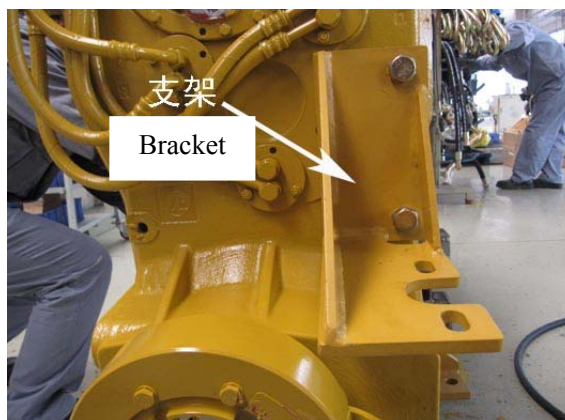
2) Tighten the oil temperature sensor of torque converter to corresponding position of duplex-transmission.



3) Assemble the brake chamber bracket to the corresponding position of duplex-transmission assembly, using the bolts of M20*40.



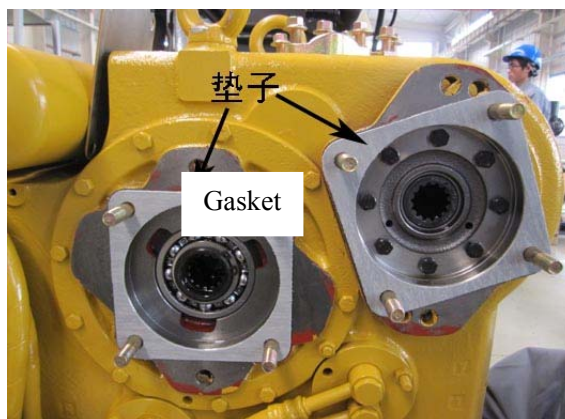
Tightening torque :78~104 Nm.



4. Fix the bolts of brake chamber to the bracket of brake chamber.

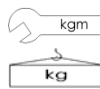


5. Assemble the seal gasket on the pump.



6. Assemble the duplex-pump.

Assemble the duplex-pump, fix it with nuts and gasket.



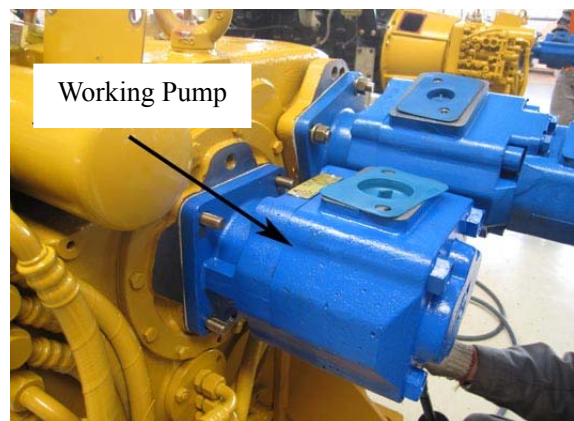
Tightening torque : 78~104 Nm.

Duplex-pump



7. Working pump.

Fix woking pump with nuts、 gasket.



8. Assemble the inlet and outlet iron pipe of pilot valve to the corresponding pipe joint of pilot pump.



Tightening torque : 30~40Nm.

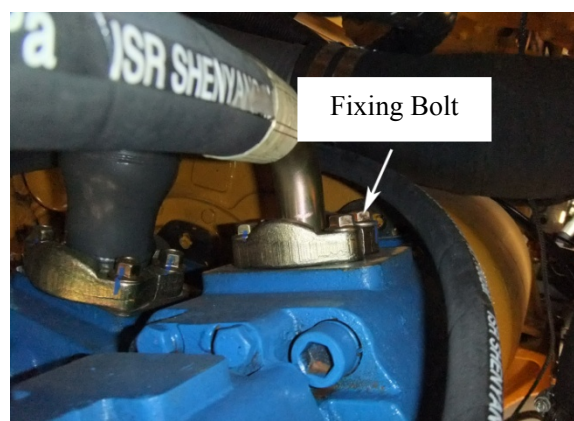


9. Fix O shape ring on the outlet pipe end of the steering pump. Then Fix it on outlet pipe of duplex pump with bolts of M10×30 and fission flange.

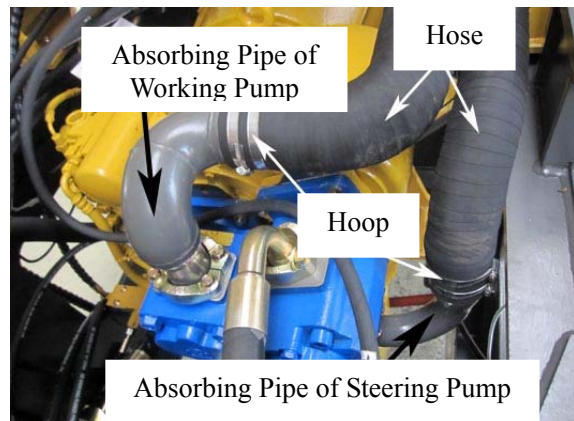


Tightening torque:45~59Nm

Tightening the bolts following the priciple of crossing symmetry.



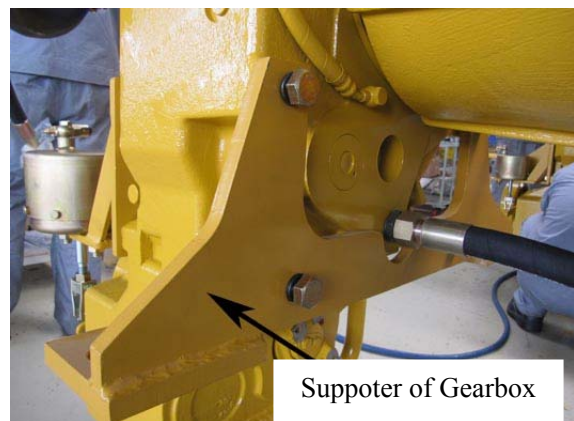
10. Assemble the O shape ring to the absorbing iron pipe of working pump, connect the pipe to working pump with bolts、fission flange, then connect absorbing iron pipe and hose of working pump using hoop; connect steering pump with its supply iron pipe using bolts、fission flange、O shape ring, connect the hose with supply iron pipe by hoop.



11. Put gearbox supporter on the corresponding position of gearbox, Fix it with four bolts of M20*50.



Tightening torque : 78~104Nm



12. Hang the connected duplex-transmission assembly, put them on the corresponding position of frame slowly, assemble them with engine. Disassemble top cover of torque convertor, pay attention to assembly of stud bolt and elastic plate of engine flywheel. Connect the duplex-transmission assembly and engine by bolts.



★Remark: 1) avoid bump、scratch;

2) Assemble seal gasket on the junction surface between engine and duplex-transmission.



Duplex-transmission assembly

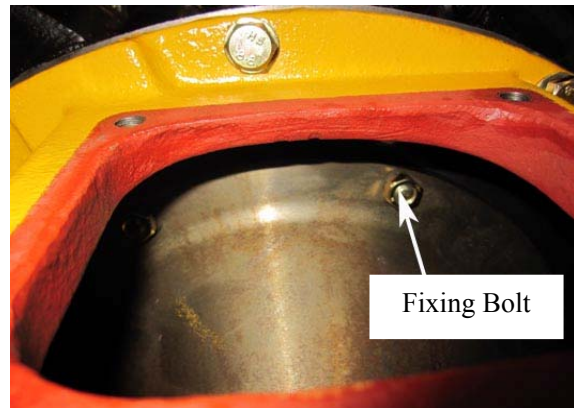


13. Fix the nuts and gasket on the stud bolts, assemble the flywheel of engine and elastic plate of torque convertor together, Screw the nuts tightly.



Tightening torque: 45~59Nm

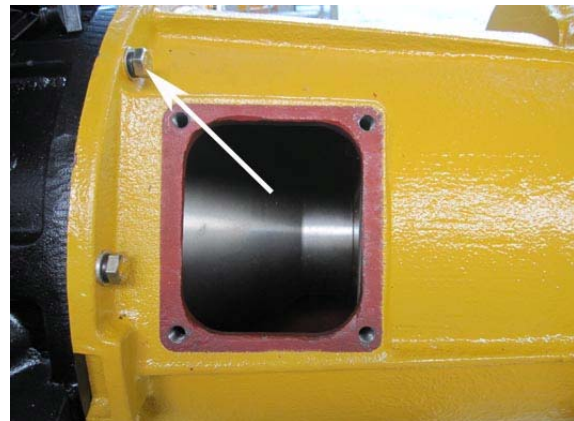
Install nuts by rotating torque convertor.



14. Screw the bolts connecting duplex-transmission and flywheel of engine.



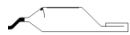
Tightening torque: 78~104Nm



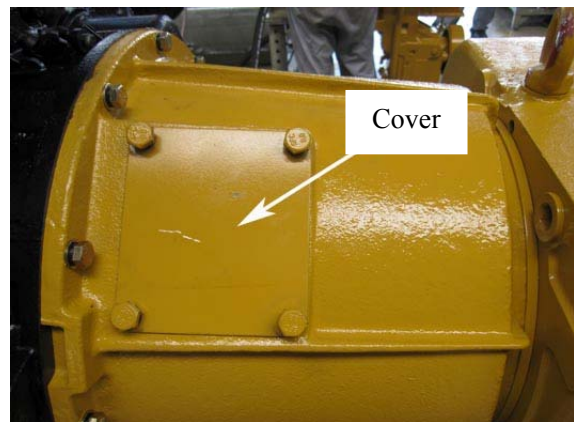
15. After checking, reassemble the viewport cover on the top of torque convertor and tighten it.

Remark: 1) Screw the bolts by the method of circular group. When connecting elastic plate, avoid falling sundries falling in torque convertor;

2) Coat sealant around the viewport.

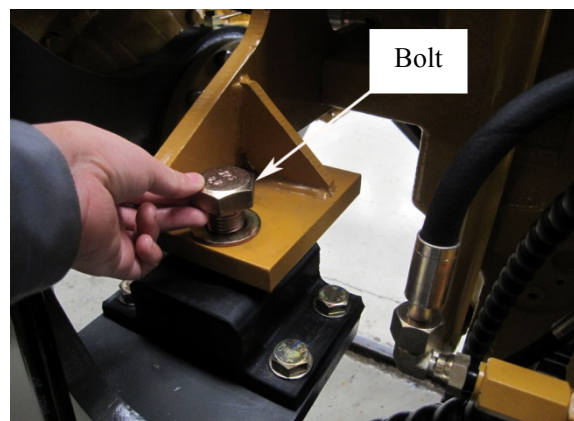


609 sealant



16. Hoist the duplex-transmission a little, remove the block supporting engine, put the duplex-transmission down.

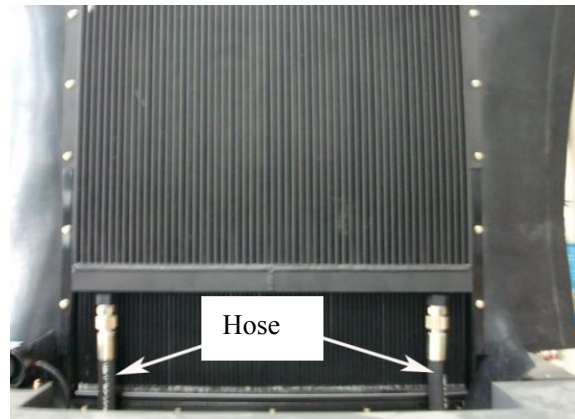
17. Put gasket between the gearbox and shock absorber, fix them by bolts, screw the connection bolts of engine and frame.





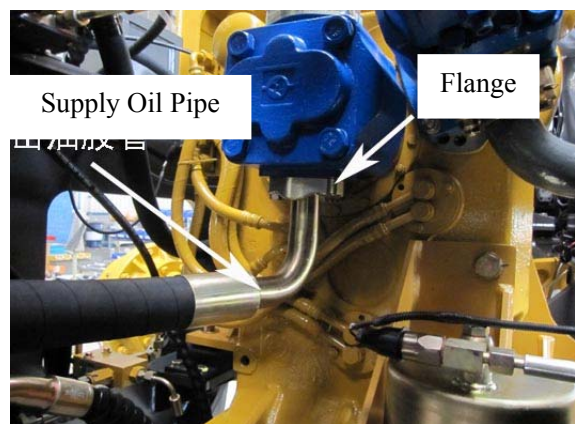
Tightening torque :gearbox 480~580Nm

18.Assemble the gearbox to the pipe of radiator.

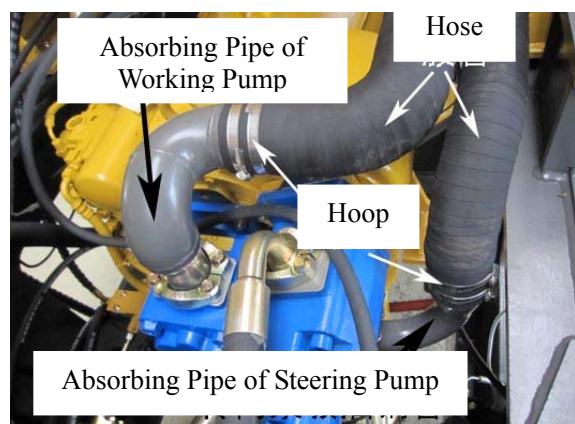


19.Fix the supply oil iron pipe of working pump to the corresponding position of working pump.

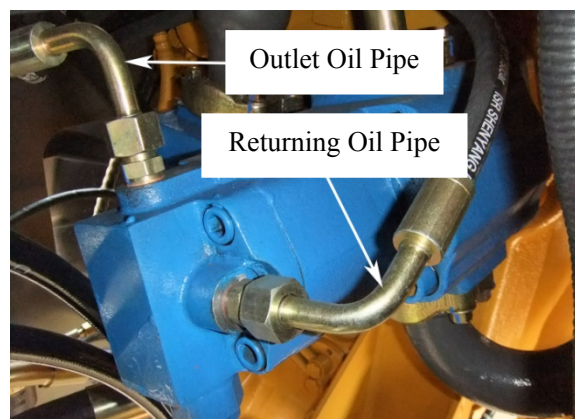
★Screw the bolts by the principle of crossing symmetry.



20.Coat hydraulic oil properly to connector interior of the hydraulic tank, which connecting absorbing hose steering pump and working pump.Assemble them to outlet port of hydraulic tank, fix them by hoop.



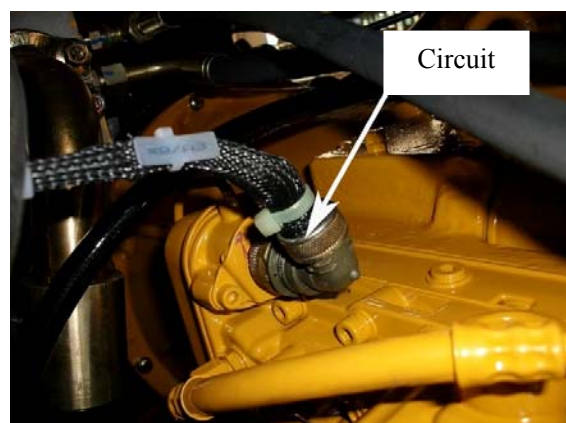
21.Assemble the inlet and outlet oil pipe on the pilot valve to the corresponding position.



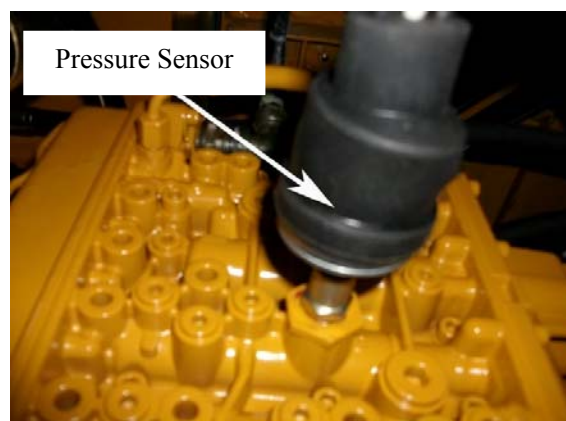
22. Assemble the oil filling pipe of gearbox.



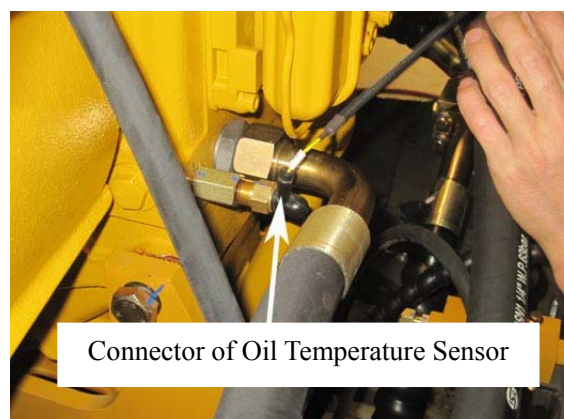
23. Plug the circuit connector of shift governor system to the corresponding position of gearbox, disconnect the connection of gearbox and cab wires.



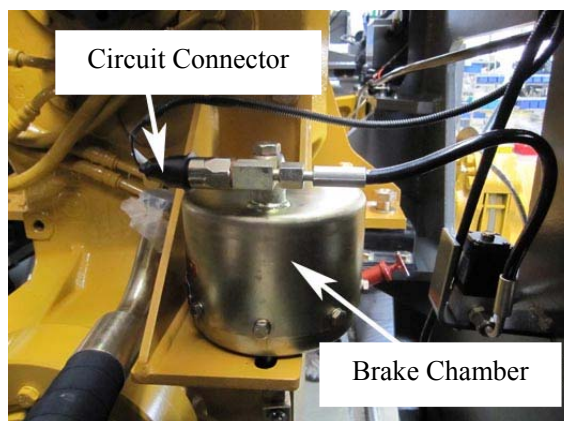
24. Connect circuit plug of gearbox pressure sensor to the circuit of rear frame.



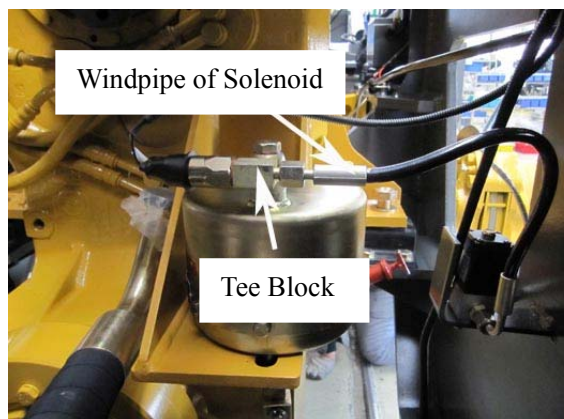
25. Plug the connector of oil temperature sensor to rear frame circuit.



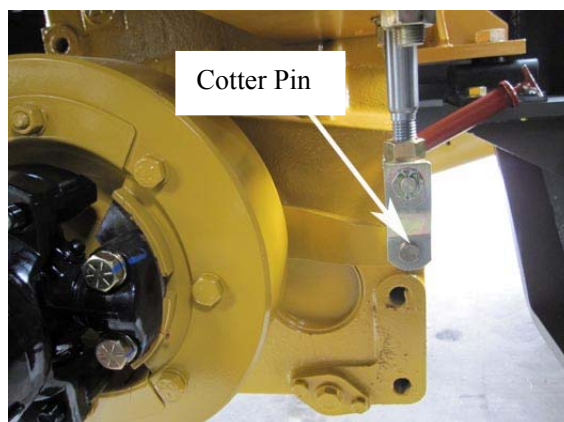
26. Connect the circuit connectors of parking brake chamber and stopping brake switch.



27. Connect the outlet gas pipe of solenoid valve to tee block of brake chamber.



28. Connect cotter pin of parking brake.

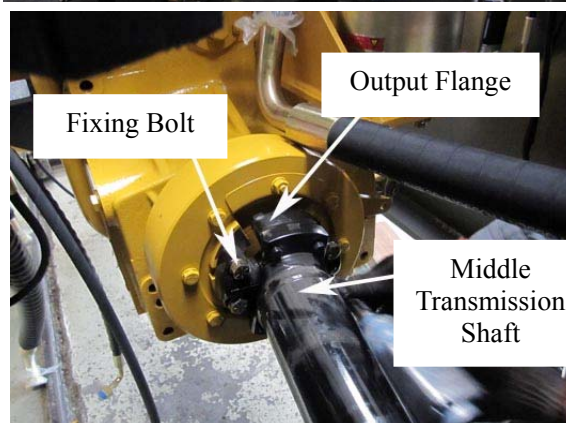


29. Install hydraulic oil tank.

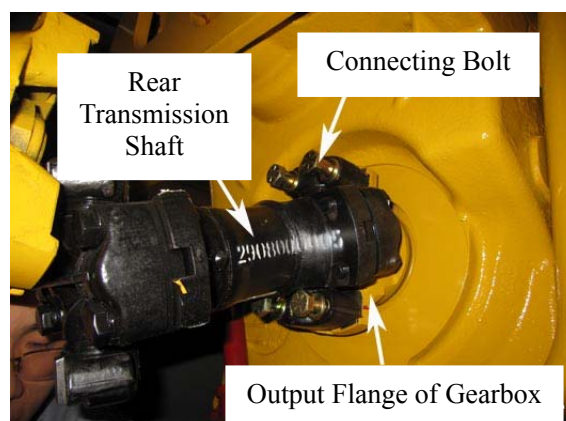
Refer to “Assembly of hydraulic tank”.



30. Assemble the middle transmission shaft to output flange of gearbox. Screw the connecting bolts



31. Assemble rear transmission shaft to the output flange of gearbox. Screw the connection bolt.



32. Assemble the cab.

Refer to “Assembly of Cab”



33. Add hydraulic transmission oil.

Add hydraulic transmission oil (38-40L)

Control the oil level: Add the oil until the level reach upper level of dipstick.

4.2 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 braking location.

1. Disassemble the front transmission shafts.

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

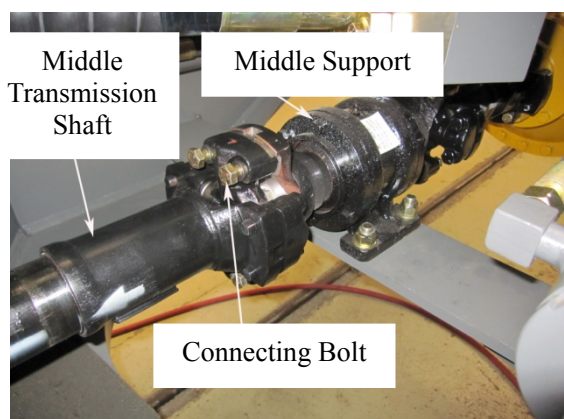
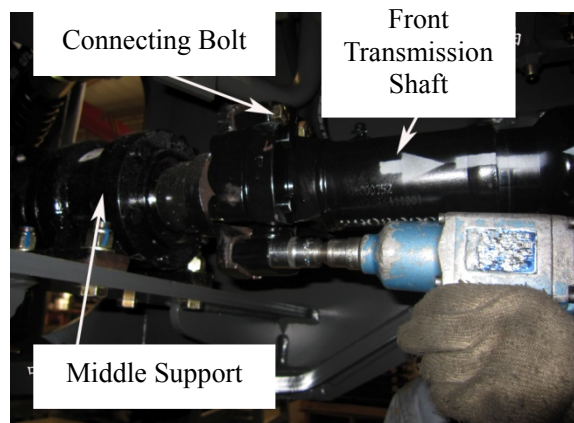
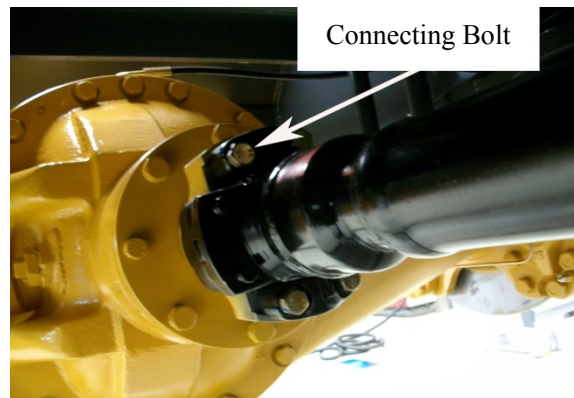
★Remark: Do not get off the bolts when loosen them and do that after the disassembly is complete.

1.2 Get off the bolts of the front transmission shaft and the middle support. Get off the front transmission shaft.

2. Disassemble the middle transmission shaft.

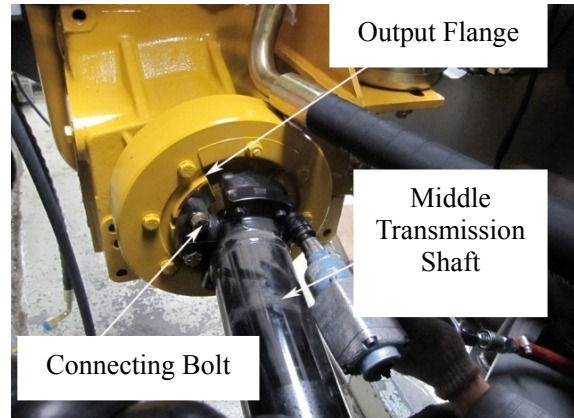
2.1 Loosen the connection bolts of the middle transmission shaft and the middle axle.

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



2.2 Disassemble the connection bolt of middle transmission shaft and front output flange of gearbox.

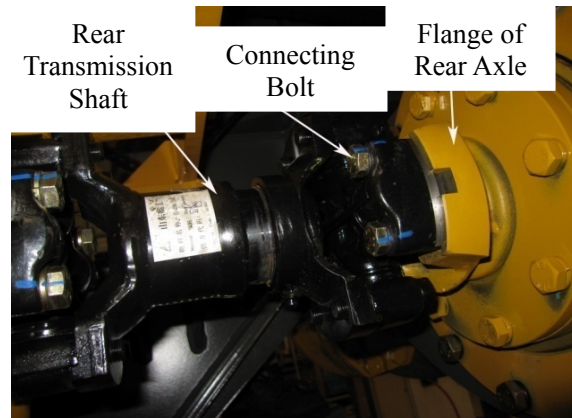
Remove the connection bolt of middle transmission shaft and middle support, front output flange of gearbox, get off middle transmission shaft.



3. Disassemble the rear transmission shaft.

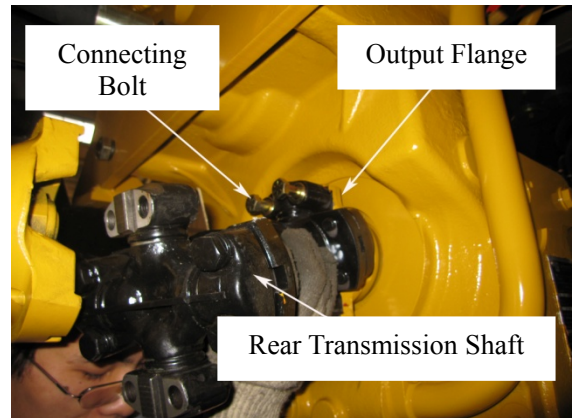
3.1 Loosen the connection bolts and nuts of the rear transmission shaft and the flange of the rear axle.

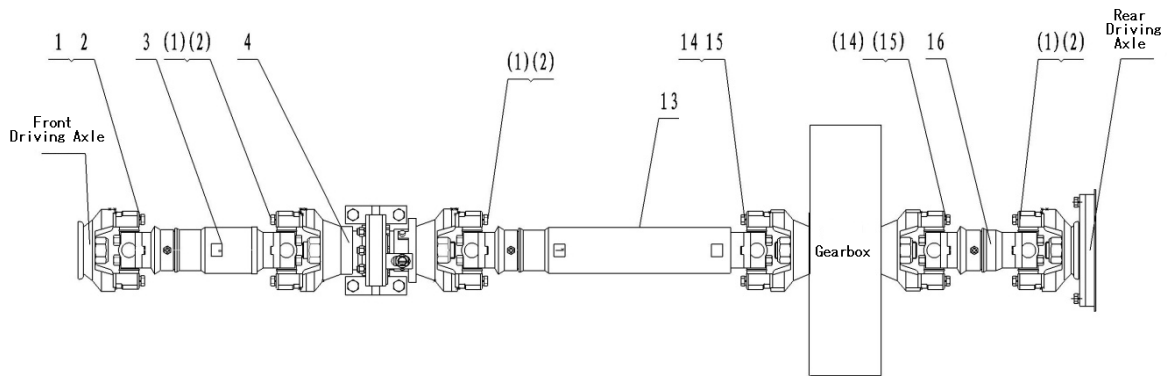
★ **Notice:** When disassemble the bolts, loosen them first and get them off after both sides of it have been disassembled.



3.2 Disassemble the connection bolt of rear transmission shaft and rear output flange of gearbox.

Remove the connection bolt of rear transmission shaft and output flange of rear axle, rear output flange of gearbox, get off rear transmission shaft.





II Assembly of the transmission shaft

Connect rear transmission shaft (Part 16) and rear output flange of gearbox, using four bolts LG05-LS1/2"-20UNF (Part 14) and four gasket LG05-DQ1/2" (Part 15). Connect rear transmission shaft and rear axle flange, using four bolts (Part 1), GB5785-M12*1.25*50EpZn-8.8, and four gaskets (Part 2), GB93-12-65Mn. Connect middle transmission shaft and output flange of gearbox, using four bolts (Part 14), LG05-LS1/2"-20UNF, and four gaskets (Part 15), LG05-DQ1/2. Connect middle transmission shaft (Part 13) and middle support (Part 4), using four bolts (Part 1), GB5785-M12*1.25*50EpZn-8.8, and four gaskets (Part 2), GB93-12-65Mn. Connect front transmission shaft (Part 3) and middle support (Part 4), using four bolts (Part 1), GB5785-M12*1.25*50EpZn-8.8, and four gaskets (Part 2), GB93-12-65Mn.

Connect front transmission shaft (Part 3) and front axle flange, using four bolts, GB5785-M12*1.25*50EpZn-8.8, and four gaskets (Part 2), GB93-12-65Mn.

 kgm Tightening torque of bolts: 90 ± 15 Nm

Replacement of transmission shaft is completed.

4.3 Disassembly and Assembly of Front Axle.

In the chapter, how to change the transmission shaft 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.

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

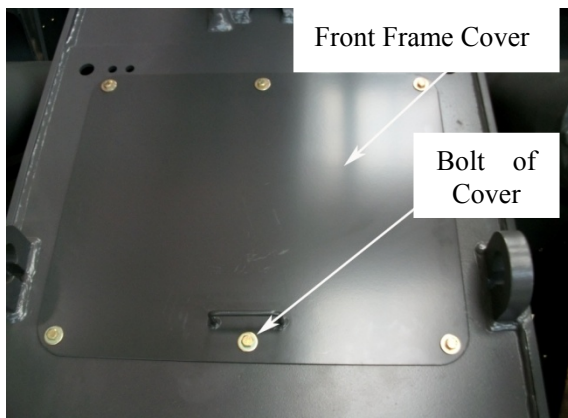
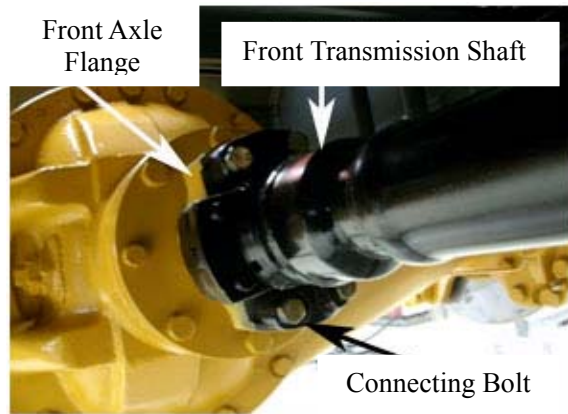
Put support frame under the front frame to support the front frame. Let the engine to be flameout.

2. Get off the front frame cover.

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.

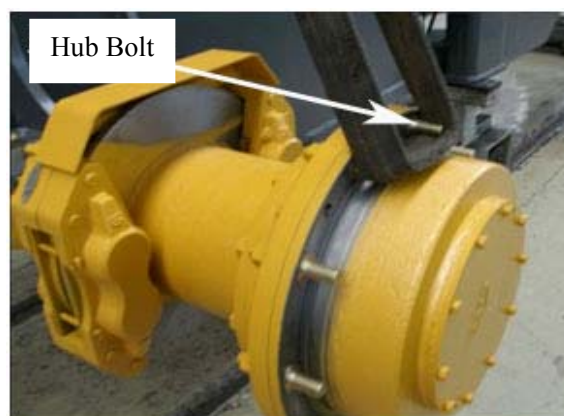
4. Loosen the connection bolts of front transmission and front axle.



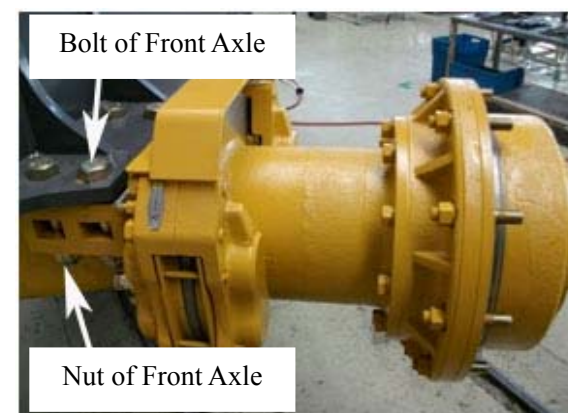
5. Get off the two wheels of the front axle.
As shown in “Disassembly of front wheel”.



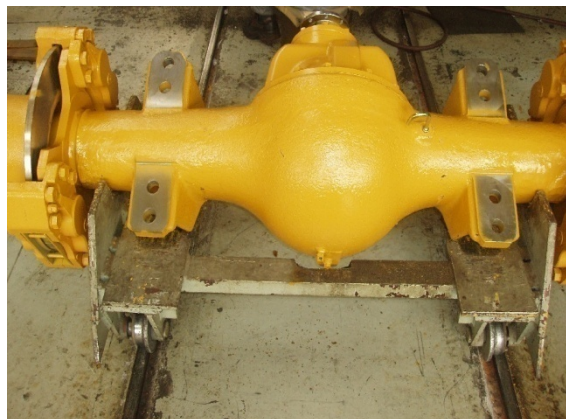
6. Hang the axle end hub bolts with hanging tool.



7. Loosen 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. Get off the axle oil hose of the axle brake clamp.

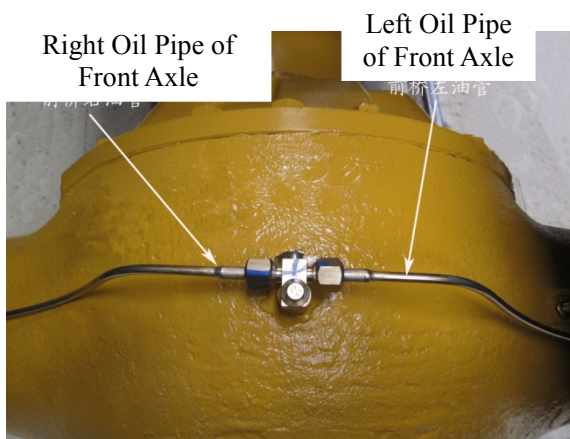
Remark: Pay attention to get the brake liquid with vessel under the axle. Protect the disassembled joint.



11. Get off the right and left oil pipe of axle.

II Disassembly of Front Axle

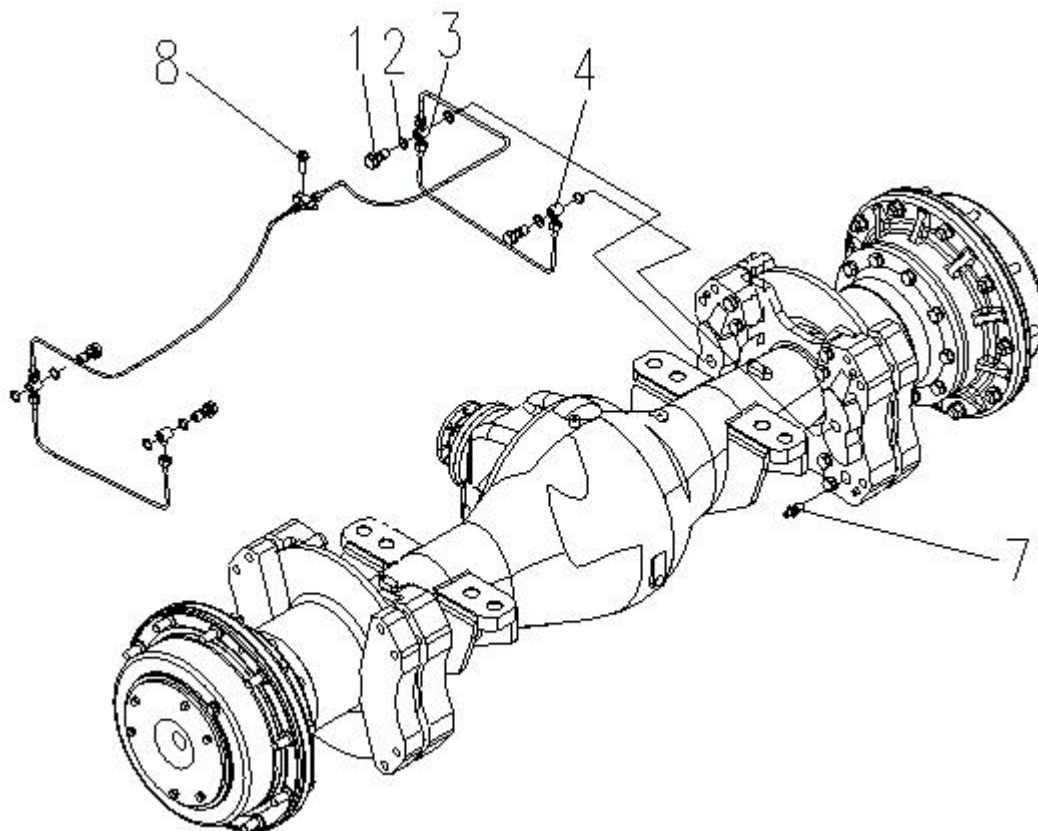
1. Right oil pipe of front axle: Put O shape ring (Part 2) in the O shape groove of brake T-joint (Part 3) and brake joint block (Part 4) ends separately, then Fix Part3 and Part 4 to brake clamp with brake union (Part 1), adjust the oil pipe of axle towards the vertical direction and screw the brake union (Part 1), Pay attention to the direction of oil pipe.



2. Connect the left oil pipe of axle to brake clamp by above method. Fix union tee on the front axle, using a bolt (Part 8), $M8 \times 25$.

Make sure to adjust union tee and the end connecting front booster pump forward.

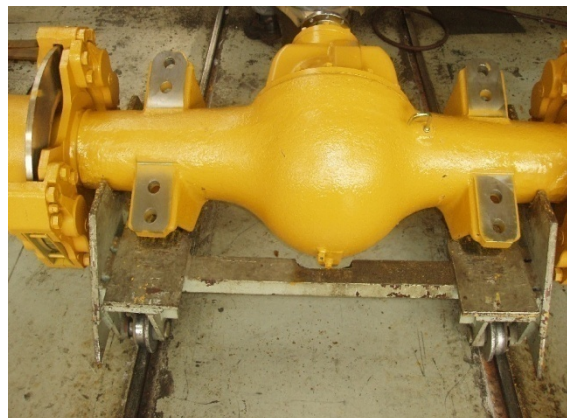
3. Assemble 8 deflating mouths (Part 7) to brake clamp, screw four bottom mouths tightly, Tighten four upper ones just until they are not falling.



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



Driving axle assembly



5. Hang up the front axle with hanging 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 hand.



Diving axle assembly



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



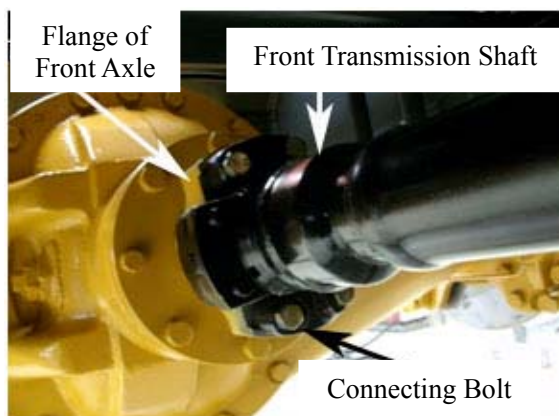
Tighten torque of M30: 730 ± 70 Nm



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



Tighten torque of M14: 145 ± 20 Nm



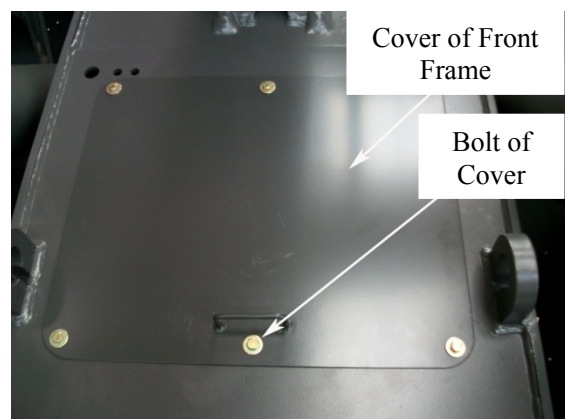
8. Install the front axle brake oil hose on the axle T-joint.



Tighten torque: 30~40 Nm



9. Install the front frame cover plate.



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 under 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

4.4 Disassembly and Assembly of Rear Axle

I Disassembly and Assemble of Rear Axle

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

1. Get off fuel tank first before removing the rear axle, As is shown “Disassemble of Fuel Tank”.

2. Get off the two wheels of the rear axle.

★As shown in “Disassembly of rear wheel”.



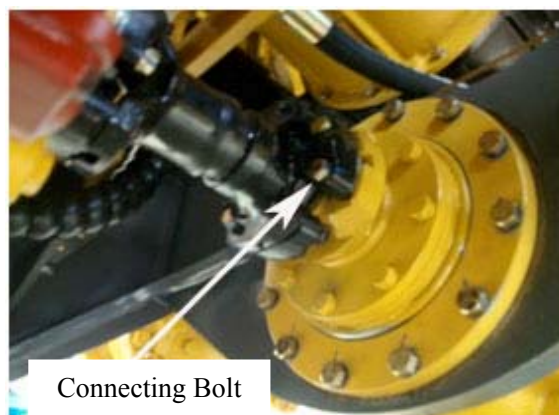
The support method is the same as the one of front wheels.

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.



4. Loosen the connection bolts and nuts of rear transmission and rear axle.



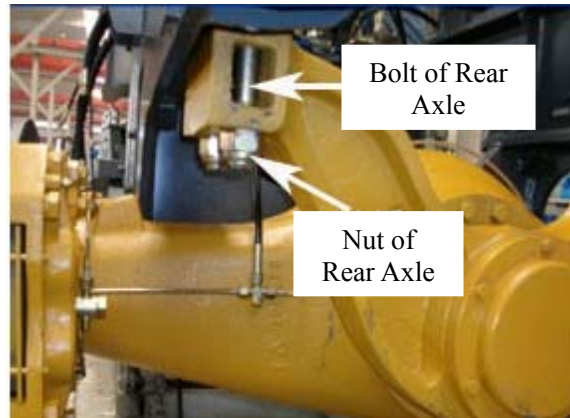
5. Disassemble fixing bolts of rear axle oil pipe to remove oil pipe of rear axle.



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



7. Loosen the bolts and nuts of rear axle supporter and rear frame.



8. Operate crane, keep rear driving axle horizontal, hit rear driving axle out with copper rod, and rear driving axle should be hit out symmetrically. When rear driving axle is going to be hit out completely, people under loader should leave, then rock rear driving axle lightly, horizontally get rear driving axle out from the loop of rear frame backward horizontally, put rear axle on prepared dolly slowly.



 Driving axle assembly

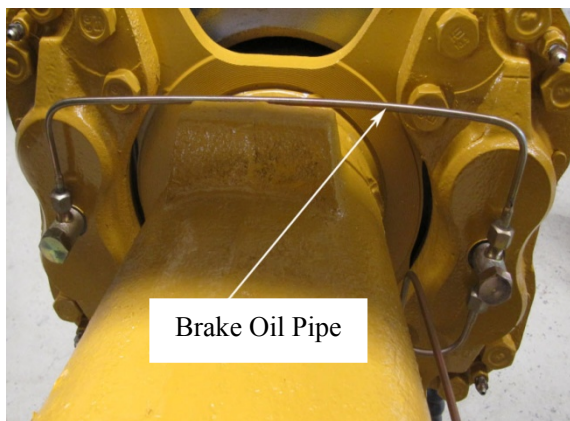
9. Get off the deflating mouth of the axle.

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

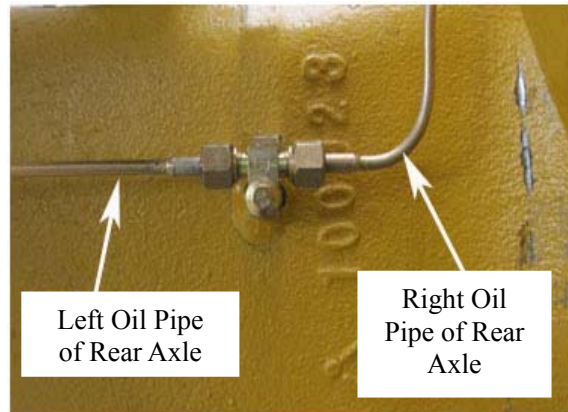


10. Get off the brake oil hose of the axle brake clamp.

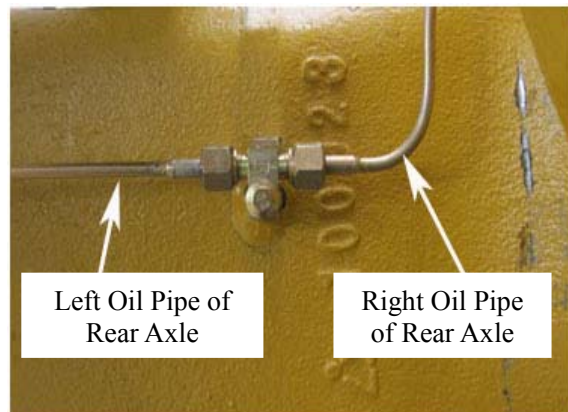
★ Remark: Pay attention to get the brake liquid with vessel under the axle. Protect the disassembled joint.



11. Disassemble right and left oil pipe of rear axle.

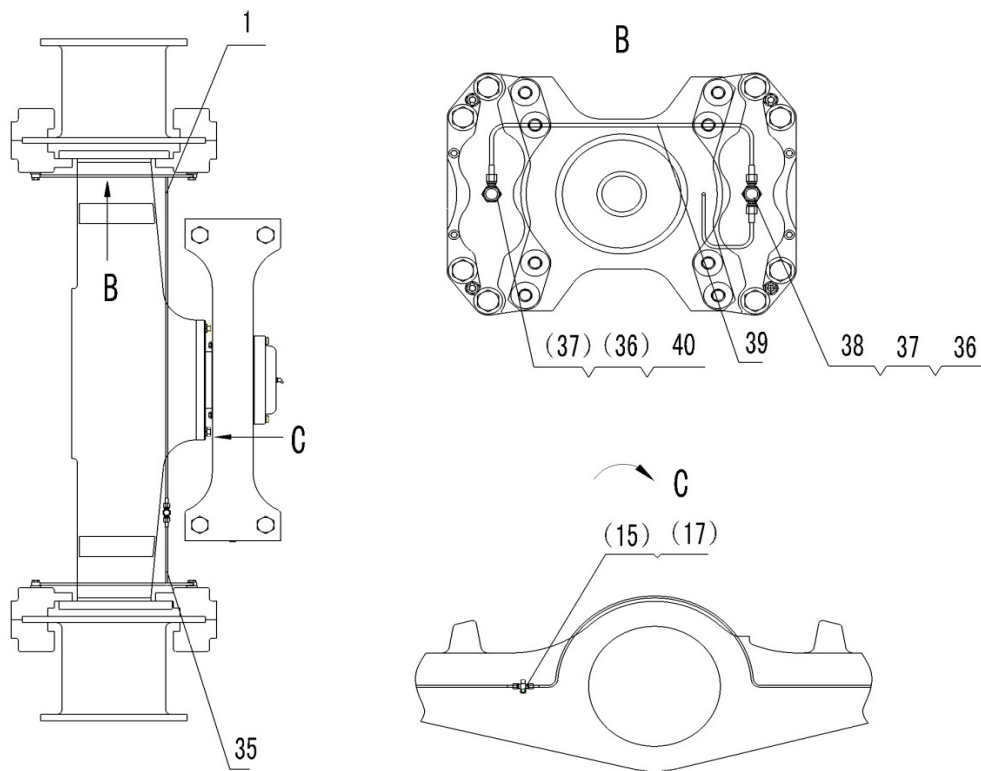


12. Disassemble the oil pipe of rear axle support.



II Assembly of Rear Axle

1. Screw the left and right oil pipe (Part 35、Part1) of rear axle on the port of tee joint, fix tee joint on the block of rear axle shell with bolts (Part 15), M8×25.
2. Connect the right、left oil pipe to brake clamp of rear axle, using brake union (Part 36)、brake tee block (Part 38)、O shape ring (Part 37).
3. Connect one end of oil pipe (Part 39) to brake tee block, connect another end to brake clamp, using brake union (Part 36)、O shape ring (Part 37)、brake joint block (Part 40).
4. Put deflating mouth on the brake clamp, tighten four lower deflating mouths. And the higher four should not be tightened but make sure they won't fall down.



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



Driving axle assembly



6. Hang up the rear axle with hanging tool. Adjust the left and right position of the axle. Position the flange of rear axle to the middle hole of rear frame plate. Put it inside the middle hole, after positioning align assembling hole of rear axle and the support of rear axle. Tighten the bolts and nuts by hands.



Diving axle assembly



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



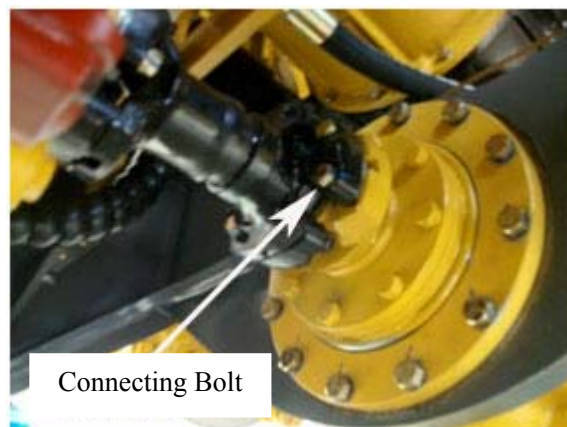
Tightening torque of M30: 730 ± 70 Nm



8. Assemble the bolts of rear transmission shaft and rear axle.



Tightening torque: 90 ± 15 Nm



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



Tightening torque: 30~40 Nm



10. Install the rear wheel tires. As shown in “Assembly of tire”.



11. Add fuel tank, as is shown “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.



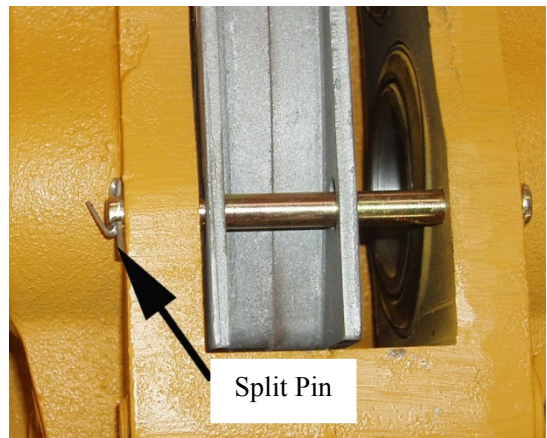
 Tightening torque: 25~35 Nm

Rear axle is replaced completely.

4.4.1 Disassembly and Assembly of Brake Clamp Assembly

I Disassembly of Brake Clamp Assembly

1. Get off the fixed split pin connecting friction plate with pin shaft.



2. Get off the pin shaft.



3. Get off the brake plate.



4. Get off the bolts and washers of the internal 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. Get off 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 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 clamp planely and put the internal on the external.



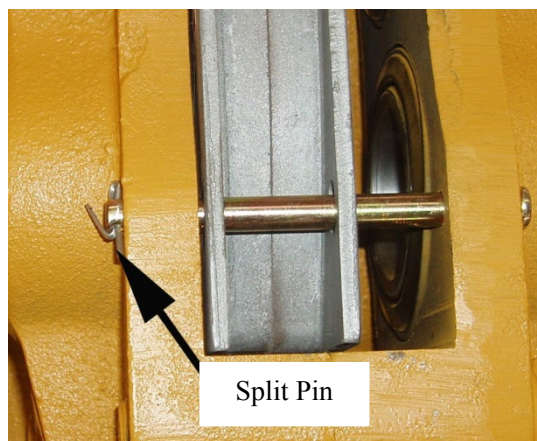
9. Install the connection bolts of internal and external clamps.



10. Install the friction plate.



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



4.5 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 complete appliance and stop it to the proper position. Operate the boom lever to lift boom, Leave the bucket 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 pad 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 face.



Wheel Assembly



2. Tighten the hub nuts by hands previously.



3. Tighten the hub bolts by impact wrench or socket wrench.



Tightening torque if M20: $530 \pm 50 \text{ Nm}$



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 spreader.



Wheels is replaced completely.

4.5.1 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, using jimmy.



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

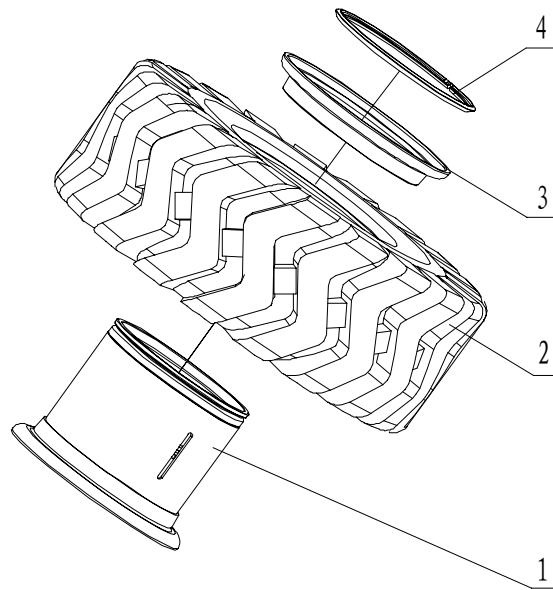
★ Remark: Coat talc on the inside of pad rubber before installing the hub. Make sure the air tap be in middle.



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

4. Buckle the external flange (Part 3).

5. Buckle the locking ring (Part 4).



6. Inflate the wheel.

Inflation: Front wheel: 0.333~0.353 MPa

Rear wheel: 0.275~0.294 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.

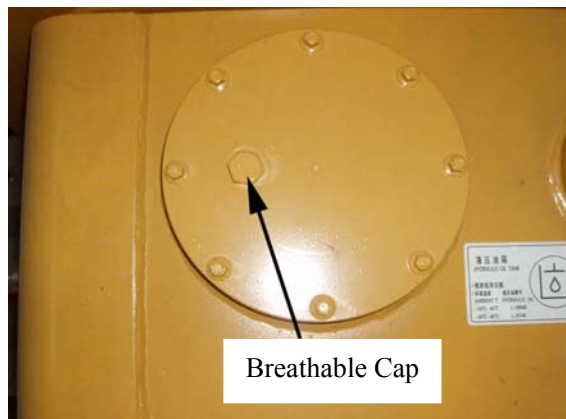
Turn the power switch to the “ON” position. Push the control handle of the pilot valve to the right side gently. Make the bucket to be forward by the deadweight to drain the oil in rotating cylinder.

After the bucket rotating moving to the position, push forward the handle gently. Make the boom fall slowly 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 breathable cap of the hydraulic oil tank.



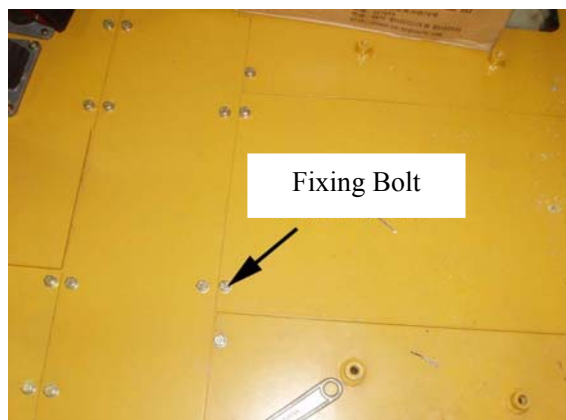
2. Put vessel under the rotating pump which needs to be changed.



3. Disassemble the seat and bracket (refer to the “Disassembly and assembly of the seat”)

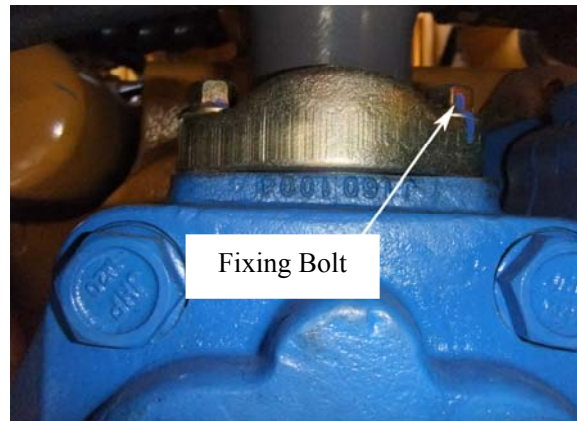


4. Loosen the bolts on the maintaining hood of the cab bench and get off the cover.



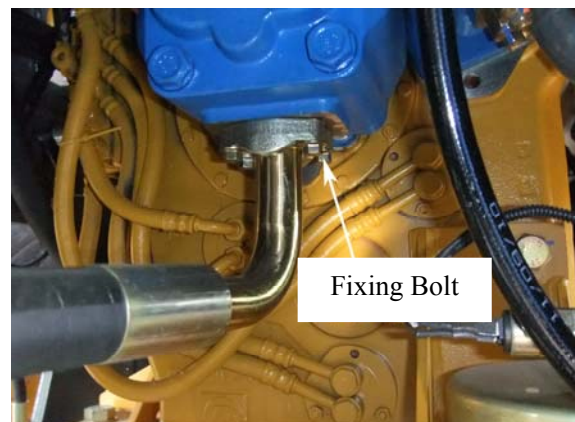
5. Loosen the fixing bolts of absorbing iron pipe and inlet oil port of working pump, then remove bolts, fission flange and O shape ring, get off iron pipe, and protect the ports in time.

★ Remark: In the process of disassembling, do not disassemble all fixing bolts of flange connecting the oil port completely, Loosen them off a little while the oil overflowing, avoid the oil bursting out because oil is drained uncompletely.

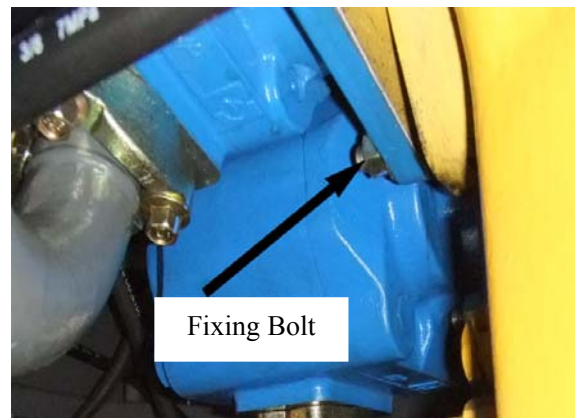


6. Loosen the fixing bolts of outlet oil iron pipe and outlet oil port of working pump, then remove bolts and O shape ring, get off iron pipe, and protect the ports in time.

★ Remark: In the process of disassembling, do not disassemble all fixing bolts completely, Loosen them off a little while the oil overflowing, avoid the oil bursting out because oil is drained uncompletely.



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



8. Pour oil in the vessel into special recycling drum for hydraulic oil.



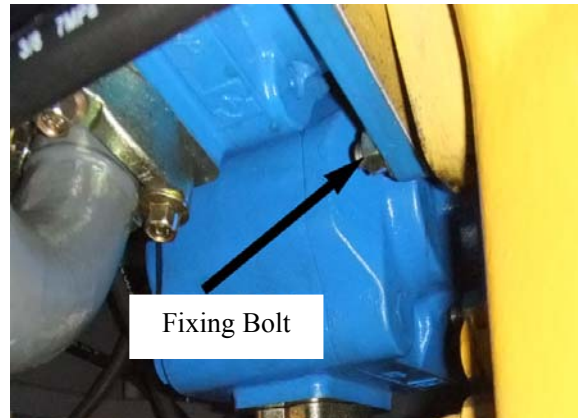
II Assembly of the Working Pump (Install the working pump, which has been changed or repaired, by the steps as followed)

1. Assemble working pump to the end of variable speed pump, using pump sealing washer, four bolts M12, washer 12.

★ Make sure to tighten stud bolts tightly



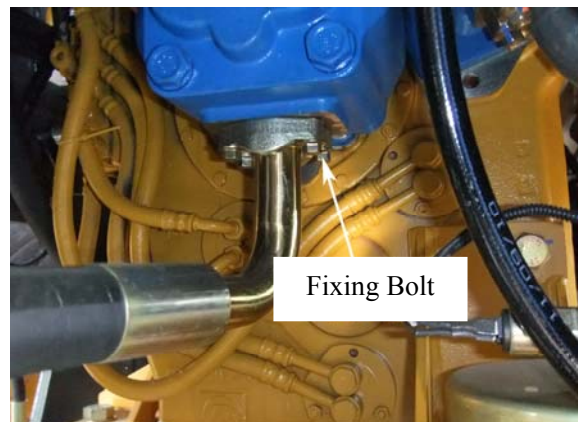
Tightening torque : 70~110Nm



2. Get off the guard of all ports, fix O shape ring into O shape groove of union, which connect to outlet iron pipe of working pump. Fix it to port end of working pump with four bolts M10×30.



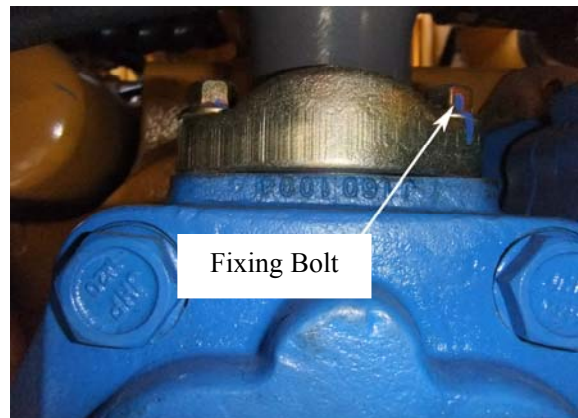
tightening torque : 42~62Nm



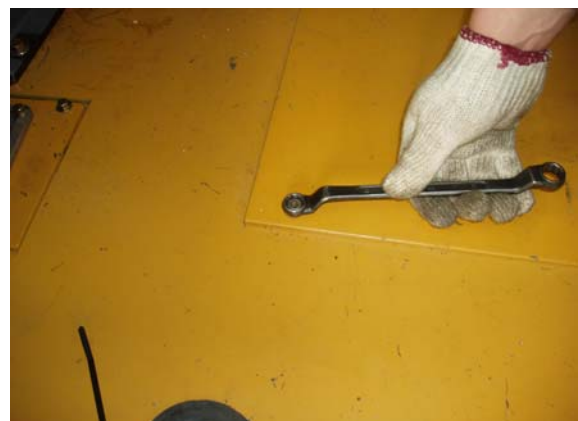
3. Get off the guard of all ports, fix O shape ring into O shape groove of union, which connect to iron absorbing pipe of working pump. Fix it to absorbing port end of working pump with four bolts M12×35 and fission flange.



tightening torque : 70~110Nm



4. Fix seat and maintaining hood assemble to the cab bench with bolts.



5.2 Disassembly and Assembly of Turning Pump

I Disassembly of the Turning Pump

(The steps of changing Turning pump as followed)

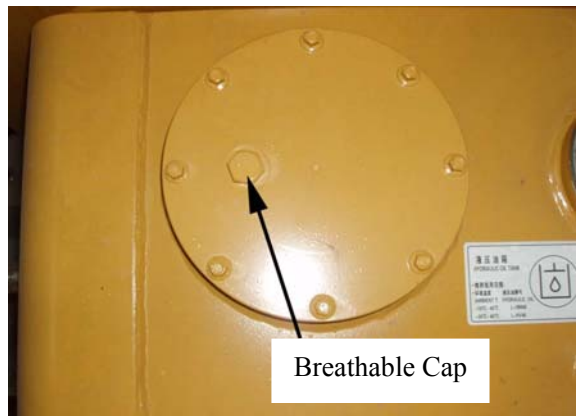
1. Draining oil

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 breathable cap of the hydraulic oil tank.



LG958L Complete Appliance Service Manual

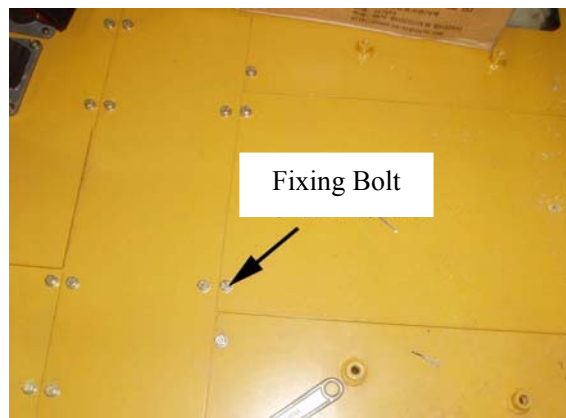
2. Put vessel under the turning pump which needs to be changed.



3. Disassemble the seat and bracket (refer to the “Disassembly and assembly of the seat”)

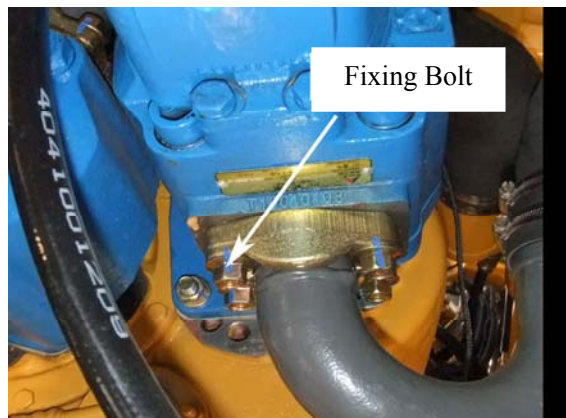


4. Loosen the bolts on the maintaining hood of the cab bench and get off the cover.



5. Loosen the fixing bolts of absorbing iron pipe and inlet oil port of steering pump, then remove bolts and O shape ring, get off iron pipe, and protect the ports in time.

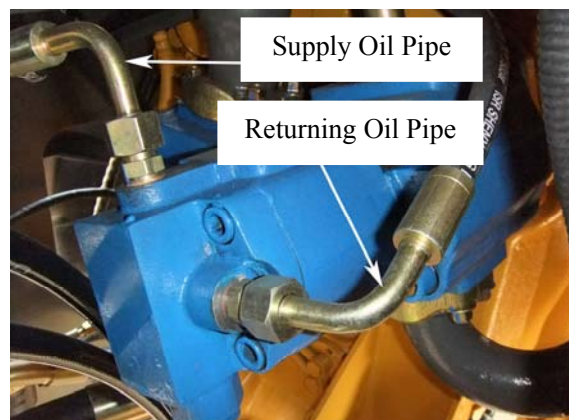
★ Remark: In the process of disassembling, do not disassemble all fixing bolts of the oil port completely, Loosen them off a little while the oil overflowing, avoid the oil bursting out because oil is drained uncompletely.



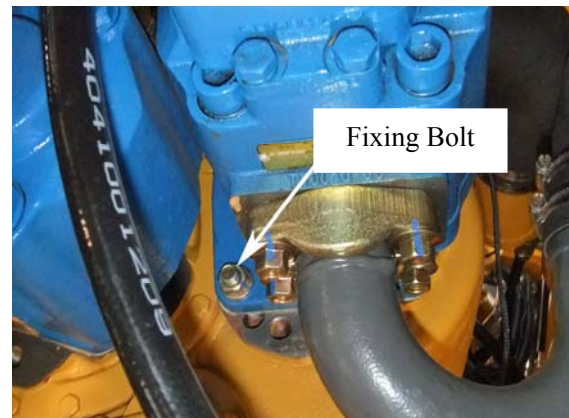
6. Loosen the fixing bolts of outlet oil hose and outlet oil port of steering pump, then remove bolts, fission flange and O shape ring, get off hose, and protect the ports in time.

★ Remark: In the process of disassembling, do not disassemble all fixing bolts of oil port completely, Loosen them off a little while the oil overflowing, avoid the oil bursting out because oil is drained uncompletely.

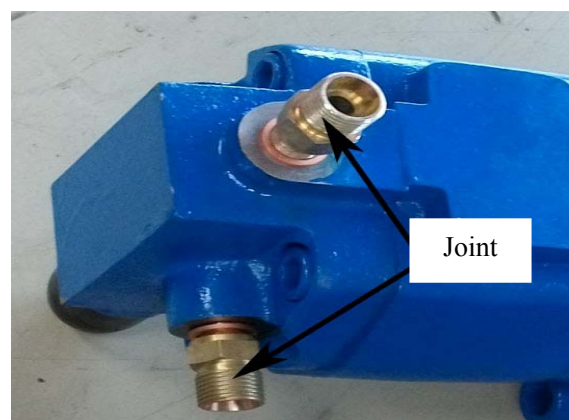
7. Disconnect the connection of pilot valve and the supply, returning oil pipe of pilot valve.



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



9. Remove two pipe joints on the pilot valve.



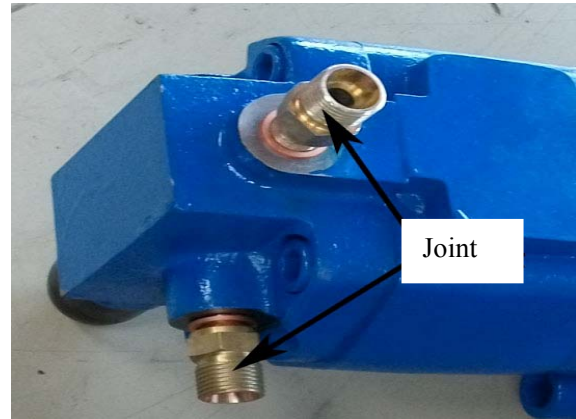
II Assembly of the Working Pump

(Changing working pump assembly as following steps).

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



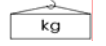
Tightening torque: 40.5~49.5 Nm



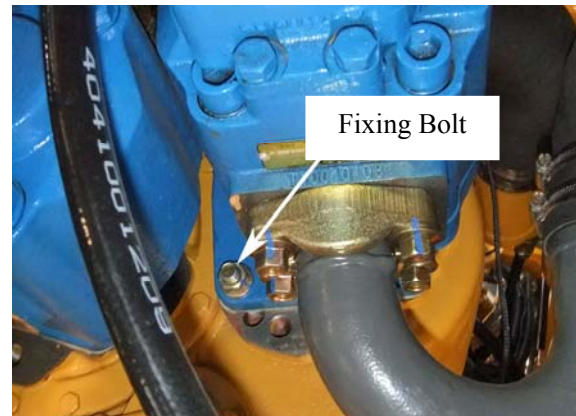
2. Tighten four M12×35 bolts of steering pump again. Lay pump sealing washer and Fix the duplex pump. Tighten them with four M12 bolts and four 12 washers.



Tightening torque: 78~104 Nm



Working Pump



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



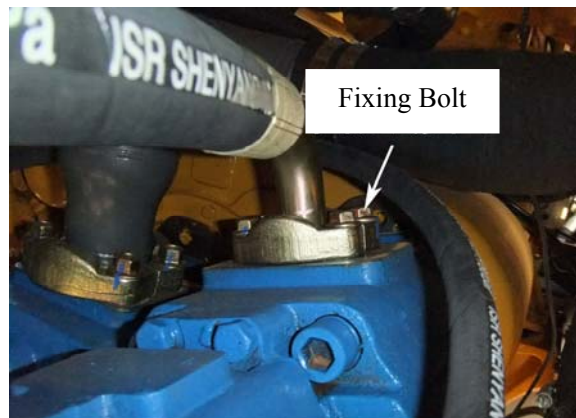
Tightening torque: 30~40 Nm



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.



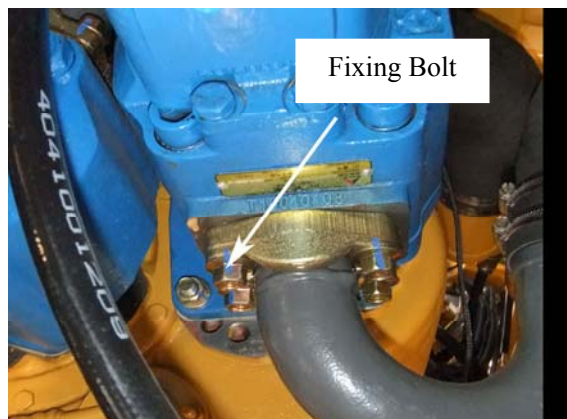
Tightening torque: 45~59 Nm



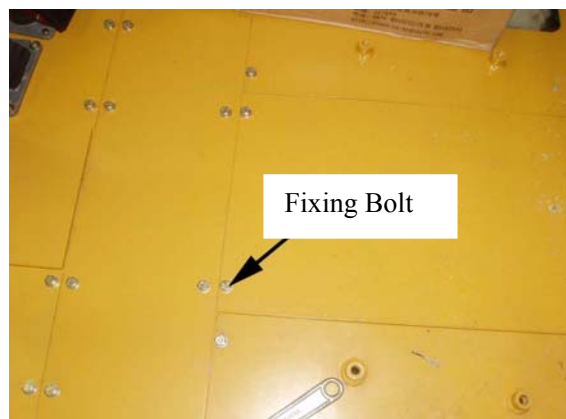
5. Fix O shape ring on the port of absorbing oil iron pipe on the duplex pump. Fix it on the absorbing port of working pump with four M12×35 bolts.



Tightening torque: 78~104 Nm



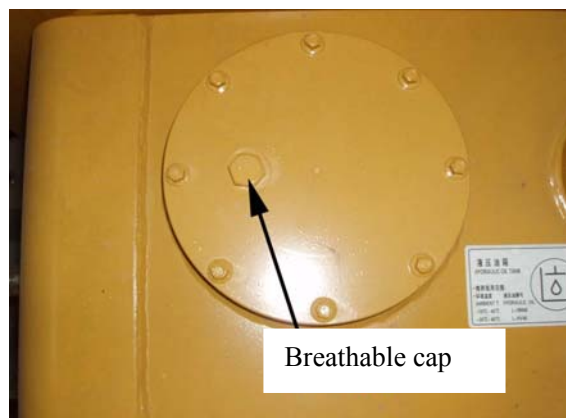
6. Fix the hood of maintaining the cab bench to the cab bench with bolts.



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



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



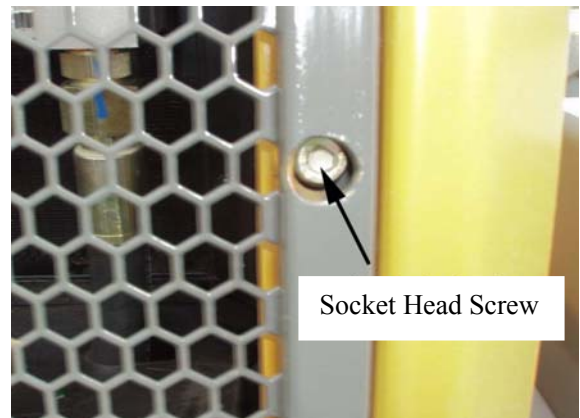
5.3 Disassembly and Assembly of Hydraulic Oil Tank

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

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 bolts of the rear window bar. Get off rear window bar.



4. Disassemble the fixing bolts of air filter, loosen tightening hoop and get the filter off.



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



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



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



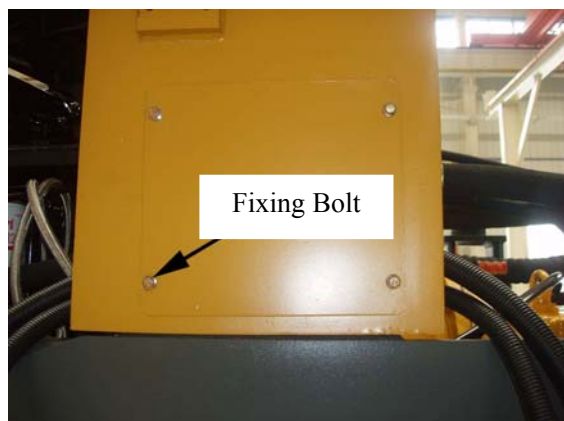
7. Loosen the fixing bolts of the left and right benches and Lift away them.



Left and Right Benches

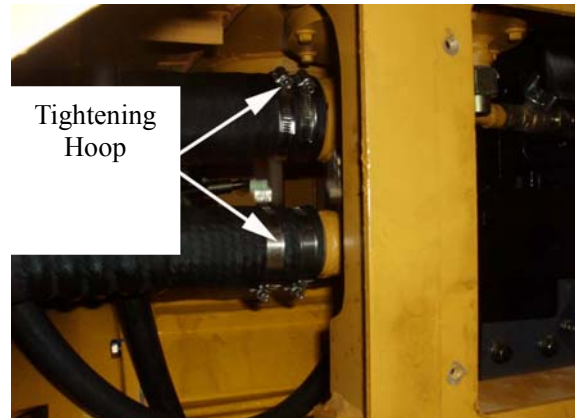


8. Loosen the fixing bolts of the left and right profile plates of the hydraulic oil tank and get off them.



9. 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 oil pipes on the returning port of the hydraulic oil tank and the oil tank.

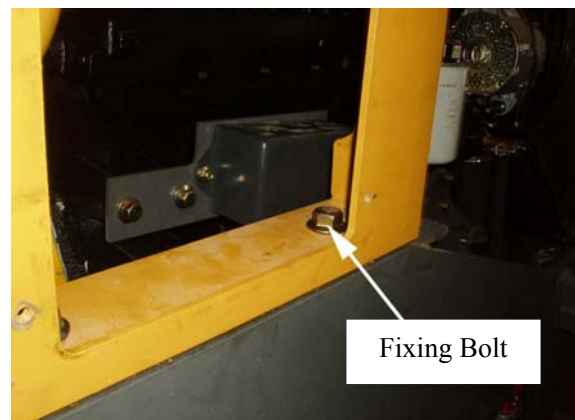
★ Protect the pipes and the port of them to avoid the dust and sundries entering the pipes.



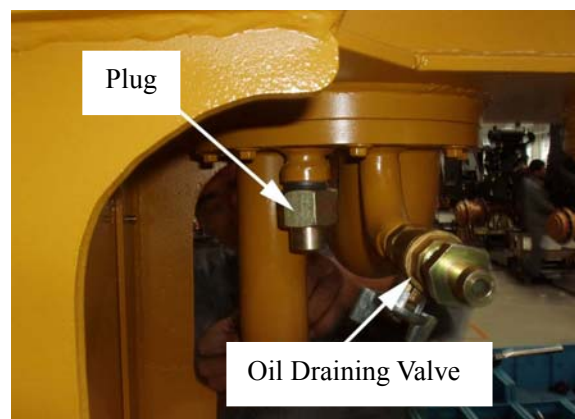
10. Lift the hydraulic oil tank with rope steadily and loosen the four tightening bolts of the tank. Lift away the tank. (In the process of lifting away the tank, disconnect the connection between the oil outlet pipe of hydraulic oil tank and the oil tank)



Hydraulic Oil Tank

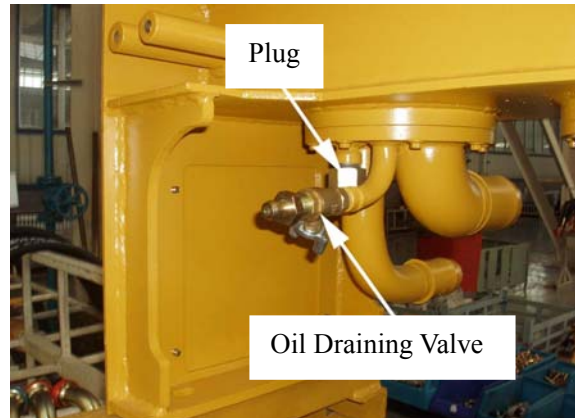


11. Loosen the oil draining valve and plug.



II Assembly of the Hydraulic Oil Tank (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 left and right profile plates under hydraulic oil first. Coat the ball valve with KESAIXIN 1545 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 left and right profile plates of oil tank. Lift the tank above the rear frame and adjust the position. Fix it with four M16×35 bolts.



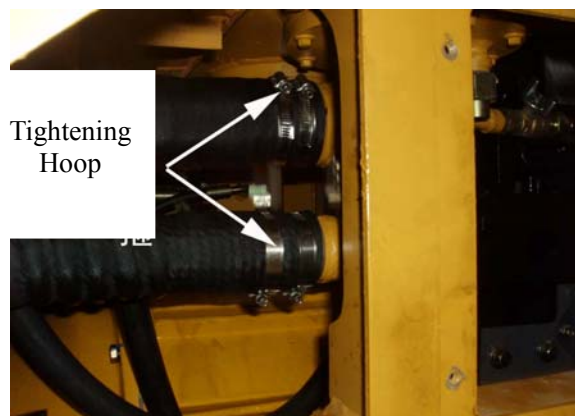
Cover two hoops on the oil absorbing pipe of working pump and the steering pump. Coat certain hydraulic oil on the inside of the rubber pipe and Fix them on the oil outlet port of the tank in the Lifting process.

 Tightening torque: 193-257 Nm

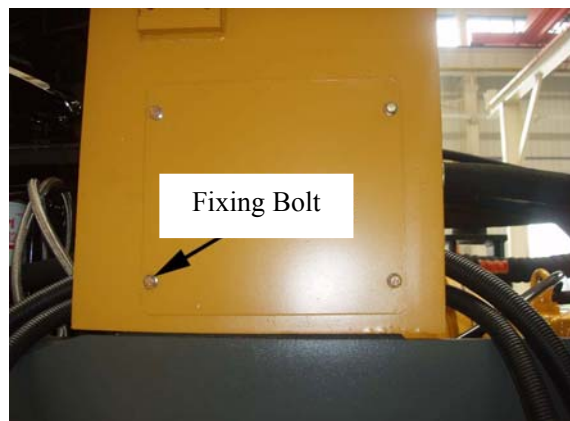
3. Connect the pipes of the oil returning ports of the hydraulic oil tank.



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 M12×35 bolts and with hydraulic oil tank with four M12×25 bolts.



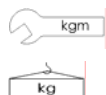
Tightening torque: 78-104 Nm

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

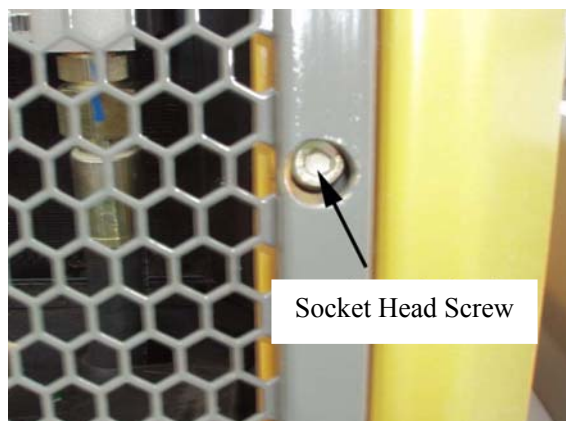
Left and Right benches



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 length 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 direction of two hoops bolts should be same.

10. Fix the window bar on the engine hood with M10×20 bolts and fix the rubber plugs.



11. Load 200L Mobil DTE25 hydraulic oil in the hydraulic tank until the reading of oil level indicator is 12~13, and then load Mobil DTE55 hydraulic oil in the hydraulic tank to satisfy the above liquid level.

5.4 Disassembly and Assembly of Priority Valve

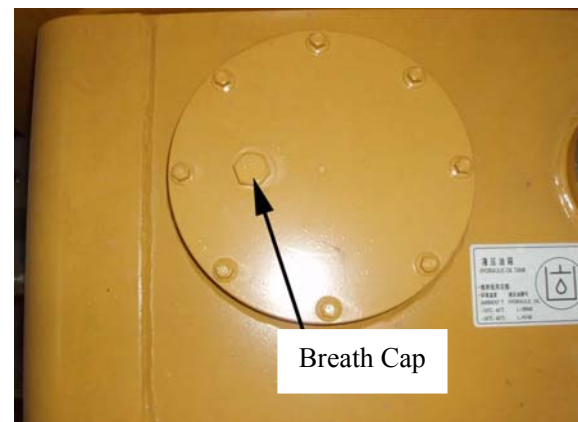
I Disassembly of Priority Valve

(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 permeable cap of hydraulic cylinder

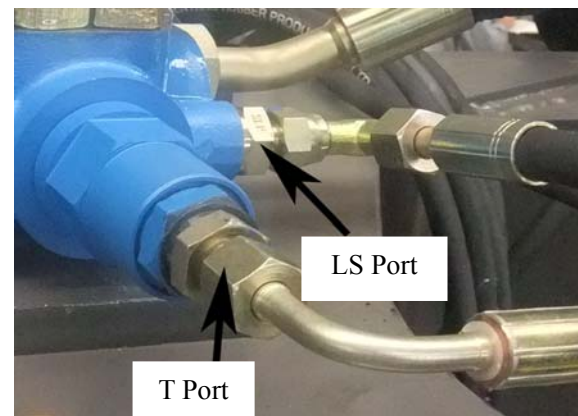


2. Put oil holder under the priority valve to catch the leaking hydraulic oil.



3. Disconnect the connection between priority valve oil returning pipe and T port of priority valve, and disconnect the connection between priority valve oil feedback pipe and Ls port of priority valve.

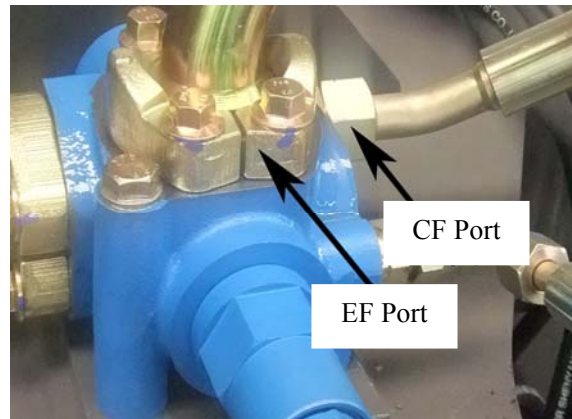
★ In process of disassembling hydraulic pipeline, do not unload the connecting bolt of oil port completely. Loosen it off a little until



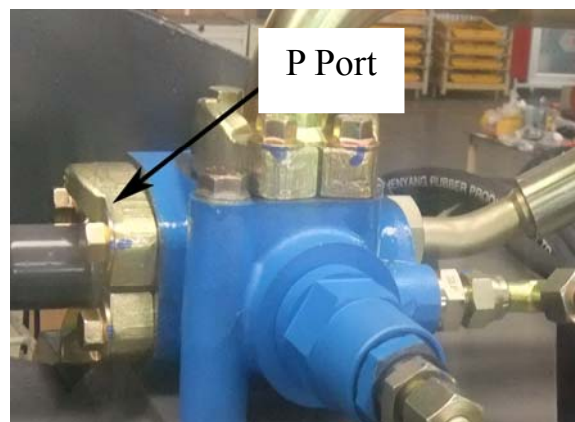
there is oil overflowing, and then remove it to prevent the oil from bursting out due to oil unloading not completely.

4. Disconnect the connection between steering gear oil inlet pipe and CF port of priority valve, and disconnect the connection between radiator oil inlet pipe and EF port of priority valve.

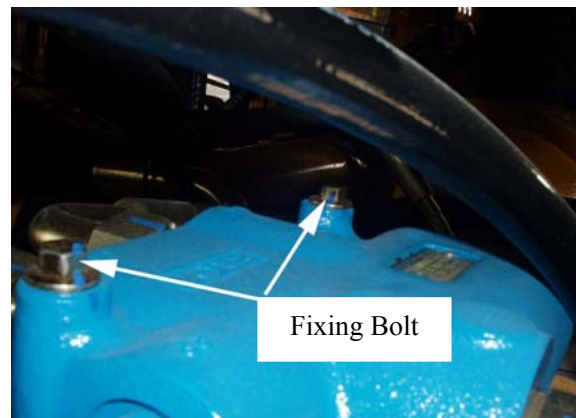
★ In process of disassembly, pay attention to protecting every pipeline and oil port. Prevent the dust and sundries from entering the pipeline.



5. Disconnect the connection between priority valve oil inlet steel and P port of priority valve.



6. Remove the fixed bolt of priority valve, and then take down the priority valve.



7. Remove the joint and O-ring on each oil port of priority valve.



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

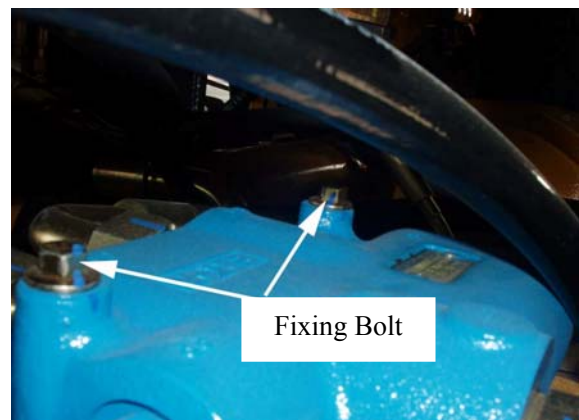
1. Install every straight joint adding an O-ring on the oil port of priority valve.



2. Fix the priority valve on the left fixed plate of rear frame with two bolts M10×90.



Tightening torque: 45~59Nm



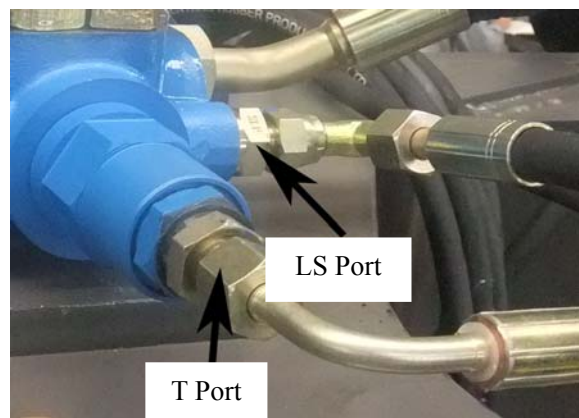
3. Connect priority valve oil returning pipe on the T port of priority valve, and connect priority valve oil feedback pipe on the Ls port of priority valve.



Tightening torque:

Priority valve oil feedback pipe-25~35Nm

Priority valve oil returning pipe-25~35Nm



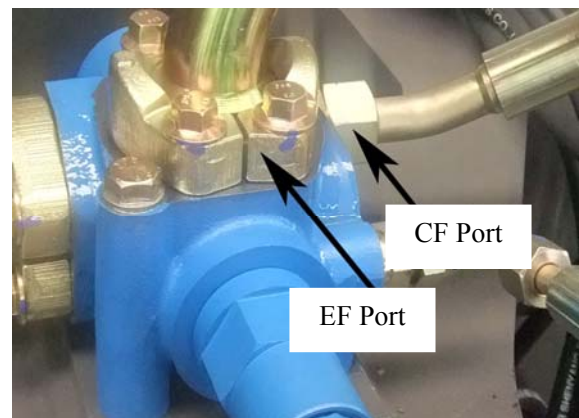
4. Connect steering gear oil inlet pipe on the CF port of priority valve, and connect radiator oil inlet pipe on the EF port of priority valve.



Tightening torque:

Steering gear oil inlet pipe-75~95Nm

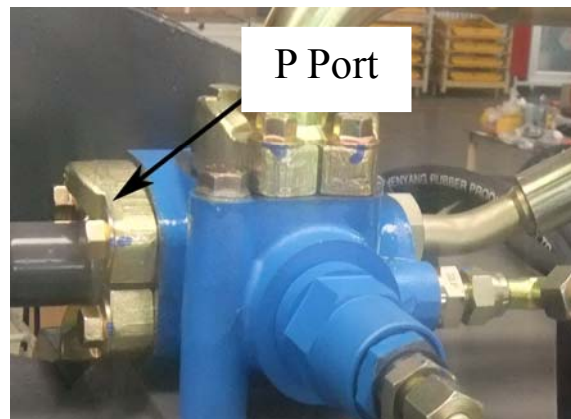
Radiator oil inlet pipe-100~130Nm



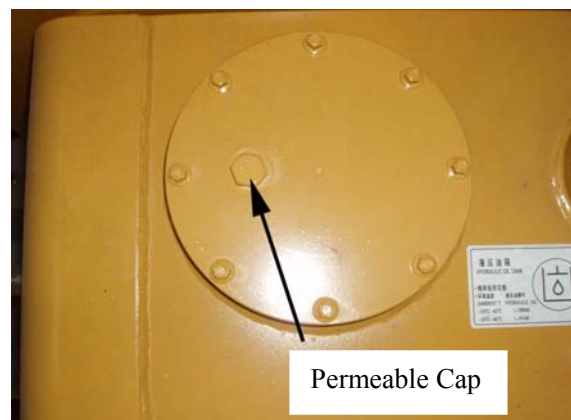
5. Connect priority valve oil inlet steel on the P port of priority valve.



Tightening torque: 100~130Nm



6. Install the permeable cap of hydraulic oil tank, and check the amount of hydraulic oil. Add hydraulic oil when it is not enough.



5.5 Disassembly and Assembly of Multi-way Valve

I Disassembly of Multi-way Valve

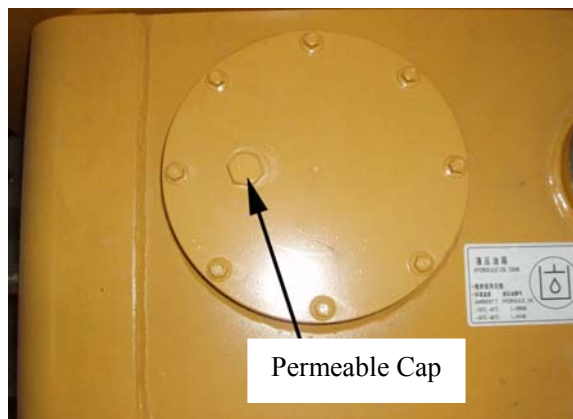
(Disassembling multi-way valve from complete appliance can refer to the following steps)

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 of priority valve 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 of the system.

Fix the tire of loader with wood wedge stability.

Open the permeable cap of hydraulic tank.

2. Put oil holder under the multi-way valve.

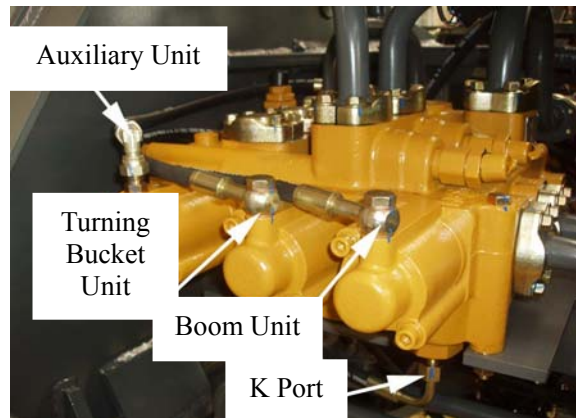


3. Remove the fixing bolts on front end plate and take the front end plate down.



4. Disconnect each hose on the pilot unit
Disconnect the connection between multi-way 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.

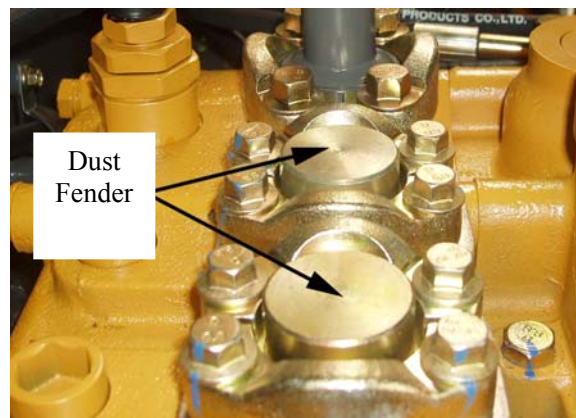


5. Remove the flange connecting the multi-way valve with big and small cavity tee steel of boom unit.

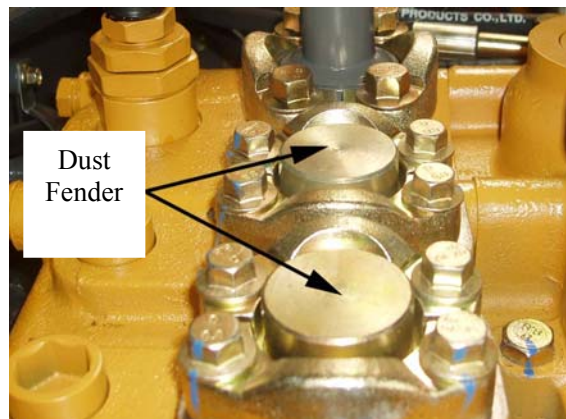
★ In process of disassembly, do not unload the connecting flange on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.



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



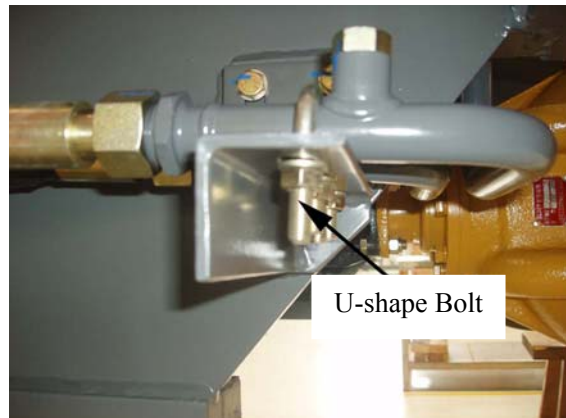
7. Remove the flange and dust cover of auxiliary unit on the multi-way valve.



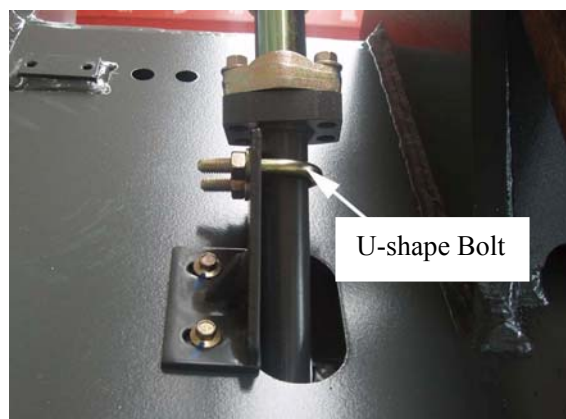
8. Remove the flange connecting the multi-way valve with oil inlet and return steel of multi-way valve. Disconnect the connection between steel and multi-way valve.



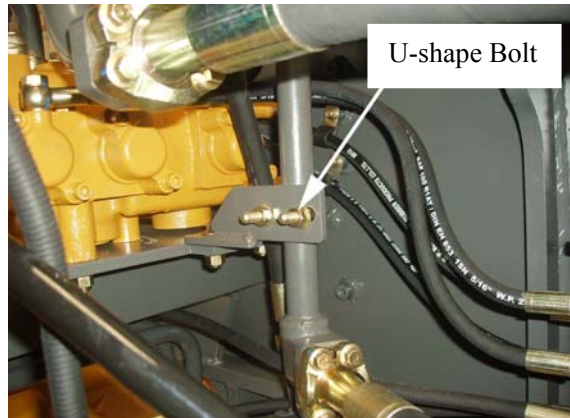
9. Loosen the U-shape fixed bolts of big and small cavity oil inlet steel on the boom unit. (But not necessary to remove)



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)



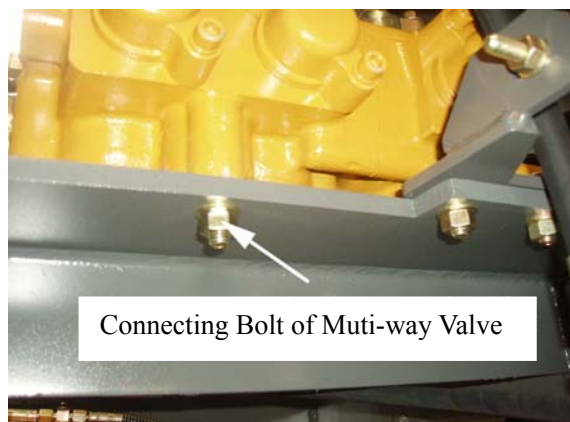
11. Loosen the U-shape fixed bolts of oil inlet steel on the multi-way valve. (But not necessary to remove)



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



Multi-way valve

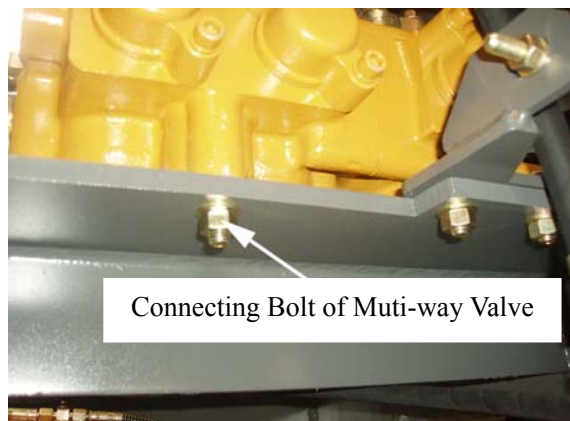


II Assembly of multi-way valve

(Assembling multi-way valve on complete appliance can refer to the following steps)

1. Hoist the multi-way

Fall the multi-way valve on the front frame, then put two bolts M12×165 and one bolt M12×145 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.

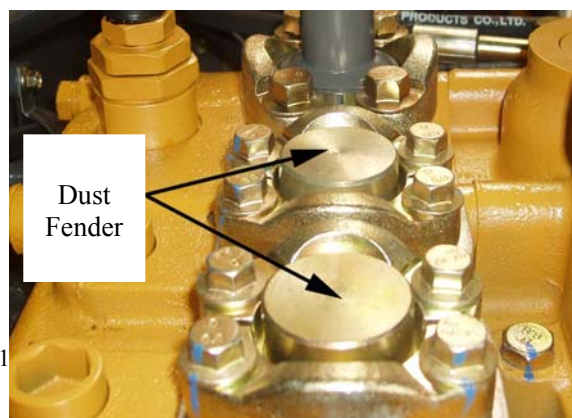


Tightening torque: 78~104Nm



Multi-way 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.

 Tightening torque: 45~59Nm

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

 Tightening torque: 78~104Nm

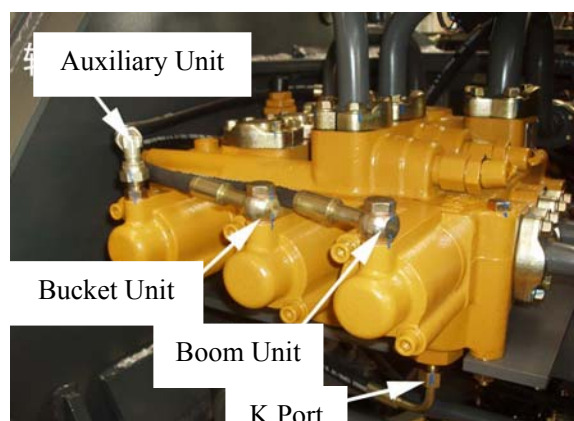
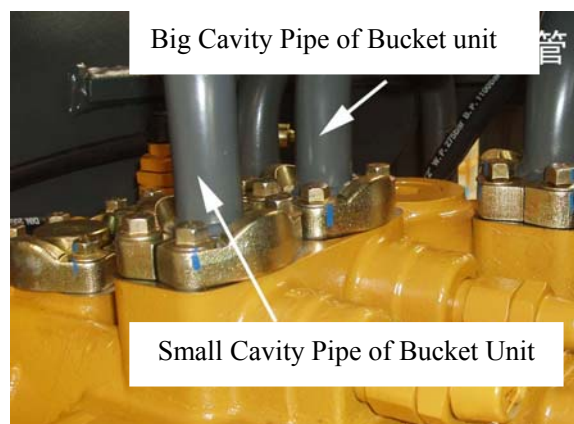
4.Put an O-ring in the O-shape groove of small cavity steel on the turning bucket unit, and fix small cavity steel of turning bucket unit on the multi-way valve assembly with four bolts M10×30 and a split type flange. Install big cavity steel of turning bucket unit by the same method.

 Tightening torque: 45~59Nm

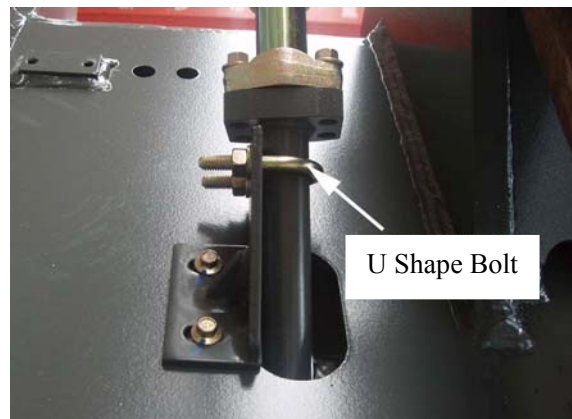
5. Put an O-ring in the port of small cavity tee steel on the boom unit, and install it on the port at the left front of multi-way valve with a split type flange and four bolts M10×30. Install big cavity tee steel of boom unit on the port at the left back of multi-way valve in the same method.

 Tightening torque: 45~59Nm

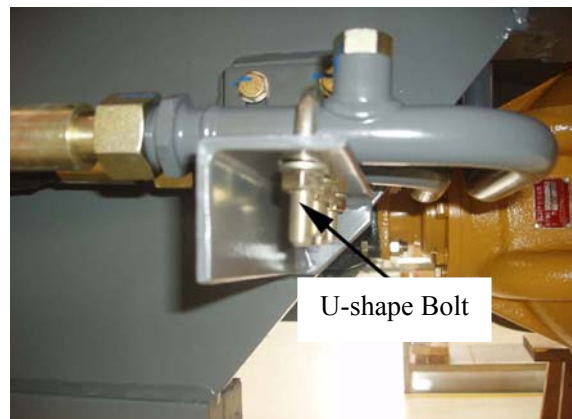
6.Install three front piloting oil union and washer on the multi-way valve. Connect the K-port hose of the multi-way valve. Connect the front and back oil port of auxiliary unit with a hose.



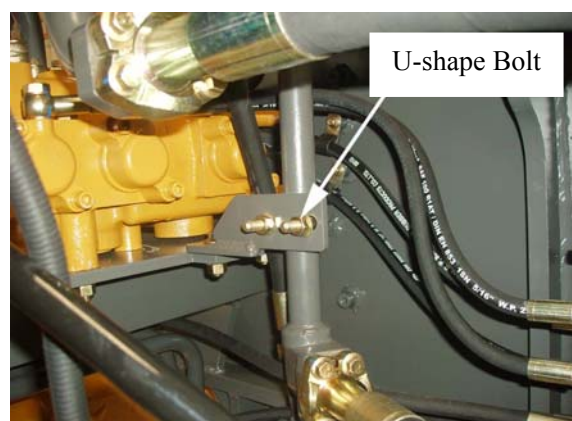
7. Fix the U-shape fixed bolts of big and small cavity oil inlet steel on the turning bucket unit.



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



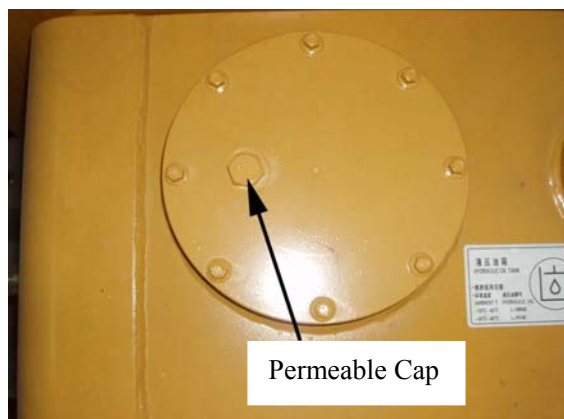
9. Fix the U-shape fixed bolts of oil inlet steel on the multi-way valve.



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 tank, 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. Fix the tire of loader with wood wedge stability.

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

Push the handle of boom forward slowly to make the boom on supporting frame slowly. Make the operating handle of boom moving up and down for five or six times.

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



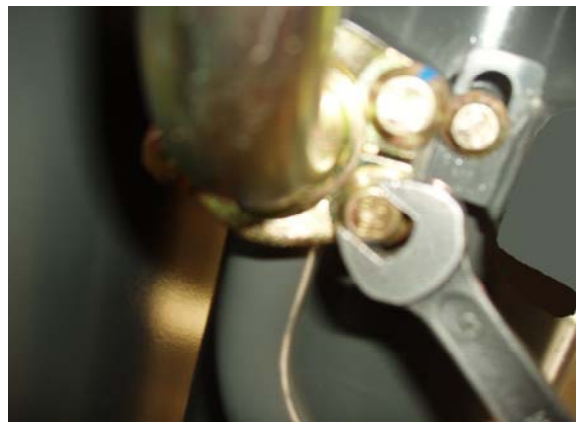
3. Loosen the fixing bolts of boom cylinder hose and big cavity steel port of boom cylinder, then get off bolts, fission flange and O shape ring, remove the hose.

★ In process of disassembly, do not unload the fixed bolt on the flange of 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.

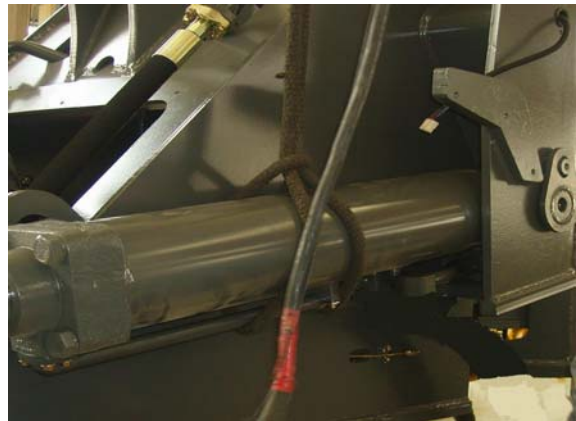


4. Loosen the fixing bolts of boom cylinder hose and small cavity steel port of boom cylinder, then get off bolts, fission flange and O shape ring, remove the hose.

★ In process of disassembly, do not unload the fixed bolt on the flange of 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. Hoist the cylinder with lifting rope a little.



6. Loosen the connectiong bolts of front pin on boom cylinder, remove bolts and gasket.



7. Remove the front pin of boom cylinder.
Take the adjusting gasket down. Never destroy
the pin in process of operation.



8. Loosen two rear fixing bolts of front mud
fender, rotate mud fender some angle
clockwise in order to disassemble rear pin of
boom cylinder.



9. Loosen fixing bolts of rear pin on boom
cylinder, remove bolts and gasket.



10. Disassemble rear pin of boom cylinder, lift
boom cylinder down.



Boom Cylinder



11.Loosen fixing bolts of big cavity steel front end on boom cylinder, get off the bolts.

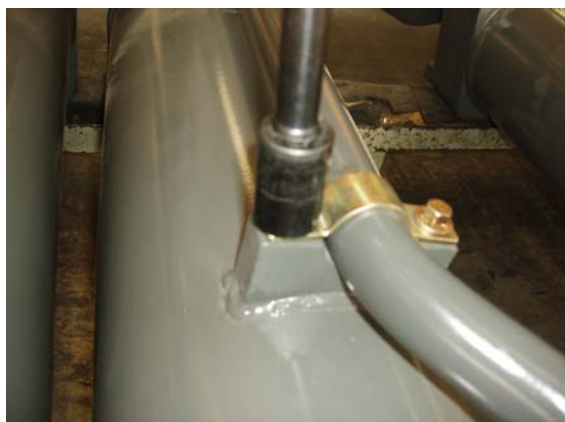
★ After disassembling hose, protect the port of steel pipe in time.



12.Loosen fixing bolts of big cavity steel rear end on boom cylinder, get off bolts、 steel pipe and O shape ring.



13.Loosen fixing bolts of steel pipe clamp, which is on the small cavity of boom cylinder, remove the bolts and clamps.



14.Loosen fixing bolts of steel pipe , which is on the small cavity of boom cylinder, remove the bolts and clamps.



15. Pour oil in the container into special hydraulic recycling barrel.



II Assembly of boom (After repair, change as following steps)

1. Take down the protective cover, 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 small cavity steel of boom cylinder on boom cylinder with pipe clamp and two bolts M8×20.



3. Put O shape ring in the O shape groove of big cavity steel on boom cylinder, fix it on big cavity port of boom cylinder with two bolts M10×50 and M10×55.



Tightening torque: 45~59Nm



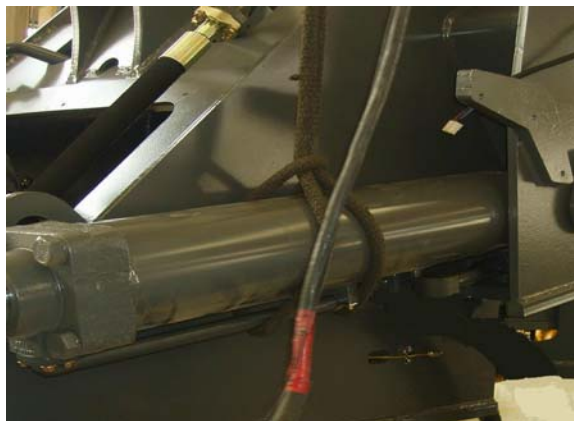
4. Fix big cavity steel of boom cylinder on boom cylinder with bolt M10×20.



5. Hoist the cylinder to the position where it is convenient to install pin.



Boom Cylinder



6. Coat a little amount of lubricating grease on the rear pin of boom cylinder. Connect boom cylinder and front frame with pin.

★ a. Pay attention to locating the big cavity pipeline outside after assembling completely. Never install contrarily.

b. Pay attention to oil cup while hitting pin.



7. Fix rear pin of boom cylinder on front frame with gasket and bolt M16×30.



Tightening torque: 193~257Nm



8. Coat a little amount of lubricating grease on the front pin of boom cylinder. Put on gasket. Start the engine and operate the boom cylinder. Adjust the expansion amount of piston rod to make sure the assembling hole of boom cylinder aligns to that of boom. Then connect the boom cylinder and boom with pin.

★ Notice that screw base of piston rod head turns toward outside; Adjust the number of gasket to make sure the fit clearance between front of boom cylinder and boom is 0.5~1.5mm.

9. Fix front pin of boom cylinder to the head of piston rod with gasket and bolt M16×30.



Tightening torque: 193~257Nm

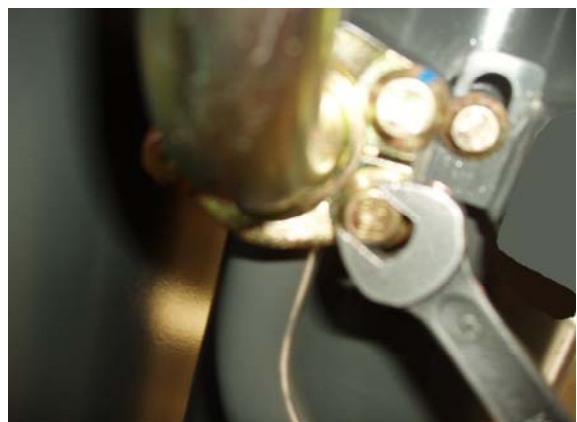


10. Take down the guard, put O shape ring into O shape groove of hose connecting with inside of boom cylinder, fix it to small cavity steel pipe of boom cylinder with fission flange and four bolts M10×30.



Tightening torque: 42~62Nm

★ Hose is forbidden to be distorted.



11. Put O shape ring into O shape groove of hose connecting with outside of boom cylinder, fix it to big cavity steel pipe of boom cylinder with fission flange and four bolts M10×30.



Tightening torque: 42~62Nm

★ Both hoses are parallel, but not distorted.



12. Adjust mud fender and fix it with bolts.



13. Add lubricating grease into oil cup of pin on front boom cylinder, until there is lubricant grease overflowing from the matching surface.



14. Add lubricating grease into oil cup of pin on rear boom cylinder, until there is lubricant grease overflowing 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

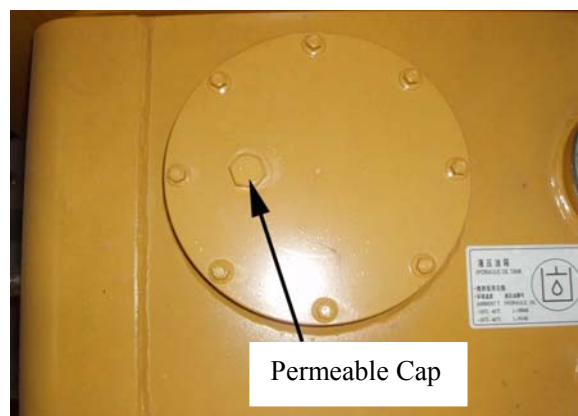
Start the complete appliance and run on the leveling and spacious ground, and lift the lift arm to the highest position and tilt the bucket backward, and then stop the engine.

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 tank.



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.

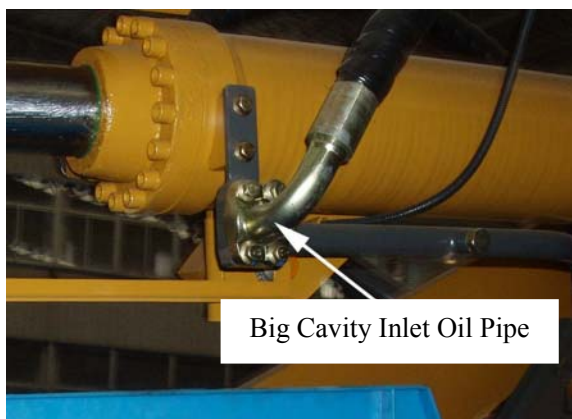


4. Shear the proximity switch wiring harness.



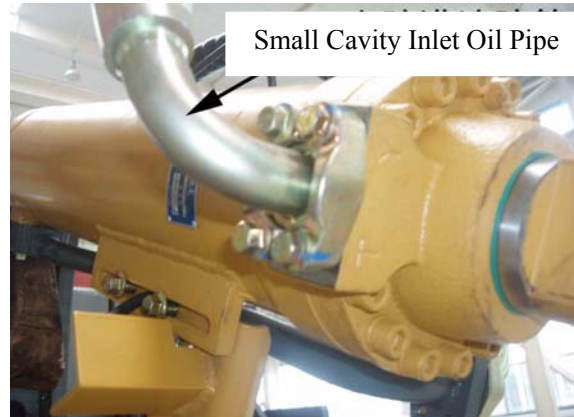
5. Remove the connecting flange of big oil inlet hose on the turning bucket cylinder. Disconnect the connection between turning bucket cylinder big cavity oil inlet hose and turning bucket cylinder.

★ 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 cavity 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.

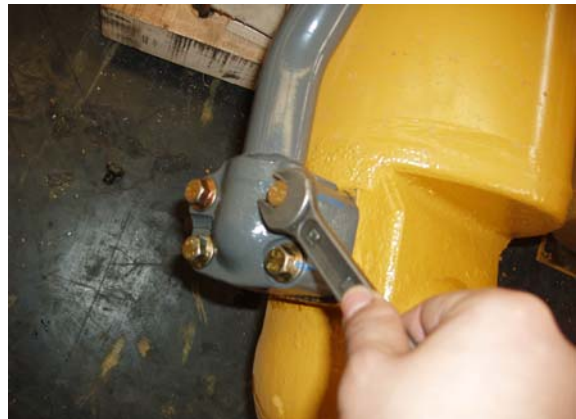


9. Hoist the turning bucket cylinder down, and then remove the big cavity oil inlet steel of turning bucket cylinder.



II Assembly of Turning Bucket Cylinder (Assembling turning bucket cylinder on complete appliance can refer to the following steps)

1. Put an O-ring $32.5 \times 3.55G$ in the groove at the end of turning bucket cylinder big cavity steel, then install them on the turning bucket cylinder with two bolts $M10 \times 50$ and two bolts $M10 \times 55$. Fix the front end of turning bucket cylinder big cavity steel on the wire holder of turning bucket cylinder with two bolts $M10 \times 16$ 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 $M16 \times 30$ and washer.

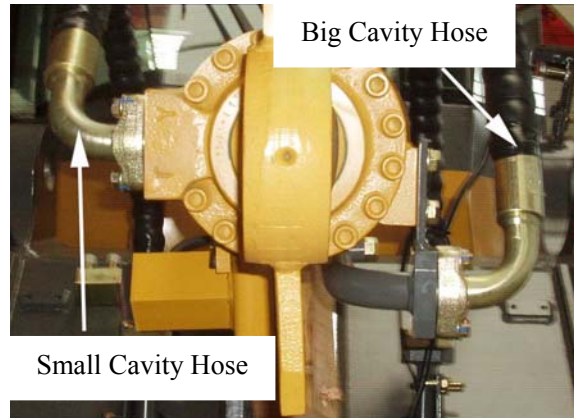


 kgm Tightening torque: 78~104Nm



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.



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. Fix the horizontal guard plate above the end of turning bucket cylinder piston rod with two bolts M10×25 and washer 10.

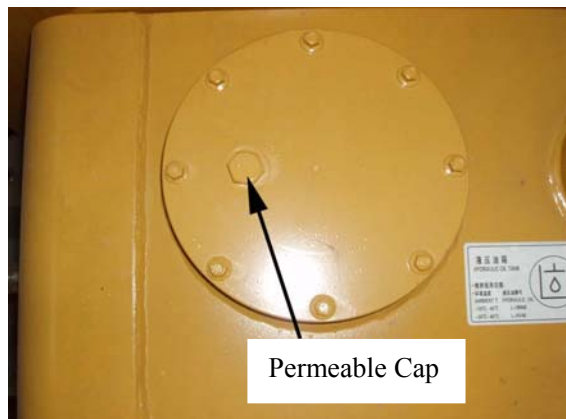


Tightening torque: 45~59Nm

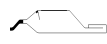
6. Connect the proximity switch wire again according to the color of wiring harness and bind the wiring harness on the hose with ligature.

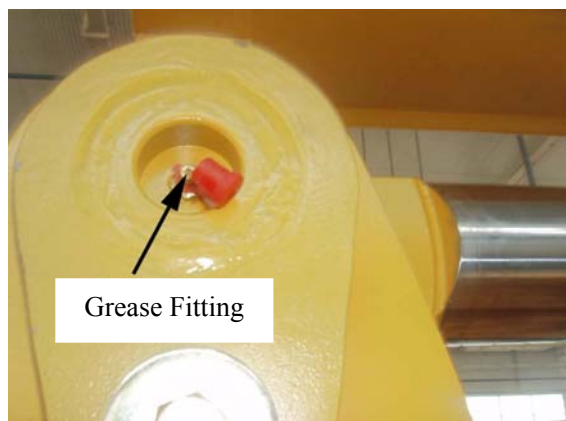


7. Install the permeable cap of hydraulic oil tank.



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 proper oil holder under the steering gear that will be disassembled.

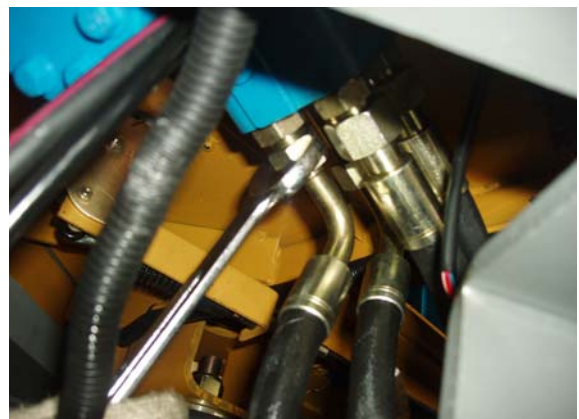


3. Loosen the connecting nut which connects the prior valve feedback oil pipe with the straight joint on the right oil port of steering gear. Remove the hose, and protect all oil ports in time.

★ 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.

4. Loosen the connecting nut which connects outlet oil pipe B of steering and union of R oil port at the bottom right of steering, remove hose, and protect each pipeline and oil port.

★ 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. Loosen the connecting nut which connects outlet oil pipe A of steering and union of L oil port at the upper right of steering, remove hose, and protect each pipeline and oil port.

★ 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.

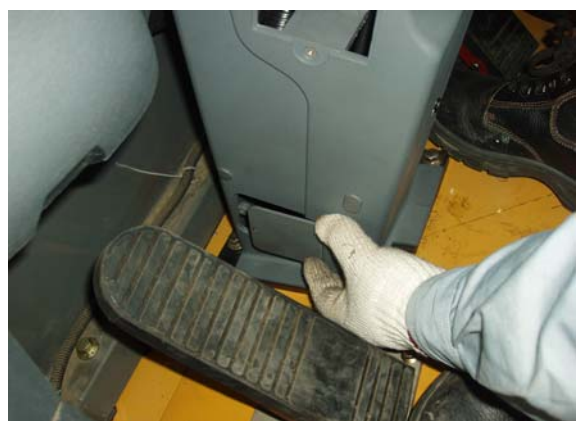
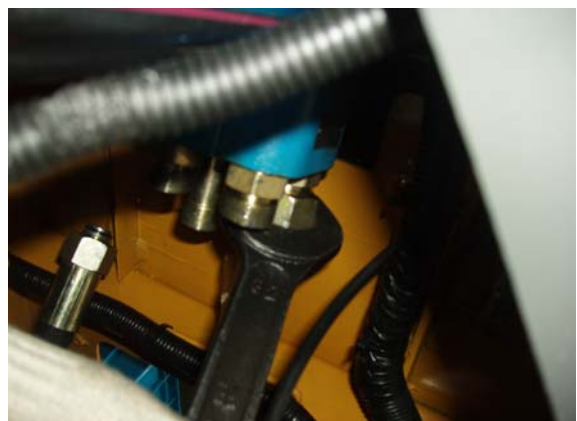
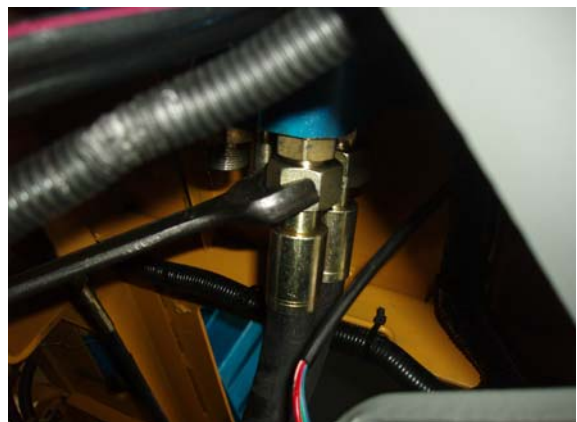
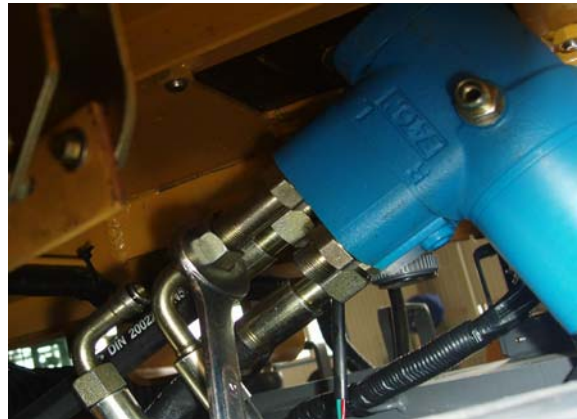
6. Loosen the connecting nut which connects inlet oil pipe of steering and union of P oil port at the upper left of steering, remove hose, and protect each pipeline and oil port.

★ 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.

7. Loosen the connecting nut which connects returning oil pipe of steering and union of T oil port at the upper left of steering, remove hose, and protect each pipeline and oil port.

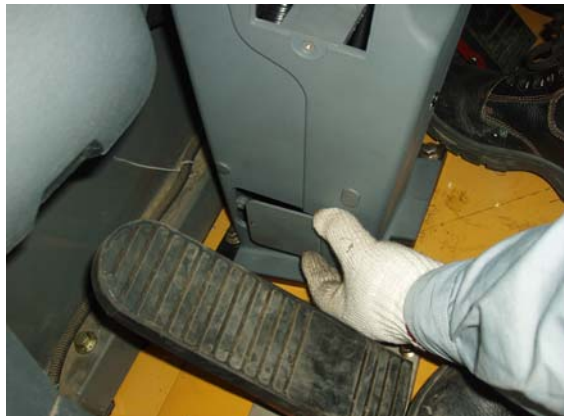
★ In process of disassembly, do not unload the connecting nut on the oil port completely. Loosen it off a little until there is oil overflowing, and prevent the oil from bursting out due to oil unloading not completely.

8. Remove fixed screw on the left and right baffles under the instrument desk. Then remove the baffle and screws.



9. Remove four fixed bolts of steering gear, and then remove the steering gear and bolts.

★ **Notice:** Hold the steering gear with hand and something to prevent falling, when the bolts is going to unload completely.



10. Loosen the union of right feedback oil port on the steering, remove the union and O shape ring, and protect oil port in time.



11. Loosen union on the left upper T oil port of steering, get off union and O shape ring, and protect oil port in time.



12. Loosen union on the left lower P oil port of steering, get off union and O shape ring, and protect oil port in time.



13. Loosen union on the right lower R oil port of steering gear, get off union and O shape ring, and protect oil port in time.



14. Loosen union on the right upper L oil port of steering, get off union (and O shape ring), and protect oil port in time.



15. Pour oil in the container into special hydraulic recycling barrel.



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

1. Get off guard component of oil port, assemble union (ones with O shape ring) to L oil port on the right upper of steering gear.

 Tightening torque :72~88Nm



2. Get off guard component of oil port, assemble union (ones with O shape ring) to R oil port on the right lower of steering gear.



Tightening torque :72~88Nm



3. Get off guard component of oil port, assemble union (ones with O shape ring) to O oil port on the left lower of steering gear.



Tightening torque :72~88Nm



4. Get off guard component of oil port, assemble union (ones with O shape ring) to T oil port on the left upper of steering gear.



Tightening torque :72~88Nm



5. Get off guard component of oil port, assemble union (ones with O shape ring) to feedback oil port on the right of steering gear.



Tightening torque :31.5~38.5Nm



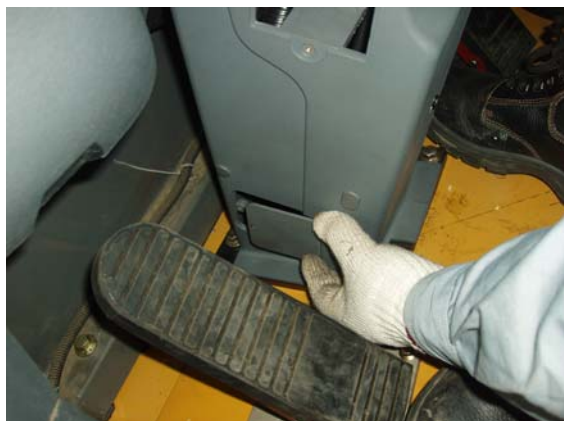
6. Assemble steering gear to fixing frame of instrument desk with four bolts M10×55.



Tightening torque :45~59Nm



7. Assemble the cover on the both sides of instrument desk assembly.



8. Get off guard component of oil port, assemble returning oil hose of steering gear to T oil port union on the left upper of steering gear.



Tightening torque :65~85Nm

★ Hose is forbidden to be distorted

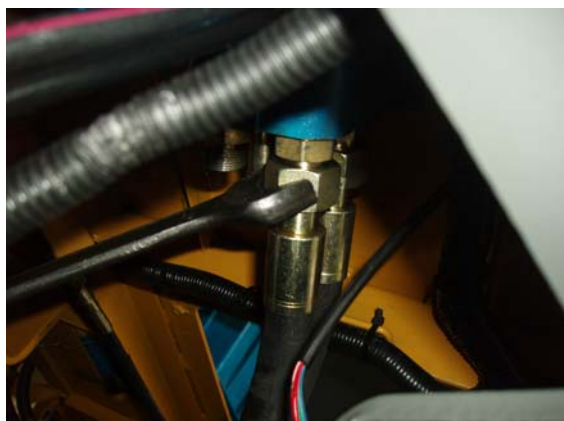


9. Get off guard component of oil port, assemble inlet oil hose of steering gear to P oil port union on the left lower of steering gear.



Tightening torque :65~85Nm

★ Hose is forbidden to be distorted

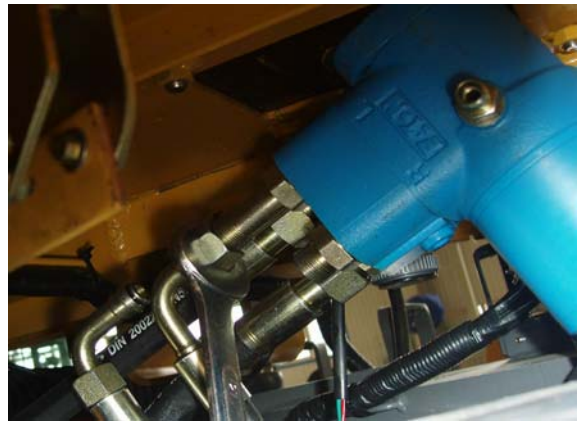


10. Get off guard component of oil port, assemble outlet oil hose A of steering gear to L oil port union on the right upper of steering gear.



Tightening torque :45~65Nm

★ Hose is forbidden to be distorted

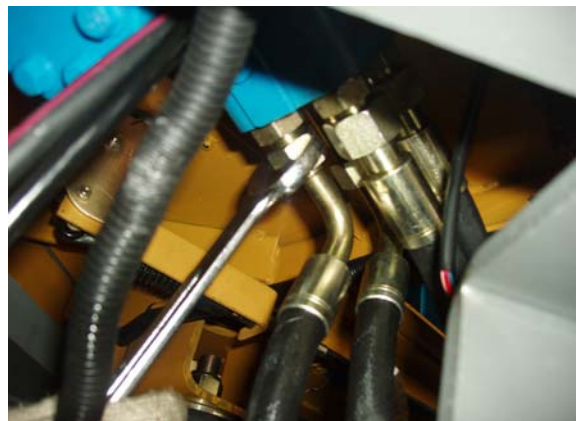


11. Get off guard component of oil port, assemble outlet oil hose B of steering gear to R oil port union on the right lower of steering gear.



Tightening torque :45~65Nm

★ Hose is forbidden to be distorted



12. Get off guard component of oil port, assemble feedback oil hose of priority valve to oil port union on the rights of steering gear.



Tightening torque :25~30Nm

★ Hose is forbidden to be distorted.



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.

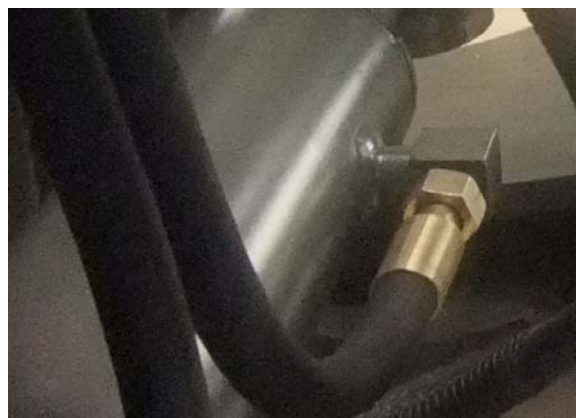
3. Disconnect the connection between steering cylinder small cavity oil inlet hose and steering cylinder.

★ 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.

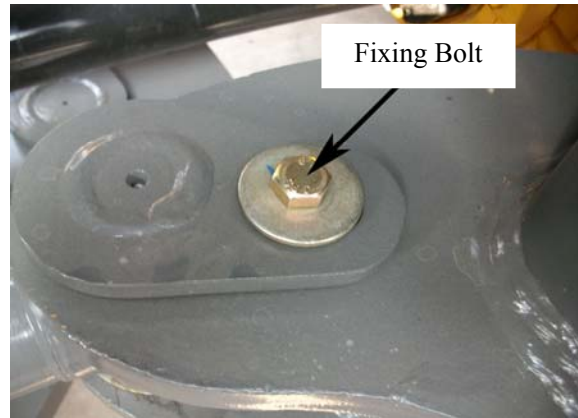
4. Disconnect the connection between big cavity oil inlet hose and steering cylinder.

★ 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 rear and front fixing bolts of steering cylinder.



6. Remove the back steering pin with copper hammer beating slightly from up to down (Notice: don't destroy the grease fitting). Then remove front steering pin with copper hammer beating slightly from up to down.



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, then fix with bolts M16×30 and two washers 16.

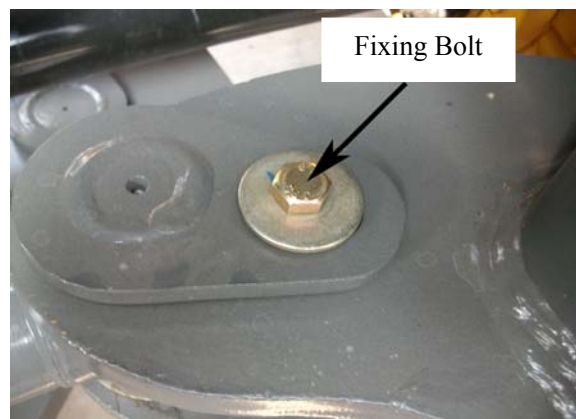


Tightening torque: 193~257Nm

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, then fix with bolts M16×30 and washers 16.



Tightening torque: 193~257Nm

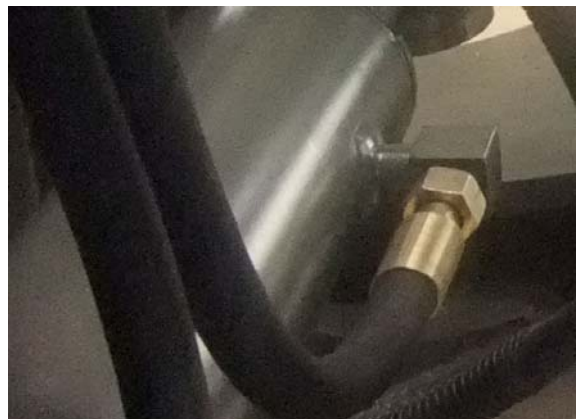


4. Install the steering cylinder oil inlet steel on the steering cylinder big cavity oil port..

★ Hose is forbidden to be distorted.



Tightening torque: 55~75Nm



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

★ The hose never distort.



Tightening torque: 55~75Nm



6. Load lubricant grease on each jointing position of pin on the steering cylinder until there is lubricant grease extruding in the matching face.



Lubricant grease

7. Check the amount of hydraulic oil and add hydraulic oil when it is not enough.



CHAPTER VI DISASSEMBLY AND ASSEMBLY OF BRAKING SYSTEM

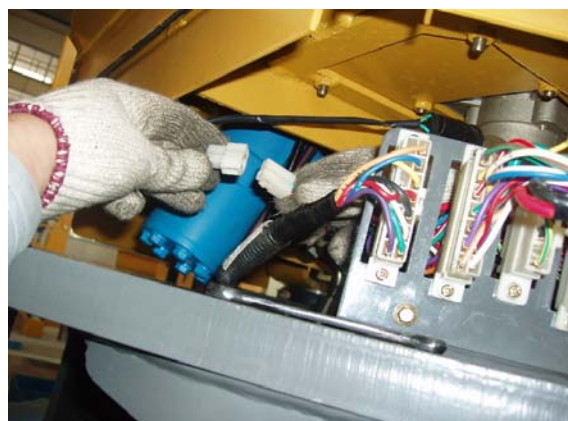
6.1 Disassembly and Assembly of Foot Brake Valve (Changing foot brake valve from complete appliance can refer to the following steps)

I Disassembly of Foot Brake Valve

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



2. Disconnect the plug of brake light switch.



Remove the switch of brake light.



3. Disassemble the pipeline of brake valve.

3.1 Disassemble the pipes connecting brake valve with rear and front intensifier pump.

3.2 Disassemble the pipes connecting gasholder with brake valve.



3.3 Disassemble elbow of foot brake valve.



3.4 Disassemble union of foot brake valve.

★ Notice: Protect connecting face of removed parts such as oil pipe、joint, Keep them clean.



4. Disassemble fixing bolts of brake valve on the cab, remove brake valve.



II Assembly of Foot Brake Valve

1. Fix pneumatic brake valve on the plate (1) installing brake valve with four bolts (5), remove rear shield hole of gas brake valve, after Coat the KESAIXIN 1545 oxygen-wear type pipe thread sealant on the straight joint (2), fix it on shield hole; remove front shield hole, coat the KESAIXIN 1545 oxygen-wear type pipe thread sealant on the outside screw of brake light switch (6), then screw it to corresponding port of pneumatic brake valve tightly; remove shield of right and left holes, after coating 1545 sealant on outside screw of two ell joints (3) assembly, screw it to both sides of pneumatic brake valve, adjust elbow end downwards with horizontal plane 45° angle. Fix elbow assembly.

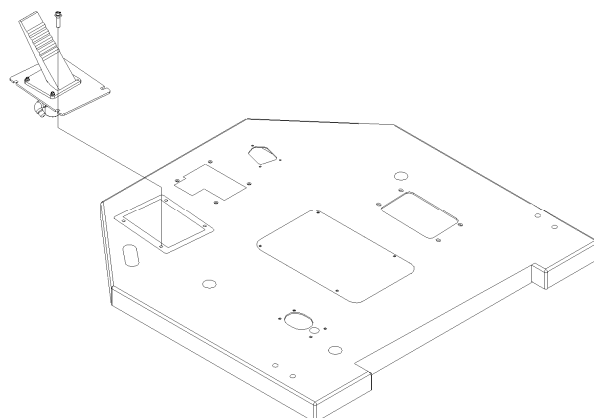
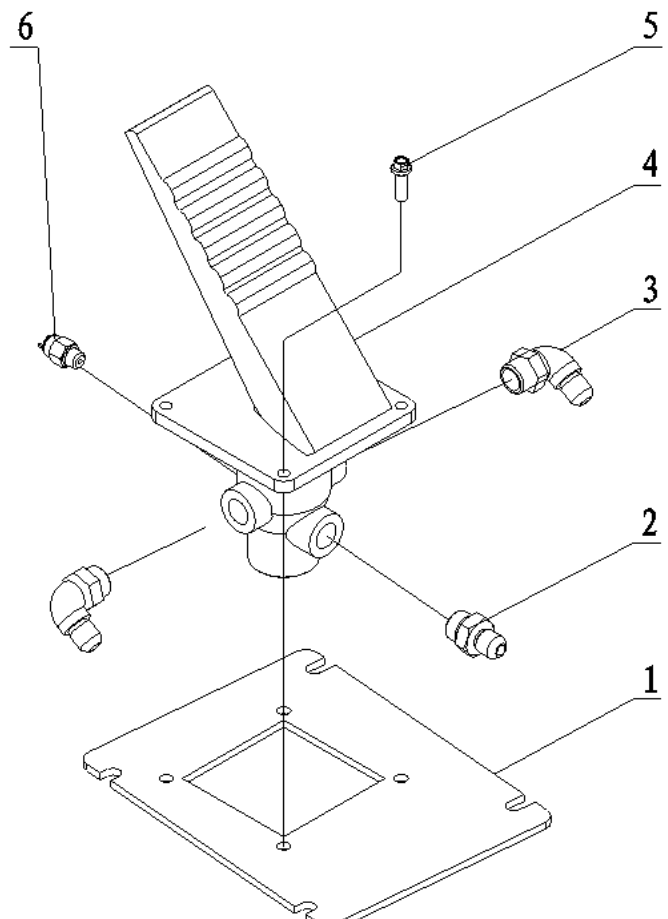
★ Notice: Coat the KESAIXIN 1545 pipe thread sealant: (1) Clean screw with no-picking towel. (2) Coat sealant one cycle along outside screw, the width of glue is 3~5 button screw, fill sealant the teeth of screw, the first circle of screw should not be coated. After assembling, there is one circle glue on the edge of outside screw and screw hole. While assembling, coating in time. Please screw manually. After assembling, solidify for at least 30 minutes.

 1545 sealant

 kgm straight joint: 70 ~ 90Nm

ell joint: 50~70Nm

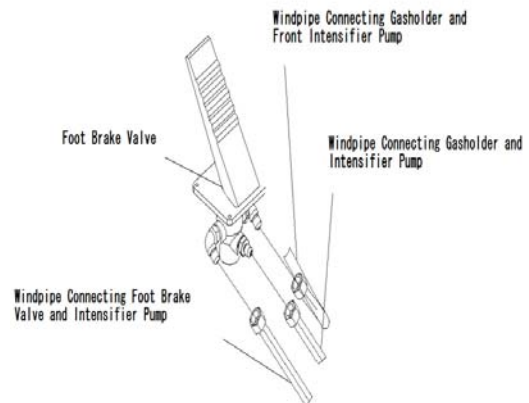
2. Fix foot brake valve assembly on left front position of base frame.



★Notice: Assemble it for at least 30 minutes after assembling foot brake valve

3.Remove the shield from gasholder to foot brake valve windpipe. Screw it to rear joint of foot brake valve, arrange each pipe.Screw windpipe connecting foot brake valve with front intensifier pump to right port of foot brake valve; Screw the windpipe connecting foot brake valve with rear intensifier pump to left port of foot brake valve.Arrange pipes before tightening.

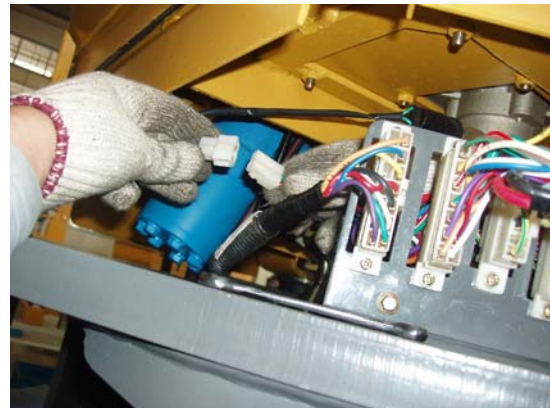
After assembling, arrange windpipe connecting foot brake valve with rear and front intensifier pump, connecting gasholder with foot brake valve again, then on proper position tie them together with nylon ribbon to avoid interference.



Nut of Windpipe M18×1.5

Tightening Torque: 50~65Nm

4.Connect the plug brake switch and 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.



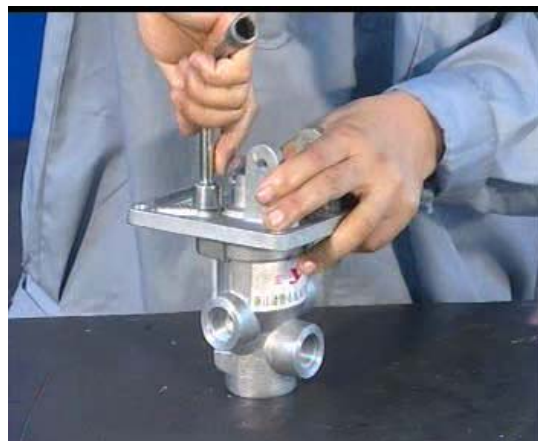
8. Coat small amount of brake fluid on the surface of valve core, and install valve core in the valve body. Press the valve core to check the return reliability of valve core.



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

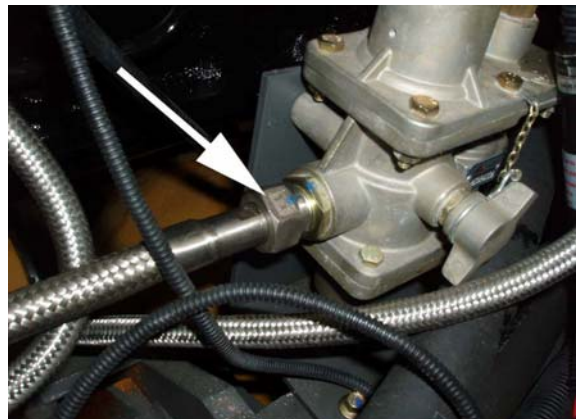


leveling, spacious and solid ground, then stop after placing properly. Put the bucket on the ground horizontally and place the operating handle in neutral position. Press down the parking brake joystick and stop the engine. Fix the tire of loader with wood wedge stability.



2. Before disassembling, release the pressure firstly. Open the water drain valve on the gasholder to release the internal pressure.

3. Remove the metal flexible hose at the end of air compressor to oil-water separator from two-way joint of oil-water separator.

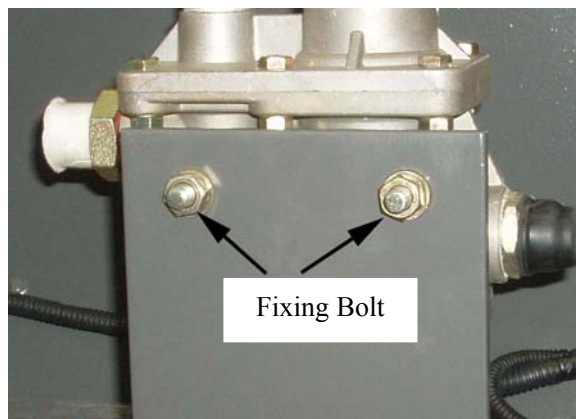


★ Pay attention to protecting each pipeline and port. Prevent the dust and sundries from entering the pipeline.

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)

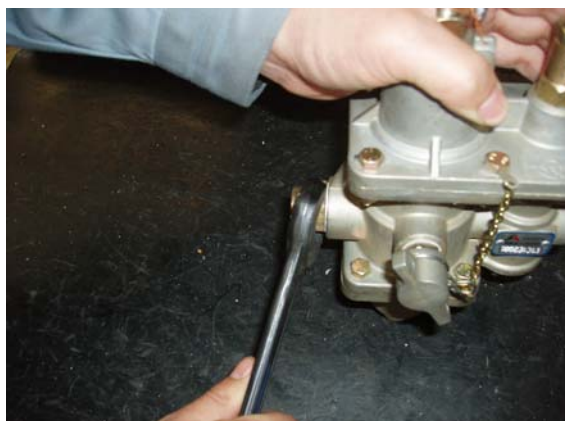
1. After coating 1545 sealant on the two-way joint, add a washer and tighten on the oil-water separator.



1545 sealant



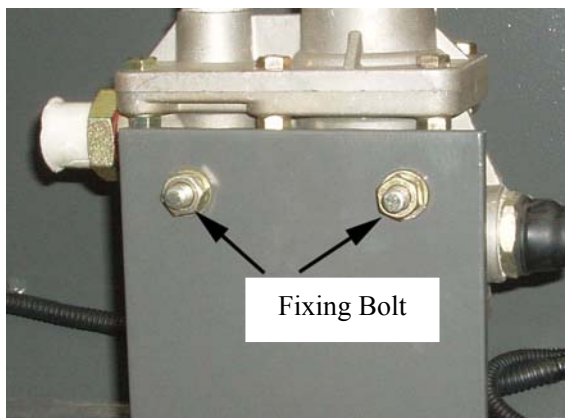
Tightening torque: 70~90Nm



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



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 1272 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.

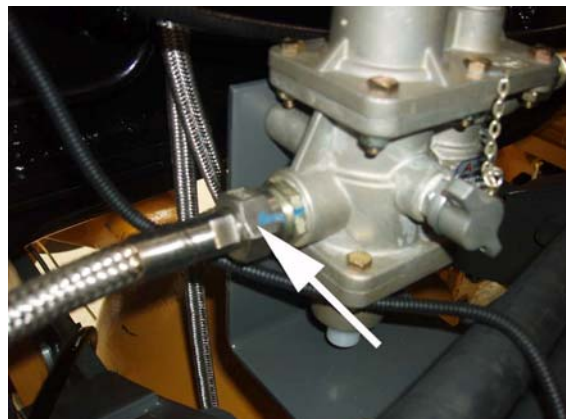


Tightening torque: 40~60Nm



1272 screw lock fix sealant

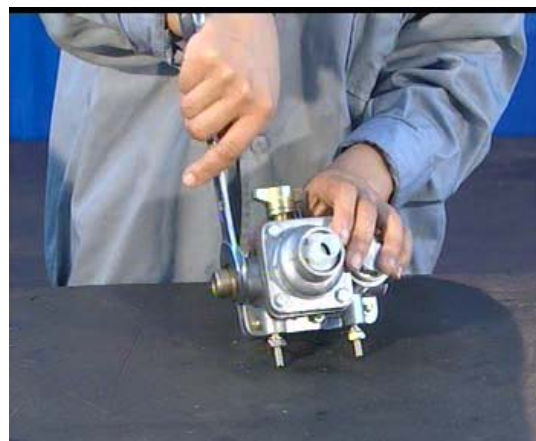
★ Notice: The metal flexible hose can be bended randomly and not rebound. Never contact and rub with other parts when assembling.



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. Turn over 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.



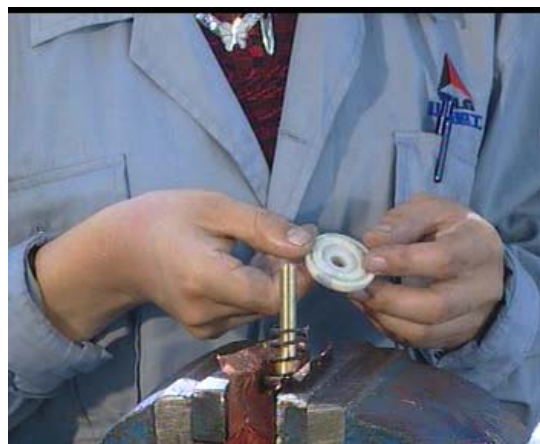
10. Remove the O-ring of lower shell.



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



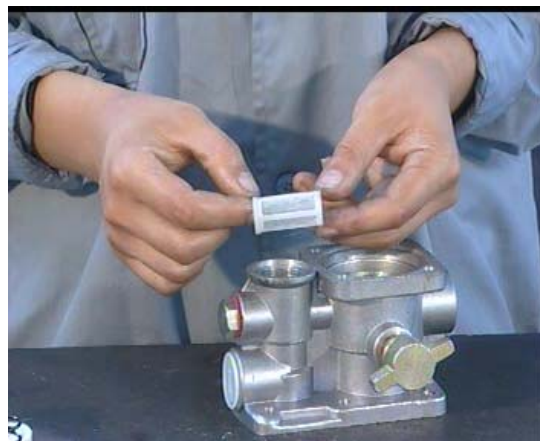
12. Take down the collector plate and the parts on it, and then take down the spring and O-ring of valve core.



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.



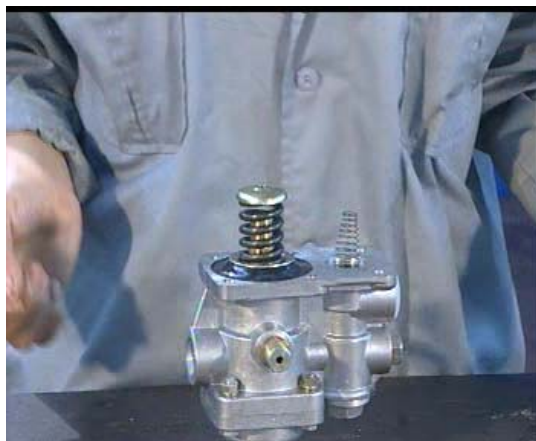
7. Install the bolt and washer connecting middle valve body with lower shell, and then tighten.



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.



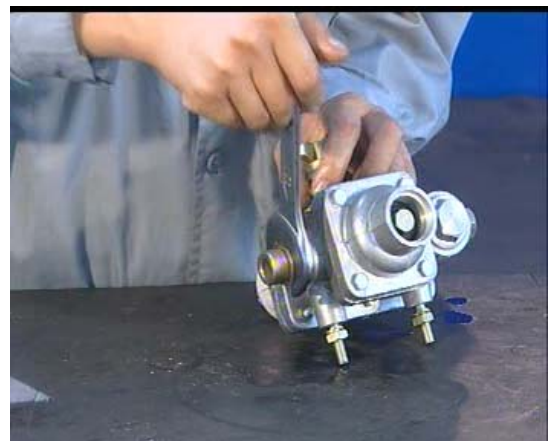
12. Install the wing nut.



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.



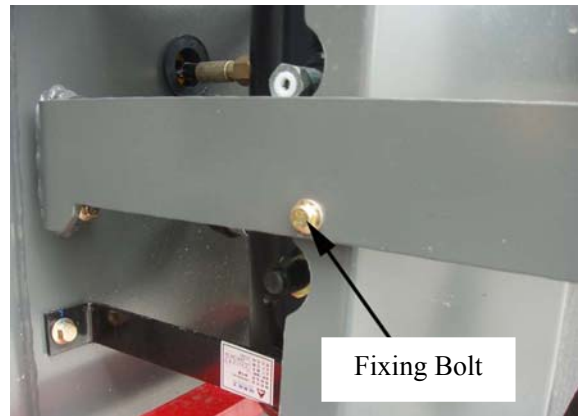
6.3 Disassembly and Assembly of Gasholder

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.



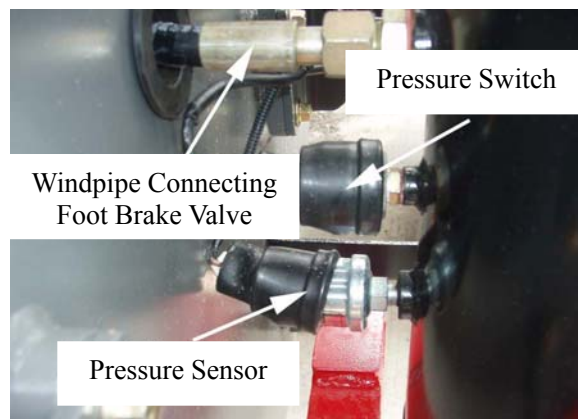
2. Remove the fixed bolt of gasholder cover, and then take down the cover.



3. Disconnect the connection between braking pressure sensor and pressure switch wiring harness, and disconnect the connection between brake valve inlet windpipe 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 inlet windpipe, gasholder inlet windpipe and gasholder.



Inlet Gas Pipe of Solenoid



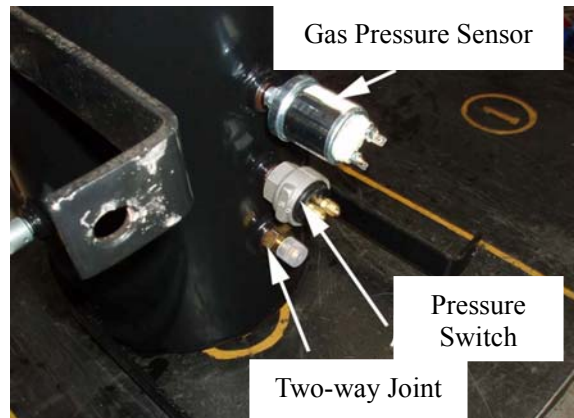
Inlet Gas Pipe of Gasholder



5. Remove the fixed bolt of gasholder, and then take down the gasholder.



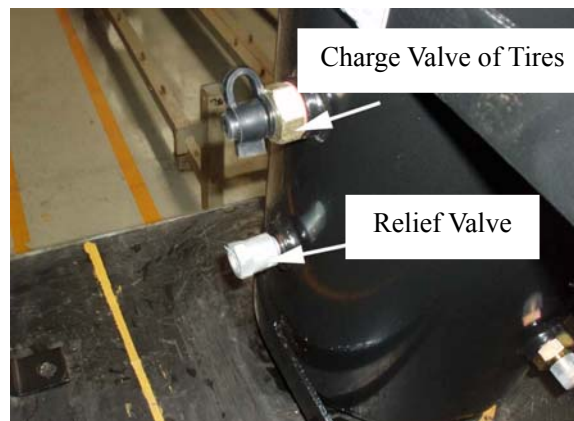
6. Remove the accessories such as gasholder safety valve, tyre tube valve, pressure sensor, plug, pressure switch, two-way joint and etc. from gasholder.



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 KESAIXIN 1545 oxygen-weary 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.

 1545 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 windpipe of oil-water separator to gasholder on the gasholder with bolt and two washers. Install electromagnetic valve inlet windpipe on the gasholder with bolt and two washers.

Windpipe of Solenoid Valve



Windpipe of Gasholder



4. Install the joint connecting gasholder with 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.



Pressure Switch

Windpipe Connecting Foot Brake Valve



Gas Pressure Valve

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 Front Intensifier Pump

I Disassembly of Intensifier Pump (The disassembling steps for replacing the front intensifier 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.

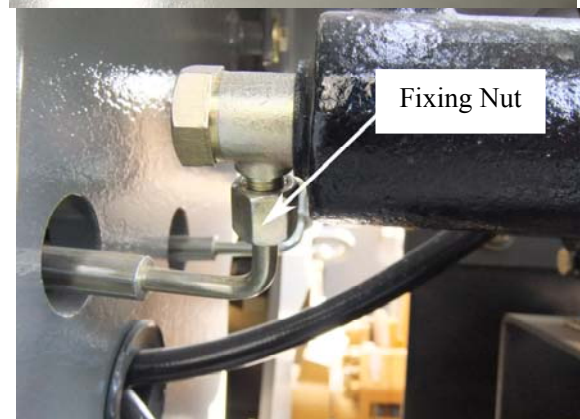
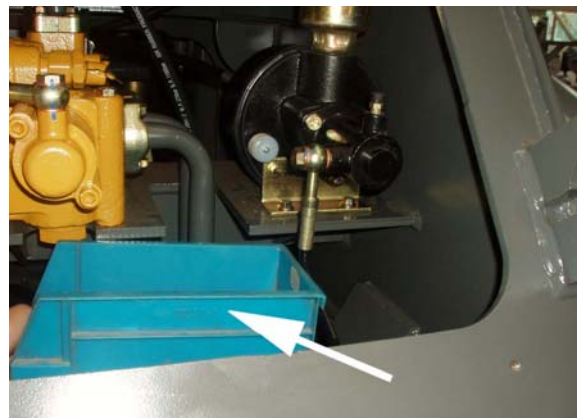
1. Start the complete appliance and run to the leveling, spacious and solid ground. Put the bucket on the support and place the operating handle in neutral position. Press down the parking brake joystick and stop the engine. Fix the tire of loader with wood wedge stability.

2. Put oil holder under the intensifier which will be replaced.

3. Remove fixing bolts connecting front and rear axle oil pipe and intensifier pump. Disconnect the connection between flexible pipe and intensifier pump.

★The braking fluid has causticity, and pay attention to protecting body and machine.

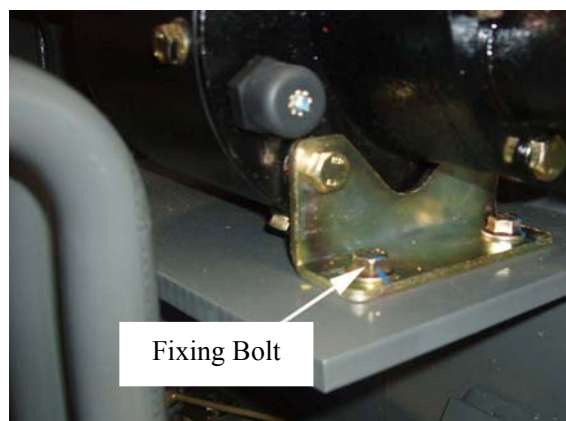
4.Remove flexible pipe connecting foot brake valve with tee pipe from tee pipe of intensifier pump.



5.Remove oil through bolts connecting tee pipe with intensifier pump, disconnect the connection of tee pipes and intensifier pump.



6.Loosen the fixing bolts of front intensifier pump, remove the intensifier pump.



7.Remove the two-way joint on the intensifier pump.



II Assembly of Front Intensifier Pump (Assemble according to the following steps after replacing and repairing completely)

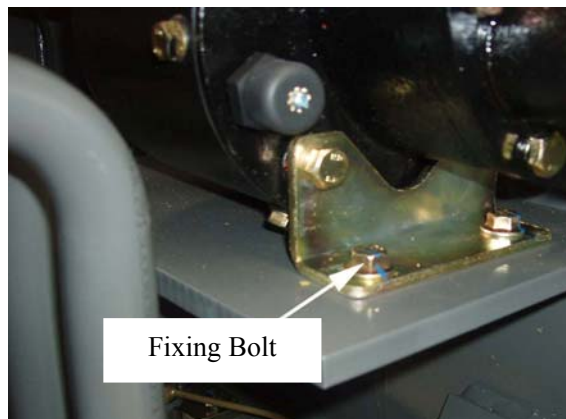
1.Coat KESAIXIN 1545 oxygen-weary type pipe thread sealant on two-way joint, and then install the two-way joint adding a washer on the intensifier pump.



2. Install the intensifier pump assembly on the intensifier pump support with two bolts M10 × 30.



Tightening torque: 45~59Nm

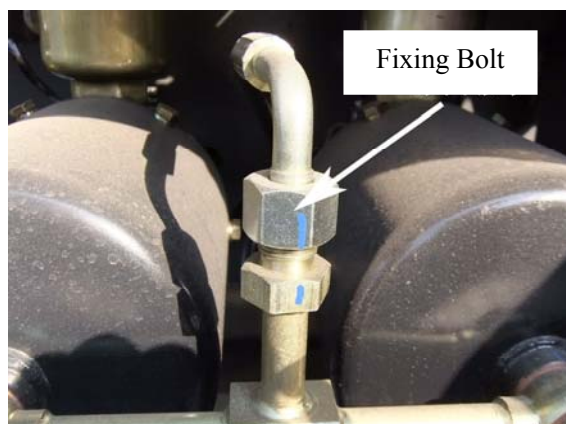


3. Connect tee pipe on the intensifier pump with oil through bolt and copper washer (the smaller copper washer is near to the intensifier pump).



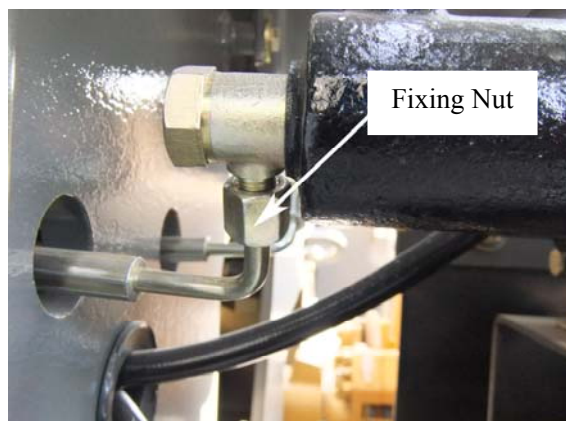
4. Install hose connecting foot brake valve with intensifier pump on tee pipe.

★ Do not distort hose.



5. Fix screw joint of intensifier pump hose on the joint of intensifier pump.

★ Do not distort hose.



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 clamp 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 Intensifier 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 circlip.



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 Intensifier 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 (Removing the section of bucket from complete appliance can refer to the following steps when replace bucket)

1. Start the complete appliance, run to the leveling, spacious and solid ground, and stop when place properly. Put the bucket on ground horizontally, (place pilot operating handle in the neutral position and rotate parking brake button), then stop the engine and wedge the tire of loader with wooden wedge.
2. Remove the pin connecting linkage and bucket.

Remove the fixed bolt of pin and washer.

Take down the pin with soft hammer, remove adjusting gasket and O shape dustband.

★**Notice:** Fix the linkage with rope to avoid dropping to hurt foot or destroy ground when taking down the pin.

3. Remove the fixed bolts and washer of pins connecting left and right bucket with boom



respectively.

Hit down the pins on both sides with soft hammer and remove them, get off adjusting gasket and O shape dustband.



4. Hang off the bucket or drive away from the complete appliance.



II Assembly of Bucket (Assembling the section of bucket on complete appliance can refer to the following steps when replace bucket)

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 filth in the shaft hole, and inject proper amount of grease in each hole.



2. Put O-shape dust ring on both ends of boom pin hole respectively.

★ **Notice:** 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: 193~257Nm.



3. Start the complete appliance, then manipulate boom cylinder and fall the bucket to the ground. Lift the linkage, and manipulate turning bucket cylinder to make linkage align to axle hole of connecting pin of bucket. Put one O-shape dust ring in both end of linkage axle hole before linkage contact bucket. Make sure not hurt by O-ring.





Linkage

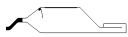
Connect bucket with linkage assembly with a pin and a group of gaskets, then fix the pin with a bolt M16×30 and a washer.



Tightening torque: 193~257Nm.



Load proper amount of lubricant grease in the pin connecting position with grease injector.



Lubricant grease



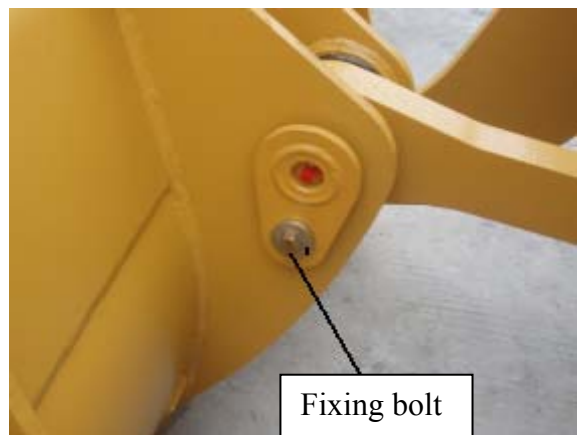
7.2 Disassembly and Assembly of Linkage

I Disassembly of linkage (Removing the section of 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 fixing bolt of pin and washer.



Take down the pin with soft hammer. Get off adjusting gasket and O shape dust fender.

★**Notice:** Hang the linkage with joist barrow to avoid dropping to hurt foot or destroy ground when take down the pin.



3. Remove the pin connecting linkage with rocker arm.

1) Remove the fixed bolt of pin and washer.



2) Take down the pin with soft hammer, Get off the adjusting gasket and O shape dust fender.

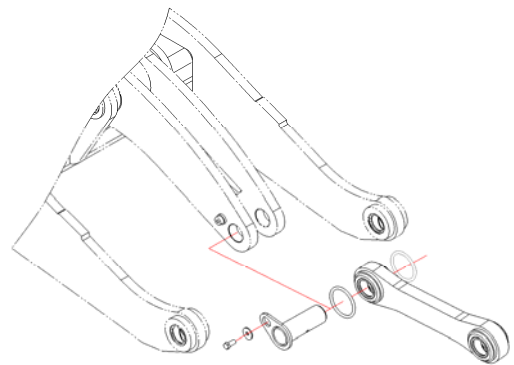
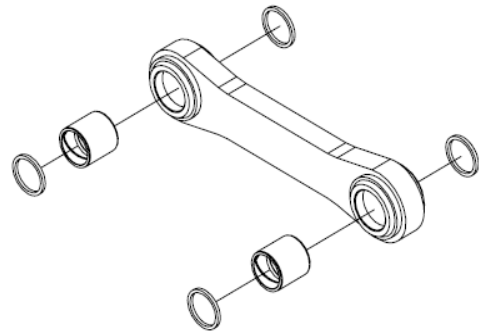
★ Notice: Predict the moving trace of linkage to prevent injury.



II Assembly of linkage (Assembling the section of 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 and a group of washers.

Then fix the pin on rocker arm with bolt



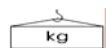
M16×30 and washer.



Tightening torque: 193~257Nm.

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 each end of linkage shaft hole.

Never scratch the O-ring.



Linkage



Connect the bucket with linkage assembly with a pin and a group of washers, and then fix the pin with a bolt and a washer.



Tightening torque: 193~257Nm.



4.Load proper amount of lubricant grease in the pin connecting position with grease injector.



Lubricant grease



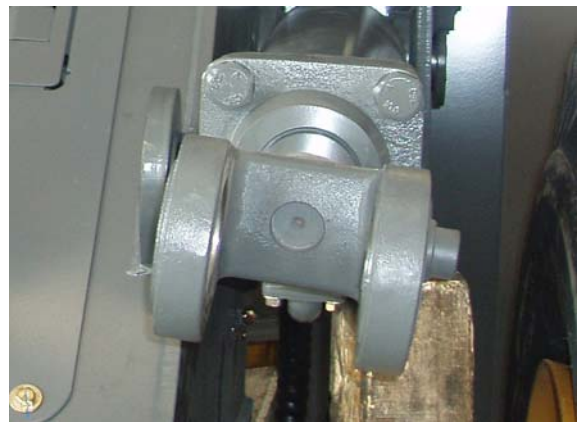
7.3 Disassembly and Assembly of Boom

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, (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 bolts and washers of pin connecting boom cylinder with boom.

6.Strike slightly and take out the pin, get off the adjusting gasket and O shape dust fender.



7.Remove the right and left headlamps.

★ When removing,just take down the upper fixing bolts and keep the underside one loosen. Rotate the lamp and bench for some angle to avoid destroying the circuit.

8. Remove the fixing bolts and washers of pin connecting front frame with boom.



9.Strike the pin slightly and take it out,and remove the adjusting washer and O- dust ring



10.Lift the boom down.

★ Keep the boom balance in process of hang

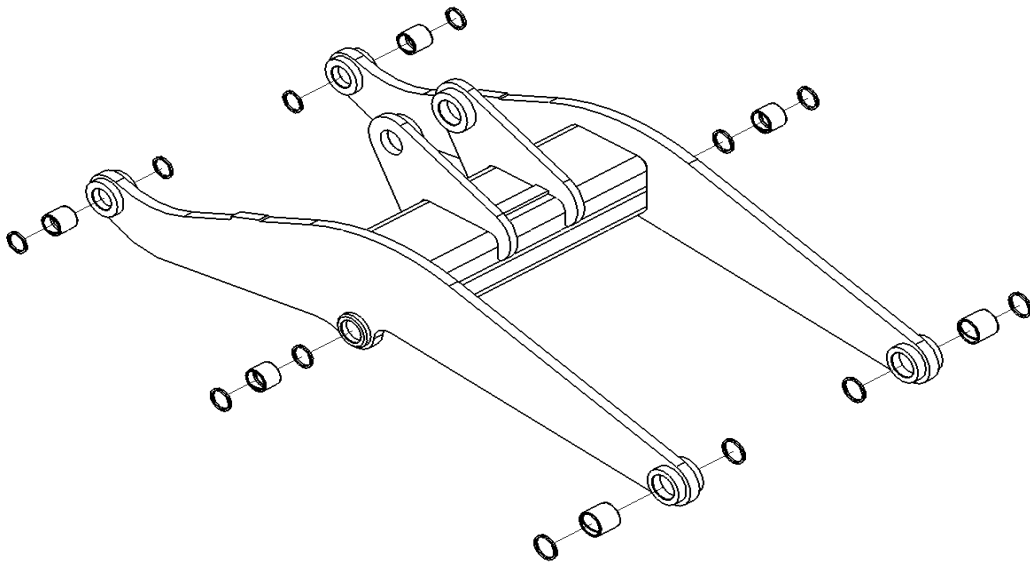


II **Assembly of boom** (Assemble according to the following steps after replacement and maintenance)

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: 193~257Nm.



3. Connect linkage assembly on the rocker assembly with a pin and two O-shape dust rings and a group of washers.



Then fix the pin on rocker with bolt and washer.



Tightening torque: 193~257Nm.



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.

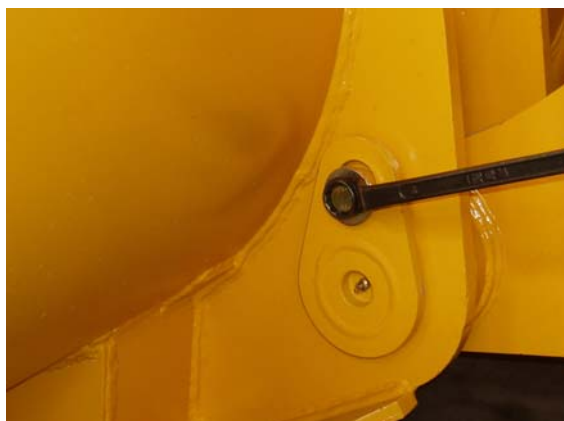
,



Fix the pin with two bolts and two washers.



Tightening torque: 193~257Nm.



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: 193~257Nm.



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 with the front frame by 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: 193~257Nm.



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: 193~257Nm.



★ 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: 193~257Nm.

12. Assemble right and left highlights and tighten the related fixing 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.

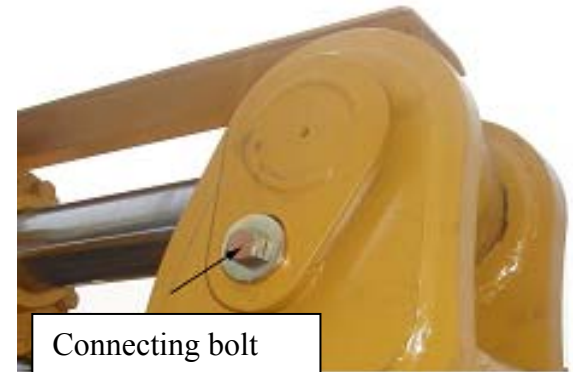


Dump cylinder

★ 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 and washer of pin, as is marked by Arrow.

Strike the pin down with soft hammer, and take down the gasket and O shape dust fender.



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 and washer of pin.



Strike the pin down with soft hammer and take down the O-shape dust ring and adjusting gasket.

★**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 and washer.



Strike the pin down with soft hammer and take down the gasket O shape dust fender. Hang the rocker arm down and put it on the clean leather

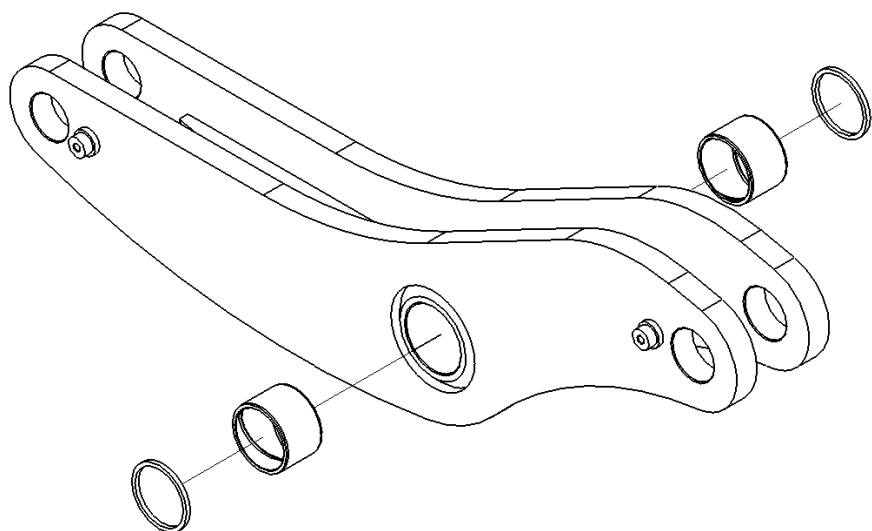


Rocker arm

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 rocker with copper rod, and install dust rings in jointing hole; Make oil groove openings of two sleeves untilted.

★**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. Hang the rocker with the lifting rope(through the hole of bin)

★ Make sure the lifting rope clean and do not produce scratches for the hole to bin.



Rocker

3. Align the two pin holes of hoisting rocker and boom, then install the pin and gasket on boom, and adjust the clearance of rocker, fix the pin with bolt and washer.

★ 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.



Tightening torque: 193~257Nm.

4. Lift the dump cylinder and keep the rocker steady. Then take down the supporting wood block under dump cylinder.



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.



Tightening torque: 193~257Nm.

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.



Tightening torque: 193~257Nm

7. Load proper amount of grease in the pin connecting position with grease injector.



Grease



CHAPTER VIII DISASSEMBLY AND ASSEMBLY OF CAB

8.1 Assembly and disassembly of cab electrocomponent (This section mainly introduces how to replace the cab wind shield wiper and headlight, the replacing steps are as follow)

I. Disassembly of cab electrocomponent

1. Turn off the power switch.



2. Remove the wind shield wiper.

2.1 Remove the fixed bolts outside the wind shield wiper.



2.2 Take down the rocking beam outside the wind shield wiper.



2.3 Remove the protective sleeve.



2.4 Remove the nuts.



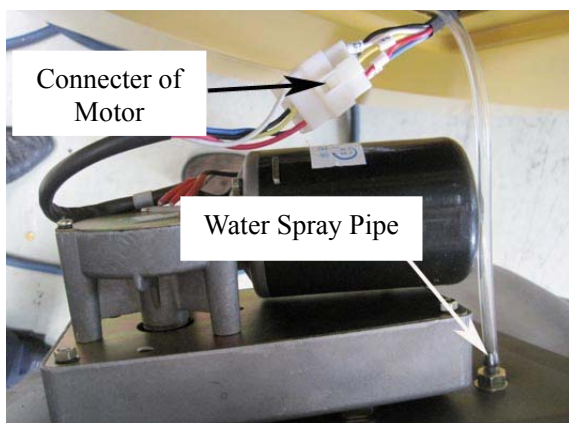
2.5 Remove the fixed plate.



2.6 Take down the wind shield wiper and actuators .



2.7 Unplug the connector of motor. Remove the water spray pipe.



3. Disassembly of Headlight

3.1 Unplug the connector of headlight.



3.2 Disassemble the headlight.



3.3 Take the headlight apart.

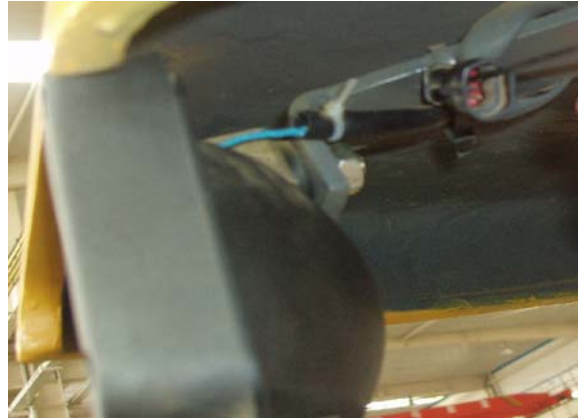
3.3.1 Remove the outer bolts of headlight.



3.3.2 Take down the outer glass and fixed shell.



3.3.3 Find the terminal of power cable from connectors.



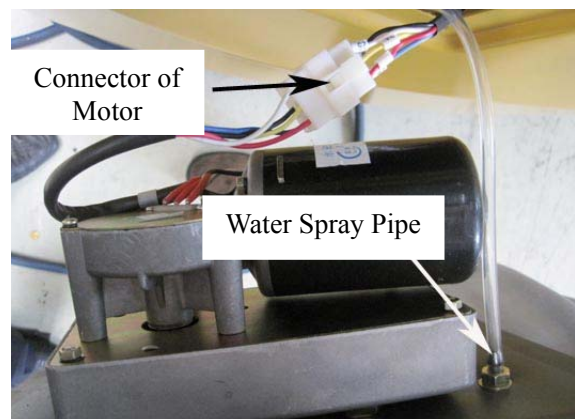
3.3.4 Take down the bulb.



II Assembly of cab electrocomponents

1. Assembly of the wind shield wiper

1.1 Connect the connectors of motor, and connect the water pipes.



1.2 Put the wind shield wiper and actuator into the fixing bolt holes.



1.3 Unplug the connector of motor into the two holes on the cover, tighten the bolts.



1.4 Put the protective helmet.



1.5 Install the fixed plate on the cab .



1.6 Install the pendulum of the wind shield wiper.



1.7 Fix the pendulum of the wind shield wiper.

★ Pretighten the fixed nuts of pendulum, open the switch of the wind shield wiper. Adjust the installation position of pendulum according to the work area of the wind shield wiper, tighten the bolts.



2.Assemble the headlight

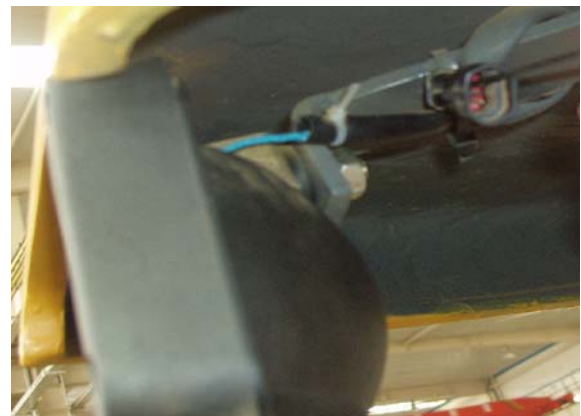
2.1 Install the bulb.



2.2 Fix the glass of headlight.



2.3 Unplug the power wires into the connector.



2.4 Fix the headlight on the bench of cab.



3. Turn on the power switch.



8.2 Assembly and disassembly of the lock of cab door (This section mainly introduces how to replace the lock of cab door, the replacing steps are as follow)

I. Disassembly of the lock of cab door

1. Remove the shield of the lock to the door.



2. Take down the shield.



3. Remove the shield of groove



4. Remove the interior of the door.



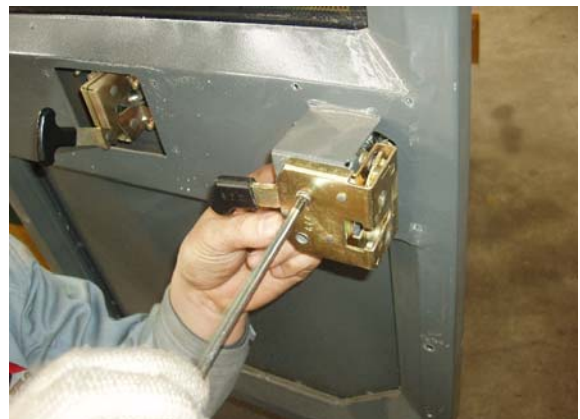
5. Take down the interior of the door



6. Remove the fixed end of the door handle.



7. Remove the door lock.



8. Remove the bolt fixing the door handle.



9. Take down the doorhandle.



10. Remove the groove.



II Assembly of the cab door lock

1. Put the doorhandle of the lock to the door on the appropriate position of the cab door.



2. Fix the bolts fixing the doorhandle.





3. Install the lock to the door .



4. Install the groove and fix it on the specified position.



5. Put the interior of the door and fix it on the specified position of the door.



6. Unplug the installation card fixing the interior into the hole.



7. Install the plastic nails.



8. Install the shield of the lock to the door.



9. Install the shield 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 complete appliance 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 hose from steering gear to priority valve.

★ Notice: 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. Then disassemble the oil pipe completely. Protect the jointing surface of disassembling oil pipe, jointer etc. and keep



Hose Connecting
Pilot-operating Valve

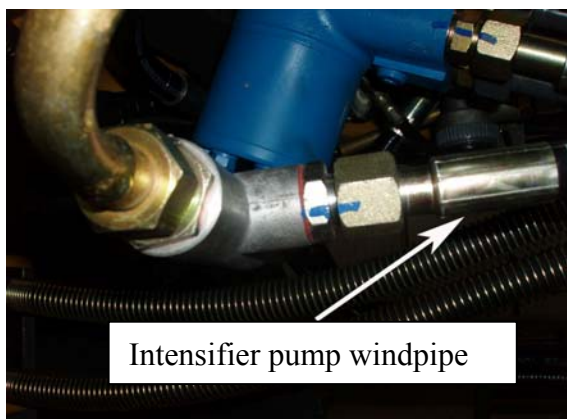
them clean

3. Disassemble the pipeline connecting on the brake valve.

3.1 Open deflation valve on the gasholder, and release the pressure gas completely.



3.2 Remove the gas pipe of brake valve to front and rear intensifier pump. (Refer to “Disassembly of foot braking valve”)



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.



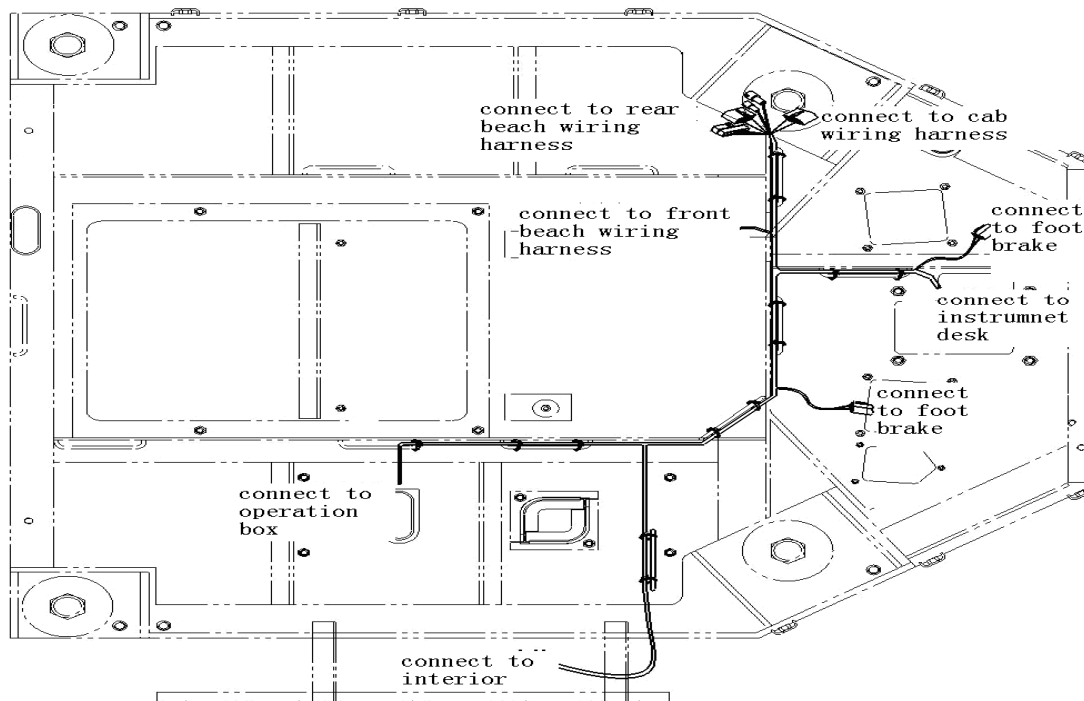
4. Remove air conditioning evaporator.

(Refer to 8.4 disassembly and assembly of air conditioning)



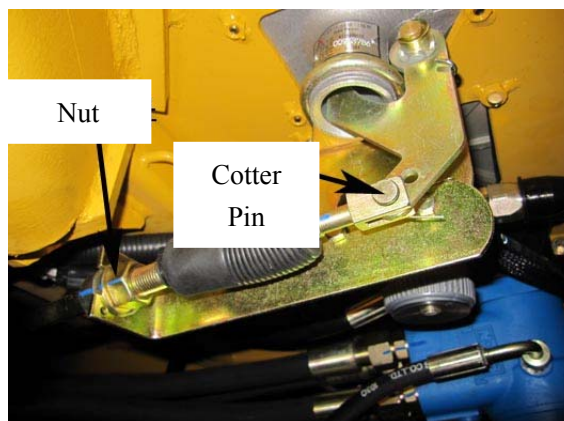
5. Disconnect the connector connecting cab.(As the chart shows:)

chart of connector
connecting cab



6. Assembly of the pilot valve and the operative box wiring harness (refer to 8.5 the disassembly and assembly of operative box).

7. Remove the soft shaft of engine throttle. Remove the cotter pin of the soft shaft of engine throttle connecting the treadle, loosen the nut fixing the soft shaft, take down the soft shaft of engine throttle.



8. Close the inlet and outlet valve of engine, and then remove the two water pipes at left of air conditioning evaporator, and then remove the air conditioner hose connecting with compressor and liquid storage tank at the right side (refer to the disassembly and assembly of air conditioning).

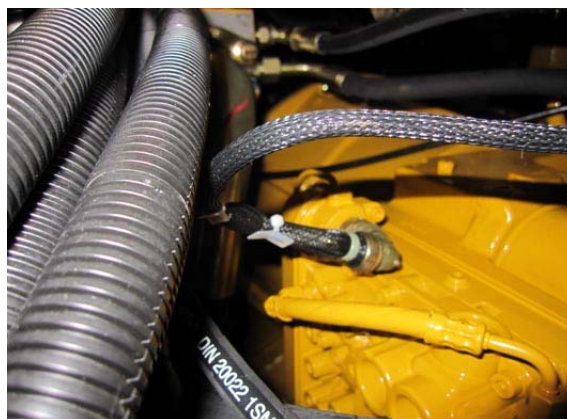


★Pay attention to ventilate the maintenance place

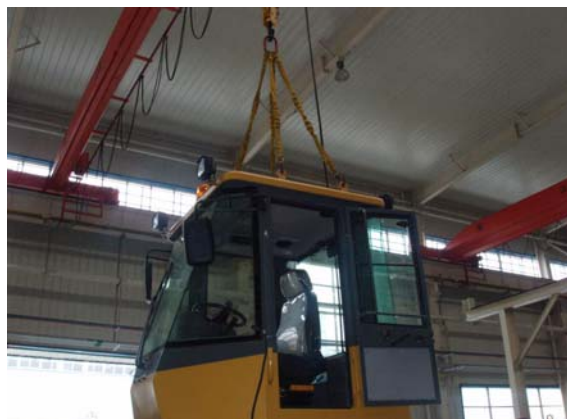
9. Remove the plug of speed sensor on the gear box. (2 wires).



10. Remove the wiring harness plug of shift gear and transmission system on the gear box. (5 wires).



11. Lift the cab until the hoisting rope is not loose, but not too tight.

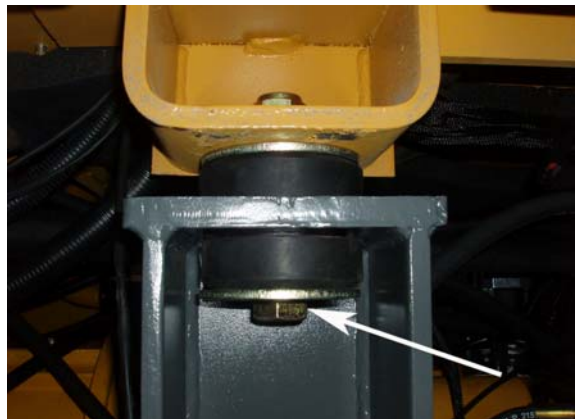


12. Remove the four bolts which fix the cab.

12.1 Remove the left and right baffles of cab.



12.2 Remove the four bolts on the front and back of cab.



13. Lift the cab away from frame and put on the proper position.



Cab assembly

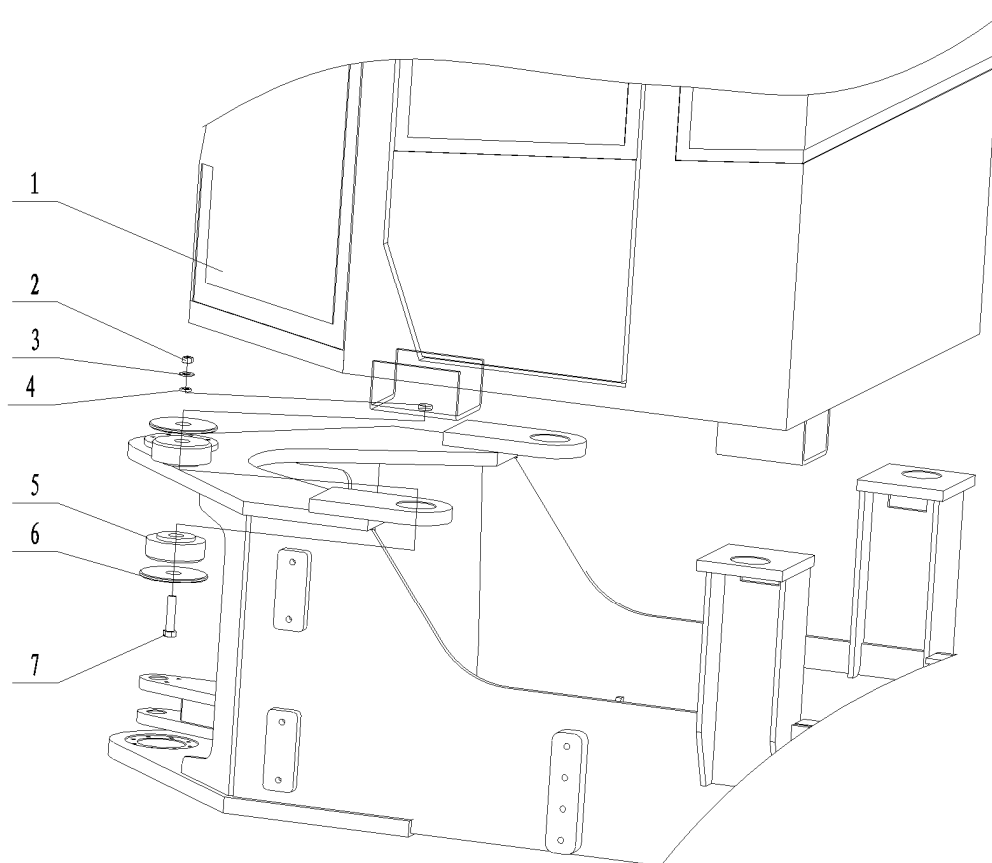


II Assembly of Cab

1. Put four shock absorbers (part 5) and four washers (part 6) on the cab support of rear frame. Lift the cab bench assembly (part 1) to rear frame support. During falling, four bolts (part 7) through four washers (part 6) and four shock absorbers (part 5) from up to down under the support. Adjust the anterior/posterior direction of cab bench assembly to make it lie as back as possible and the clearance between it and engine hood is uniform. After adjusting properly, install four washers (part 3, 4) and four nuts (part 2), then tighten the bolts in principle of diagonal.



The bolt of cab assembly M30: Tightening torque: 120~200Nm



2.The connection of speed change mechanism.

Put the operating flexible shaft through fixing frame under the instrument desk in order, and then fix it on the speed change operating handle with self-bring fasteners of operating flexible shaft. Put the speed change operating handle in the position of reverse gear.

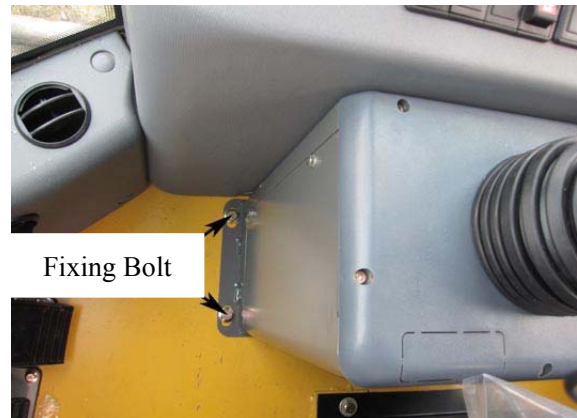


3.The connection of manipulation mechanism

3.1 Install the pilot valve assembly, hand brake switch and etc. on the corresponding position of operation box (specific operation can refer to the disassembly and assembly of operation box).



3.2 Install the manipulation mechanism assembly after connected on the corresponding position of bench of cab with four bolts (M10×25).

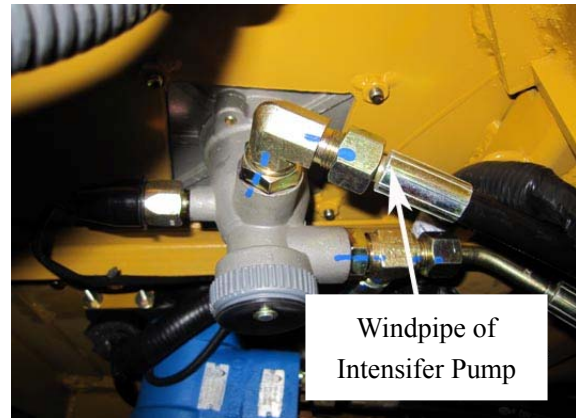


4.The connection of steering gear oil pipe

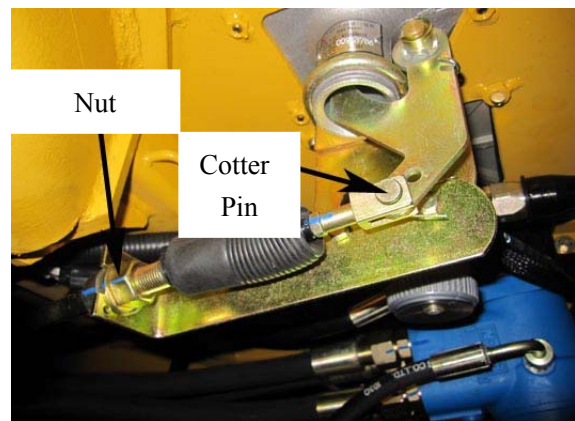
(The specific operation is shown in the installation instruction of steering gear)



5.The connection of foot brake valve windpipe、intensifier pump and related power connectors. (specific operation can refer to the disassembly and assembly of foot brake valve)



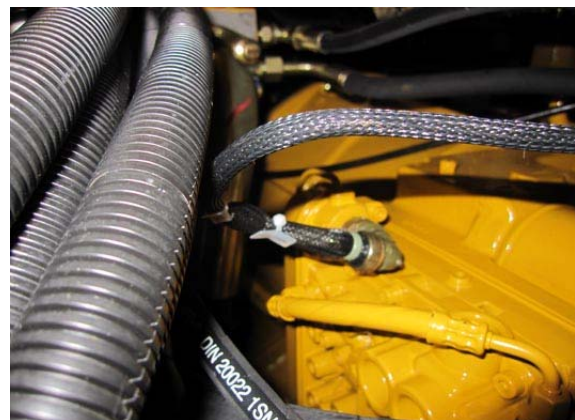
6.The connection of throttle flexible shaft
Connect throttle flexible shaft with throttle manipulation mechanism and adjust the nuts. After assembling, press flexible shaft by hand to test whether the tightness is suitable.



7.The installation of air conditioning (shown in the disassembly and assembly of air conditioning).



8.Put the plug of velocity sensor in the corresponding position of gear box. (2wires)



9. Put the plug of speed change valve in the corresponding position of gear box. (5wires)

10. Plug in the connector of plugboard.

Plug in the connector connecting cab wiring harness and instrument desk wiring harness with which connects the wiring harness of rear frame.

Plug in the connector connecting front frame wiring harness and rear frame wiring harness with cab wiring harness.



8.4 Disassembly and Assembly of Air Conditioning

(This section mainly introduces how to replace the air conditioning, the replacing steps are as follow)

I Disassembly of Air Conditioning

Evaporator

1. Close water valve of engine.



2. Loosen the connection of compressor with air conditioning 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 five bolts fixing outside shield of evaporator.

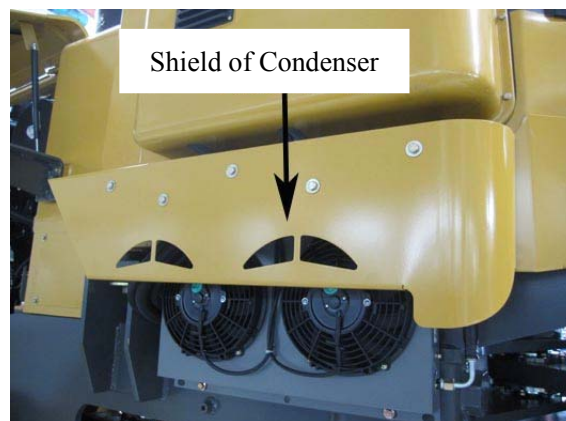
Take down outside shield of evaporator.



4. Remove the bench at the right of cab.

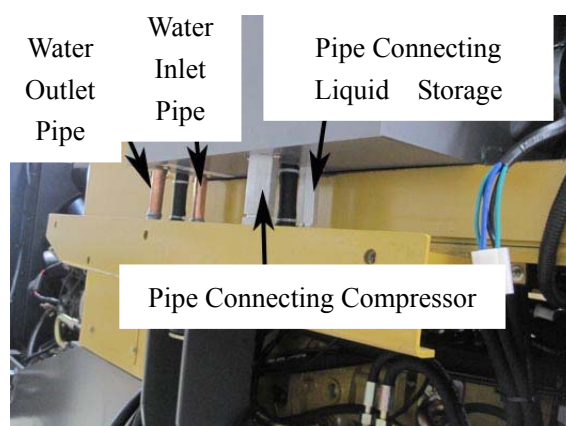


5.Remove condenser shield which is under outside shield of evaporater.



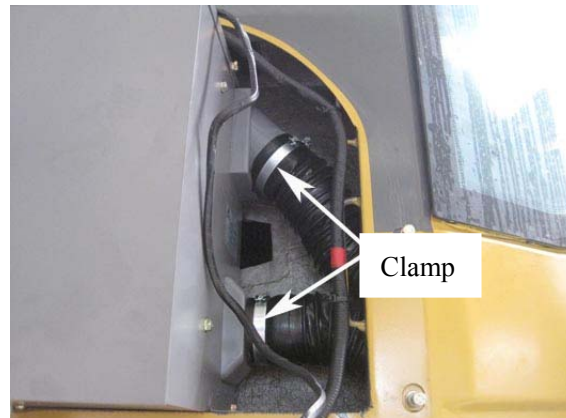
6.Remove inlet and outlet pipes、 the flexible pipes connecting with compressor and liquid storage tank from evaporater.

★ Warning:Release the water of evaporater to the container under it.



7. Remove the two vent pipes at the right of air conditioning evaporator.

Loosen the clamp fixing the pipes and remove the vent pipes from the air conditioning evaporator.



8.Unplug the connector connecting air conditioning evaporator with air conditioning panal board 、 liquid storage tank 、 compressor and powerlines.



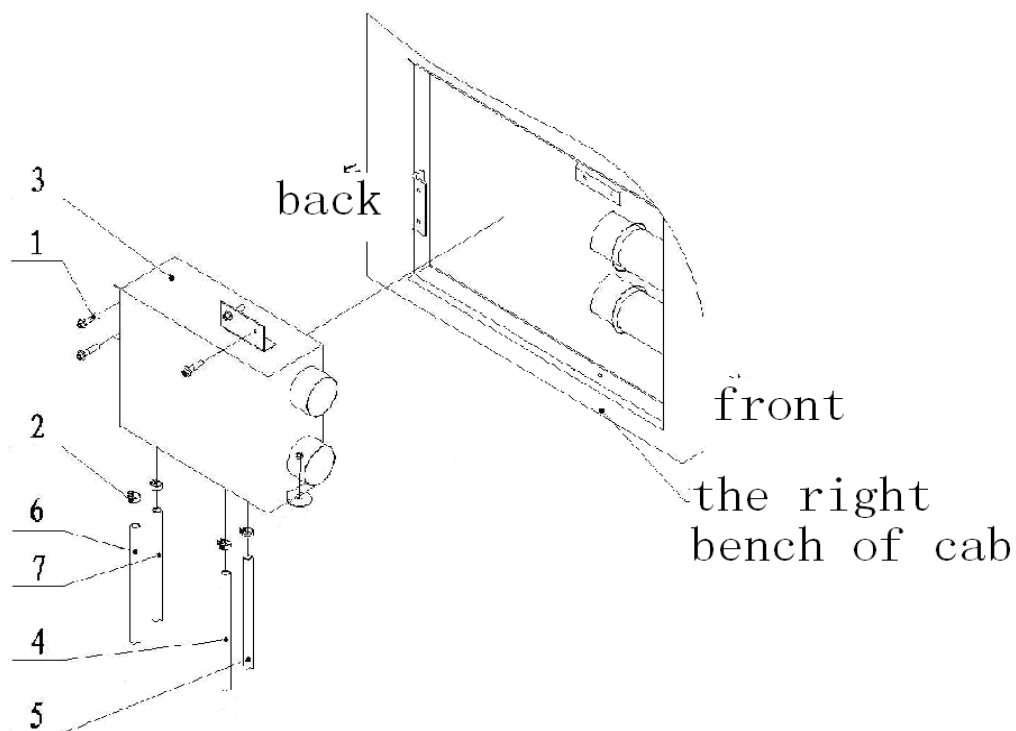
9.Remove the fourM8 bolts and oneM6 bolt fixing the air conditioning evaporator.

Take out the air conditioning evaporator.



II Assembly of Air Conditioning

Condenser



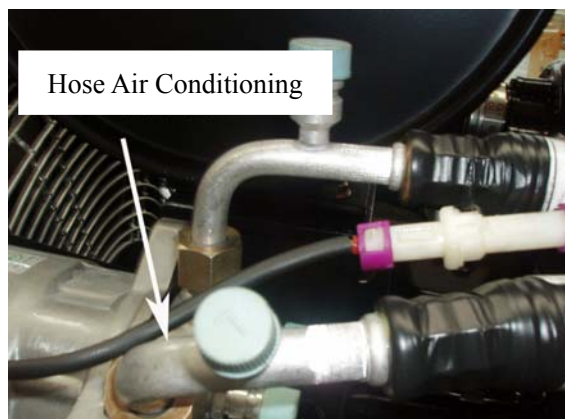
1. Connect the output and input pipes(Part6、 Part7) with the condenser(Prat 3) with clips(Part 2).

2.Connect the pipe connecting with condenser (Part 1) and liquid storage tank(Part 5)with the evaporator(Part 3).Connect the other end of the pipes with condenser and liquid storage tank .

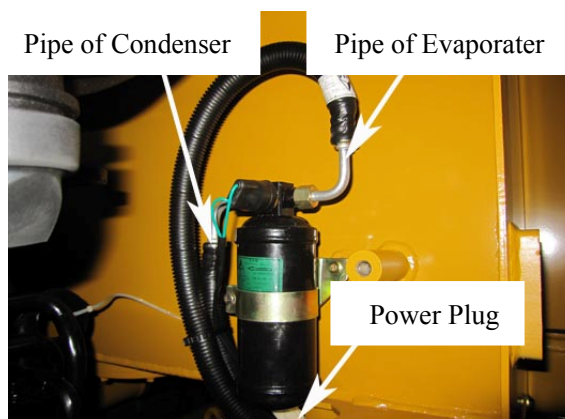
3.Fix the air conditioning evaporator on the right bench of cab with four bolts (M8)(Part 1) and an bolt (M6).Connect two vent pipes with evaporator with hose clips .Connect the

power connecter of evaporator

4. Connect the other end of the pipe of compressor (Part 4) on the corresponding position of condenser.



5. Connect the other end of the pipe of liquid storage tank(Part 5) on the corresponding position of liquid storage tank.



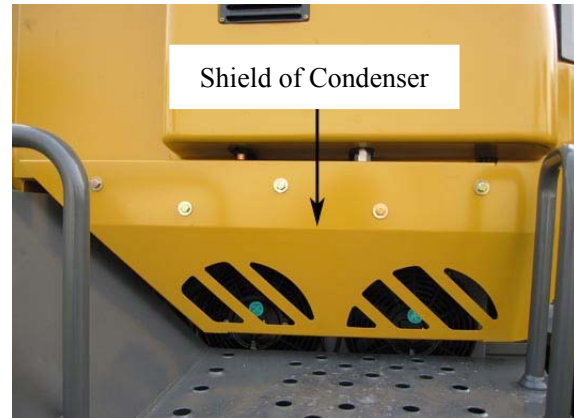
6. Open the discharge water valve fo engine.



7. Plug the connectors well connecting the evaporator with air conditioning、power wires、compressor and liquid storage tank。



8. Install the guard plate of condenser.



9. Install the outer guard shell of condenser.

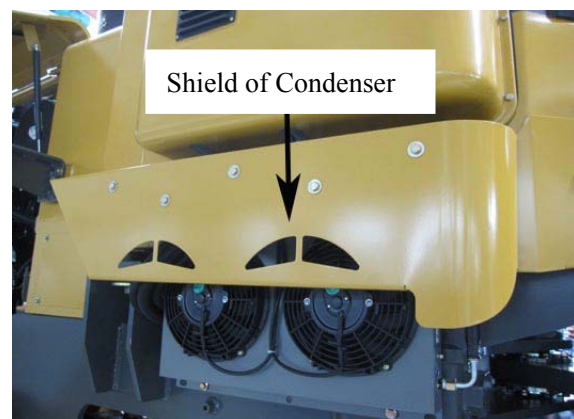


III Disassembly of Air Conditioning Condenser

1. Remove the bench at the right of cab.



2. Remove the baffle at the right of cab.

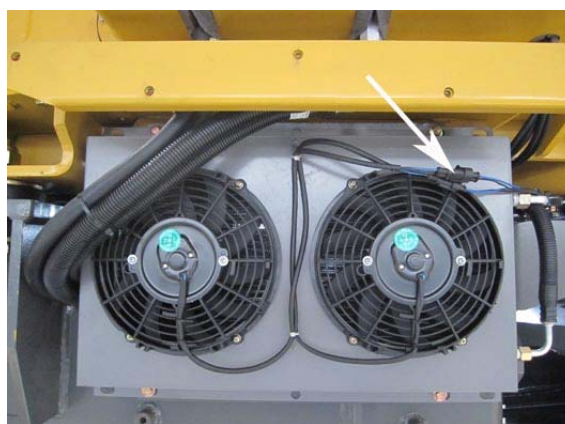


3. Remove the flexible pipe connecting condenser with compressor.

Remove the flexible pipe connecting condenser with liquid storage tank.



4. Unplug the power connector of air conditioning condenser.

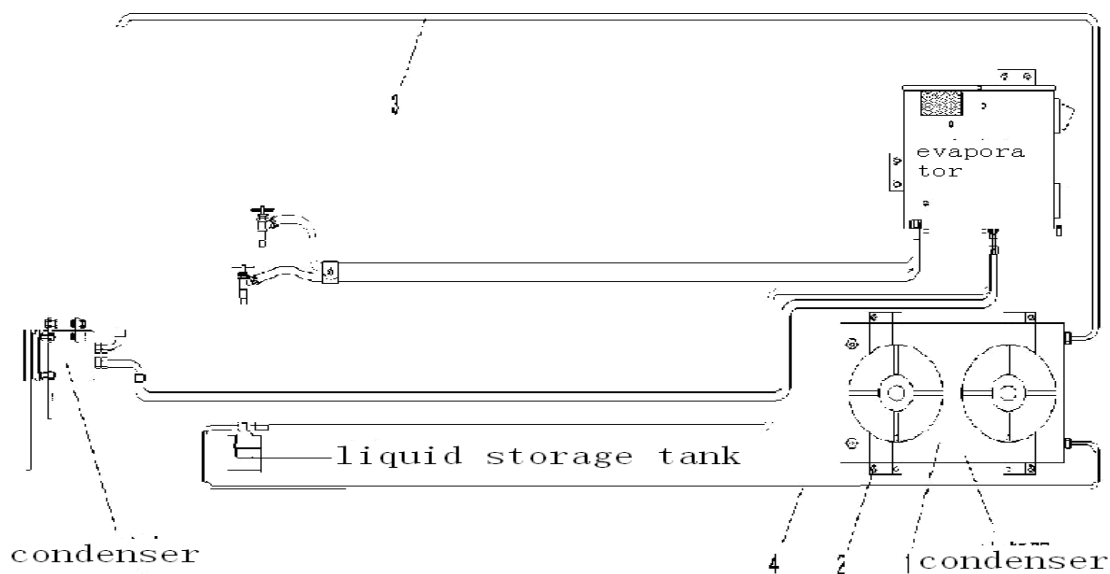


5. Remove the four connecting bolts which connect air conditioning condenser with front and rear support board.

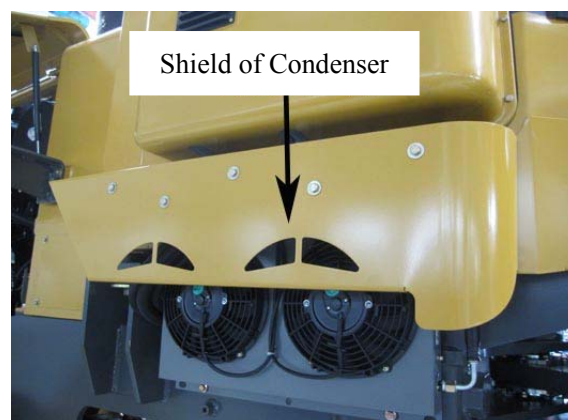
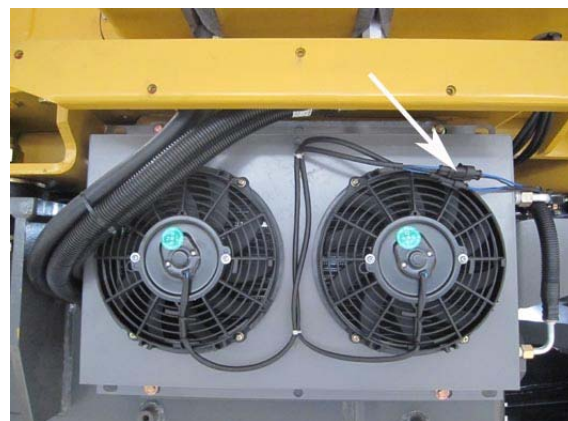


Take down the air conditioning condenser.

IV Assembly of Air Conditioning Condenser



1. Fix the air conditioning condenser on front and rear support board with four bolts (M10×25) and washer.
2. Assemble the flexible pipe (Part 2) connecting condenser and liquid storage tank). Tighten them.
3. Assemble the flexible pipe (Part 3) connecting condenser and compressor . Tighten them.
4. Connect the power connector of air conditioning condenser.
5. Install outside shield of condenser.



6. Install the right bench.



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 air conditioning evaporator).

Remove the field shell of evaporator, disconnect the wiring harness, loosen the bolts fixing the air conditioning evaporator and take it down.

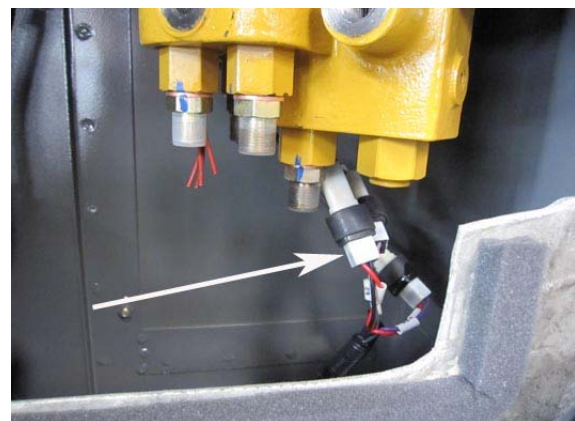
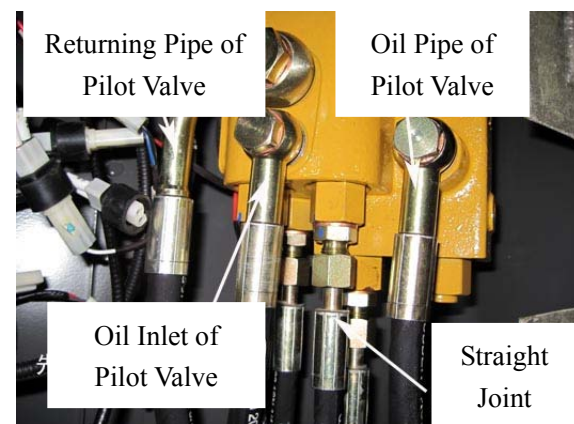
2. Disassembly of pilot valve.

After making sure the machine fixed well, shake the pilot valve several times to release the oil pressure; and remove the straight joint, inlet and outlet oil pipe connecting with pilot valve and so on.

★ 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. Notice to catch and mark each straight joint.

3. Disconnect the connection of instrument desk wiring harness with pilot valve button switch wiring harness.

4. Unplug connectors of intermediate relay with instrument desk.



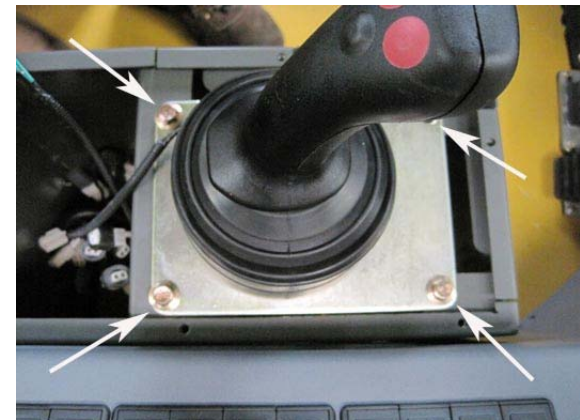
5. Remove 6 bolts fixing the operation box.



6. Remove hand brake switch and the power connector. Take down the upper cover plate .

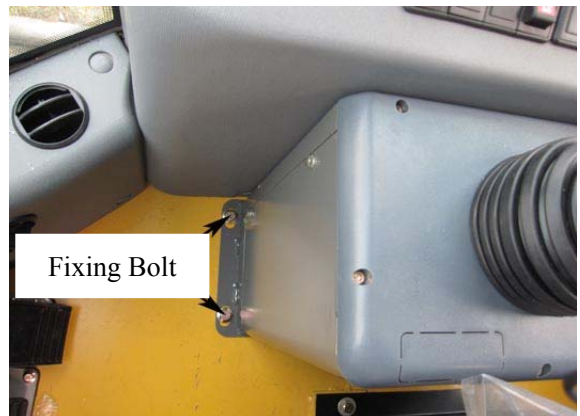


7. Remove the four bolts fixing pilot valve. Take down the pilot valve .



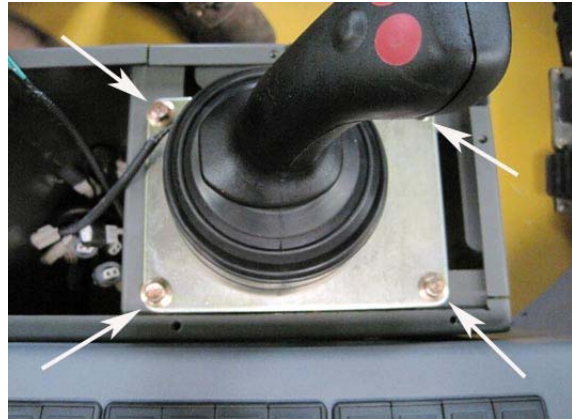
8. Remove the four bolts fixing the operation box.

Take out the operation box.



II Installation of Operation Box

1. Fix the four bolts (M10×16) using by pilot assembly on the corresponding position of operation box.



2. Install the hand brake switch and power connector on the corresponding position of cover plate of operation box.



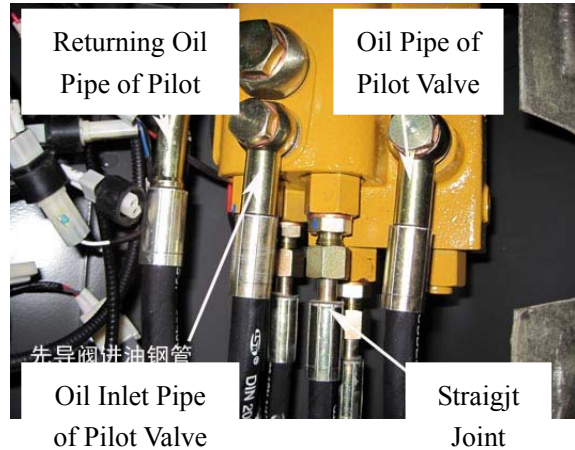
3. Fix the upper cover plate after installing on corresponding position of operation box with 6 inside hexagonal bolt(M6×20); put the operation box on corresponding position of right part of cab with 4 bolts.



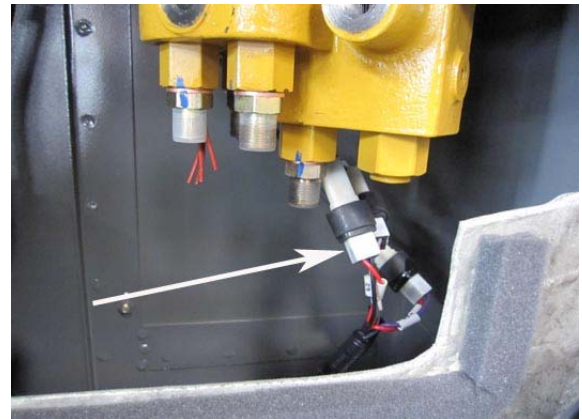
4. Fix the intermediate relays in operation box with screw (M5×12) and washer.(Insert the intermediate relays into the operation box immediately ,if can't be fixed directly) Connect the intermediate relay in operation box with corresponding connector of instrument desk wiring harness.



5. Fix four straight joints lower oil port of pilot valve pipe with adding washer first, and connect inlet and outlet oil pipe of pilot valve with pilot valve.



6. Plug the connector of instrument desk wiring harness with connector of wiring harness of pilot valve button switch.



7. Install the air conditioning evaporator (Refer to the 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. Remove the seat assembly M8.



2. Hang the seat assembly.

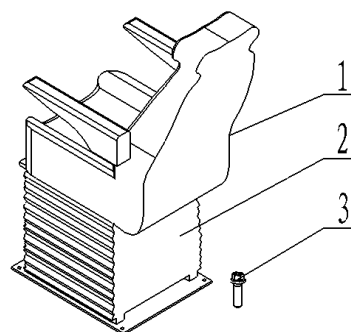


3. Remove seat support.



II Installation of seat

Place seat (Part 1) on the seat support frame(Part 2), and fix with four M8 bolts. Place seat assembly on the corresponding position of cab bench, and then tighten with four bolts (Part 3).



Tightening Torque: 22~30N.m

CHAPTER IX DISASSEMBLY AND ASSEMBLY OF ELETRIC SYSTEM

9.1 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.

2. Open the window lattice of the shell of engine and a side door

3. Unplug the connector of rear headlight at left and right of storage battery.



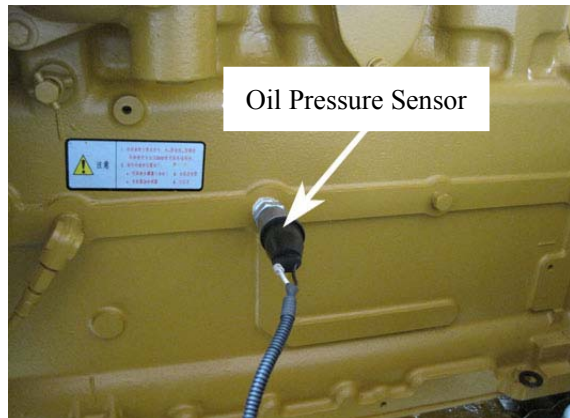
4. Unplug the connector of rear headlight and rear frame wiring harness.



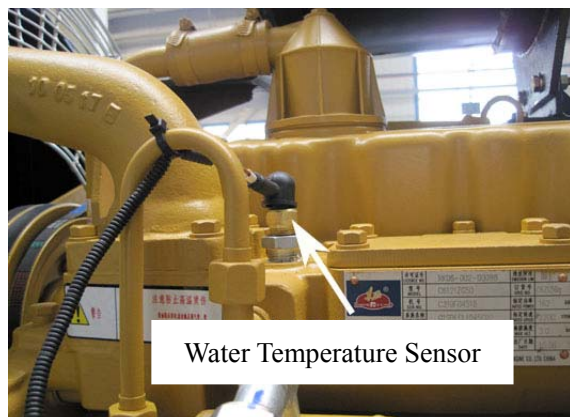
5. Unplug the plug of reversing buzzer.



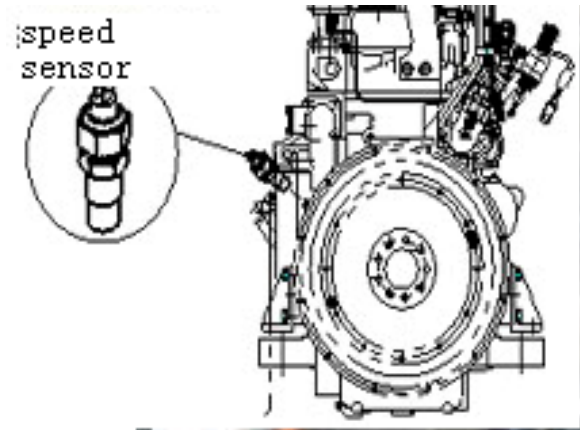
6. Remove the connecting wires of engine oil pressure sensor.



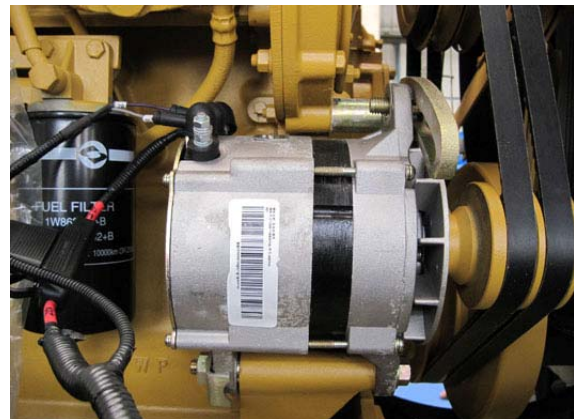
7. Remove the connecting wires of engine water temperature sensor.



8. Remove the connecting wires of speed sensor.



9. Remove the connecting wires of generator .



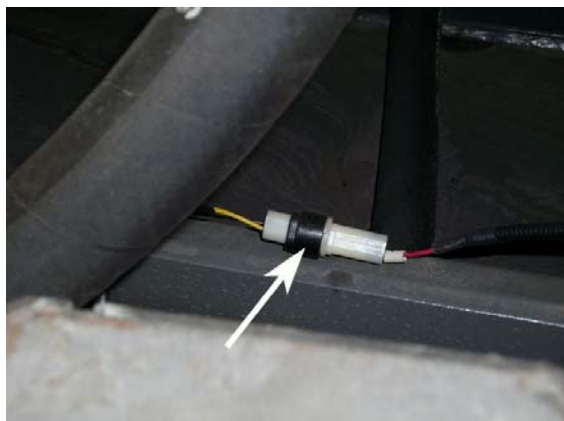
10. Remove the connecting wires on the starting motor.



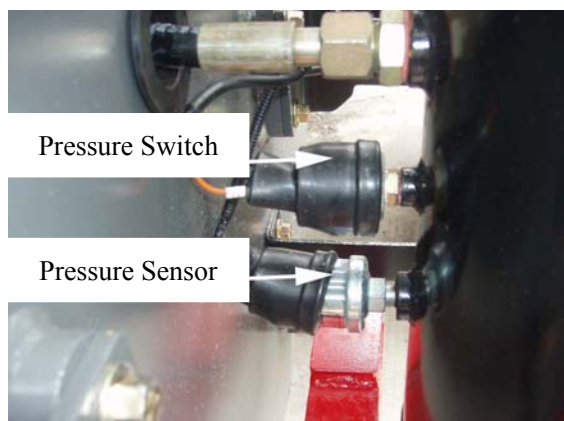
11. Remove the connecting wires of oil cut-off valve on the engine.



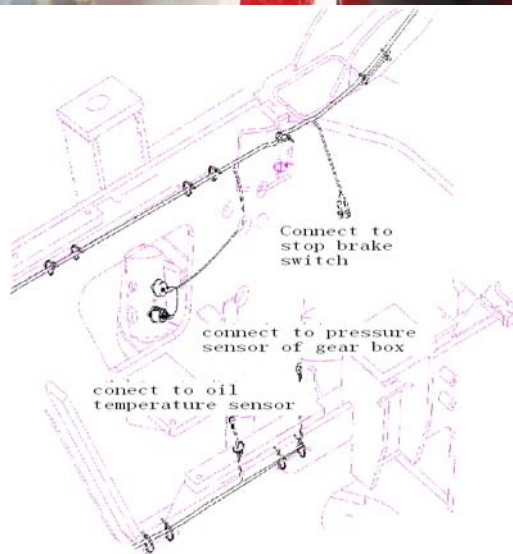
12. Unplug the plug of fuel level sensor.



13. Disconnect the wiring harness of braking air pressure sensor and pressure switch.



14. Disconnect the connection of gear-box pressure sensor 、 oil temperature sensor of torque converter、 stoping brake switch with rear frame wiring harness.



15. Unplug the connector between cab wiring harness and instrument desk wiring harness which connects with rear frame wiring harness.



16. Shear break the ligature on frame wiring harness. Then take down the rear frame wiring harness.



II Assembly of Rear Frame Wiring Harness

1. Fix reversing buzzer on rear frame with two bolts M8×16.



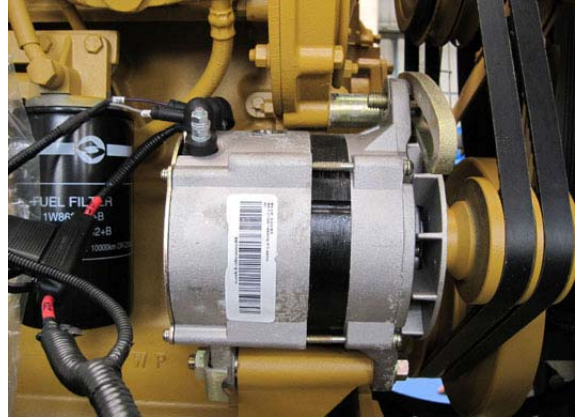
2. Connect the reversing buzzer on rear frame with rear frame wiring harness No.0 and 9 .

3. Connect rear frame wiring harness and starting motor wiring harness with contactor.



4. Pave rear frame wiring harness and starting motor wiring harness at left of rear frame, and then bind wiring harness with ligature and fix.

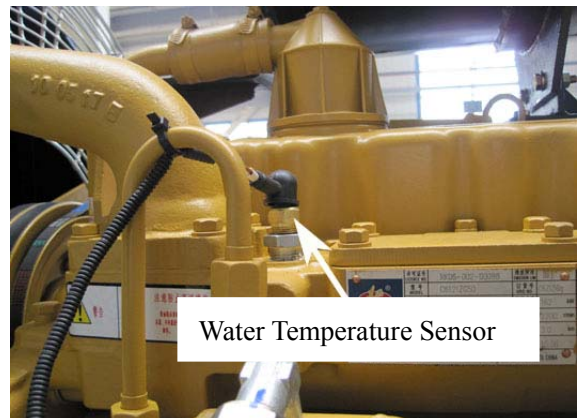
5. Connect the wiring harness of generator.



6. Connect oil pressure sensor with rear frame wiring harness.



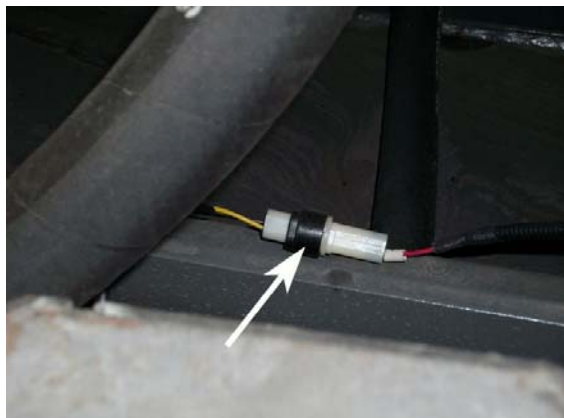
7. Connect water pressure sensor with rear frame wiring harness.



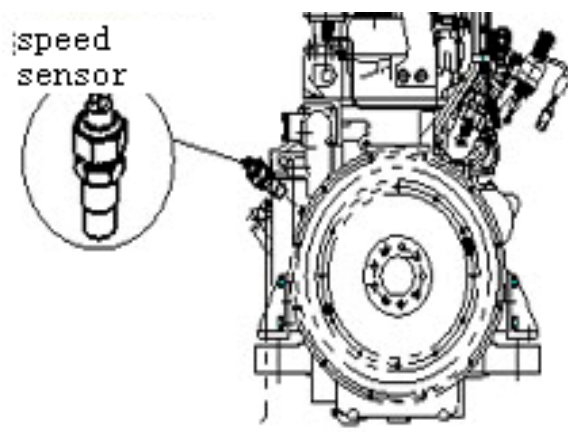
8. Connect oil cut-off valve with rear frame wiring harness.



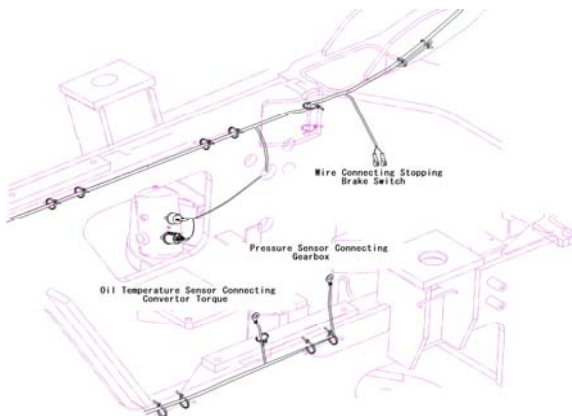
9. Connect fuel level sensor with rear frame wiring harness.



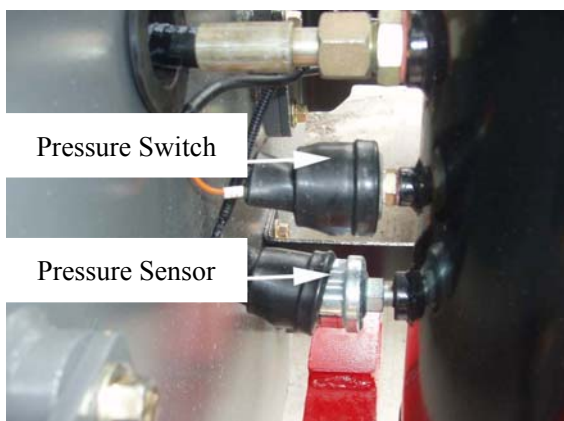
10. Connect speed sensor with rear frame wiring harness.



11. Disconnect the gear-box pressure sensor , torque converter oil temperature sensor braking air pressure sensor and rear frame wiring harness.



12. Connect rear frame wiring harness with pressure switch and air pressure sensor.



13. Connect the connectors of left and right battery with connector of tail light.



14. Close the window lattice of the shell of engine and a side door



15. Plug the connectors of rear frame wiring harness and cab wiring harness.

Notice: 1) When assembling the rear frame wiring harness, take the position of storage battery relay as datum point to fix. Fix every wire loop with two ligatures (one for each end of wire loop).



2) When assembling each wiring harness, arrange the wires in order. Don't wind and extrude each other.

16. Turn on the power main switch.



9.2 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. Turn off the power main switch.



2. Unplug the connectors of left and right combination headlights.



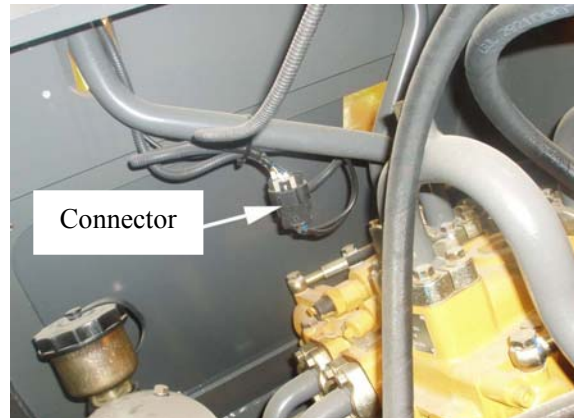
3. Remove the pipe clamp fixing on the frame wire seat.



4. Remove the connecting wire on the horn and front frame wiring harness



5. Unplug the connector of front frame wiring harness and pilot switch wiring harness.



6. Unplug the connector of front frame wiring harness and instrument panel wiring harness.

7. Shear break ligature of front frame wiring harness on the pipeline. 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, and connect No.12 and 40 of front frame wiring harness with horn wire.



3. Fix the front frame wiring harness with pipe clamps and bolts.

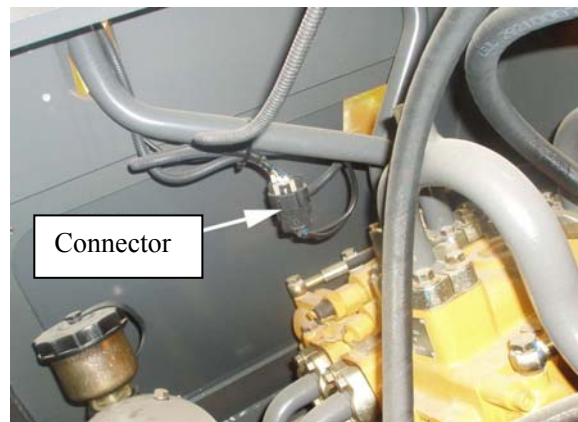
★ Notice: When assembling front frame wiring harness, take bifurcation of left and right combination lamps as datum, and fix the front end of bifurcation on the middle wire seat.



4. Plug the connector of front combination lamp.



5. Plug the connector of front frame wiring harness and pilot switch wiring harness.



6. Plug the connector of front frame wiring harness and instrument panel wiring harness.



7. Turn on the power main switch.

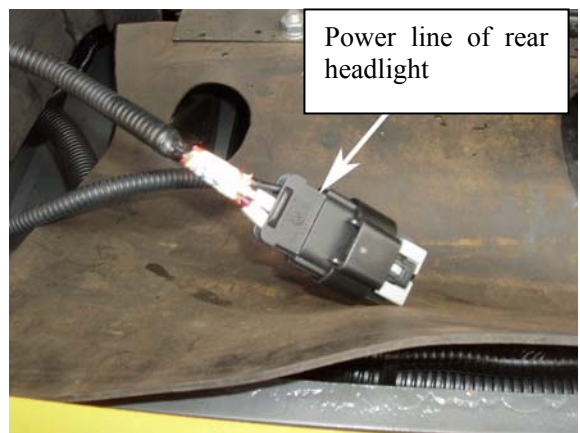


9.3 Disassembly and Assembly of Back Cover Wiring Harness

(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 the connector of back cover wiring harness and back frame wiring harness..
3. Unplug the connector of backlight, and then take down the rear cover wiring harness.

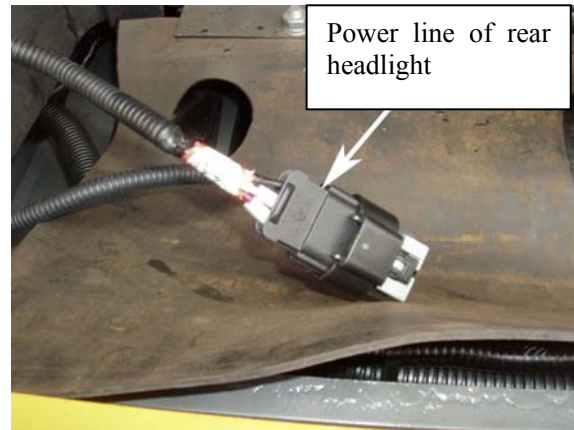


II Assembly of Back Cover Wiring Harness

1. Connect the back cover wiring harness with rear headlight respectively.
2. Put the back cover wiring harness through the engine hood.



3. Plug the connector of back cover wiring harness and rear frame.



4. Turn on the power main switch.



9.4 Disassembly and Assembly of Rear Tail Lamp

(This section introduces how to replace the taillight. The replacing steps are as follow)

I Disassembly of Rear Tail Lamp

1. Turn down power main switch.
2. Unplug the connector of rear tail lamp and rear frame wiring harness.



3. Remove the fixed screw on the back cover of rear tail lamp.



4. Remove the back cover of rear tail lamp.



5. Remove the fixed bolt fixing on the rear tail lamp hood, and take down the rear tail lamp.



6.Remove the nut which fixes the rear tail lamp.



7. Disassembly of rear tail lamp bulb.

1) Remove the plastic lampshade at front of rear tail lamp.



2) Take down the bulb in rear tail lamp



II Assembly of Rear Tail Lamp

1. Replace the bulb in rear Tail Lamp.



2. Install plastic lampshade at front of rear tail lamp.



3. Install the taillight in rear tail lamp hood, and tighten the nuts on rear tail lamp to fix the rear tail lamp.



4. Install tail 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 rear tail lamp can be confused.



6. Connect left and right taillight wires with CN19 and CN18 plug on rear frame wiring harness respectively.



7. Turn on power main switch.



9.5 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.. Turn off the power main switch.
2. Unplug the connector of headlight.
3. Remove the baffle at the back of headlight.
4. Unplug the connector of bulb.



5. Remove the bulb.



6. 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 baffle on the shell.



5. Plug the connector of headlight.



6. Turn on the power main switch.



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	
Multi-way 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