





HYDRAULIC UNIT
E-1114Ax


INSTRUCTION MANUAL


- © Thank you for purchasing our products.
- © Before using, please read Instruction manual carefully, and use the machine safety by following the instructions.
- © After reading, please keep it where anyone can utilize.

CONSEC CORPORATION

MEANING OF SIGNAL WORDS WARNING & CAUTION

The instruction manual includes three signal words ;  WARNING &  CAUTION which mean as follows.

 **WARNING** : It is assumed that if the user use the machine wrongly, it would be the risks that the user could be died or injured.

 **CAUTION** : It is assumed that if the user use the machine wrongly, it would be the risks that the user could remain the disabled or damage for the materials.

POINT : Important notices for the installation of machine, instructions, maintenance and servicing.

"CAUTION" might cause the serious accidents depending on the situations. Since we mention the important notices, please strictly follow the instruction in order to avoid the accidents.

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1 . WARNING AND CAUTION

- ⊙ To avoid the risk of fire, electric shock and personal injury, follow all the instructions stated in “Safety notice for Hydraulic machinery” and “Notes for usage of Hydraulic unit” .
- ⊙ Before using, please read “WARNING & CAUTION”, and follow the instructions and use safely.
- ⊙ After reading, please keep it where anyone can utilize.

【1】 Safety notice for Hydraulic machinery

WARNING

1. Do not use for other than specified purposes.
2. Keep bystanders away.
 - ⊙ Nobody can contact Hydraulic unit itself, other Hydraulic equipment, control box cord and hose except the workers.
3. Avoid dangerous environments.
 - ⊙ Do not use Hydraulic unit itself or control box such as electric machines in the rain, moisten or wet places.
 - ⊙ Keep working area lightly.
 - ⊙ Do not use Machine where there are flammable gas or flammable liquid.
 - ⊙ Cluttered work areas invite accidents.
4. Wear appropriate work clothes.
 - ⊙ Do not wear the loose clothing or jewelries in order to avoid to being caught in the rotating parts.
 - ⊙ When working outdoors, we recommend to wear the rubber gloves and insulated no-skid footwear.
 - ⊙ Wear cap or hair cover in case that you have long hair.
5. Wear safety glasses.
 - ⊙ Wear safety glasses during working. If there are many dust, please wear the dust mask.
6. Do not work with improperly posture.
 - ⊙ Fix the footing and maintain the balance at all times.
7. Work carefully without staying alert.
 - ⊙ When using the machines, please operate carefully by considering operation methods, how to use and surrounding area.
 - ⊙ Do not come close to the rotating parts. It will be dangerous to being caught in or injured.
 - ⊙ Be careful not to jam your hands or feet between moving parts or connecting parts.
 - ⊙ Do not use machine when you are tired or distracted.
8. Be careful for receiving electric shocks.
 - ⊙ Earth Hydraulic unit for sure.
 - ⊙ Use Power source equipped with Earth leakage breaker.
 - ⊙ When working, please wear rubber gloves and rubber shoes.

⚠ WARNING

9. Do not treat the cord and hose roughly.

- ⊙ Do not carry machines by holding the cord.
- ⊙ Do not carry machines by pulling the cord from the Power receptacle.
- ⊙ Do not get close the cord or hose near the heat, oil and sharp objects.

10. Use CONSEC recommended accessories and options.

- ⊙ In case than you use the accessories and options which are not listed in the manual or CONSEC's catalogue, it might cause the accidents or personal injury. Please do not use the accessories and options which CONSEC does not recommend.

11. Inspect for the damaged parts.

- ⊙ Before each use, check carefully Guards, cord, hose or other parts for damages to see that they should accomplish their designed function.
- ⊙ Check for alignment, binding of moving parts, parts damages, mounting, and any other conditions that may affect operation.
- ⊙ Do not use machine if the switch does not turn on or off.
- ⊙ Regarding the exchange or the repair for the damaged parts, please follow the instruction.
- ⊙ In case that there are no instructions in the manual, please contact to the distributors or CONSEC.

12. Stop Hydraulic unit as following cases.

- ⊙ When connecting or removing Hydraulic hoses.
- ⊙ When exchanging the options such as blades or core bits.
- ⊙ In case of repairing.
- ⊙ You hear the strange noise from Hydraulic unit.
- ⊙ In case that you can anticipate other hazardous situations.

13. Remove the key or the wrench for sure.

- ⊙ Before turning on the switch, please make sure that the key and the wrench which are used for the inspection and adjusting are removed.

14. Each machine is maintained carefully.

- ⊙ Regarding the supplying the oil or the exchange of options, please follow the instruction.
- ⊙ Keep the grip dry and clean, and avoid the oil or grease.

15. In case that you do not use the tools, please store it appropriately.

- ⊙ Store the place where keep children away, locking is available and dried place.

16. Contact CONSEC's sales (service) representative for repairing.

- ⊙ The machine is manufactured in compliance with applicable safety standards. Do not remodel machine and tool.
- ⊙ In case that the unauthorized person repairs it, it might cause the machine failure, accident or personal injury.
- ⊙ Contact to CONSEC's sales (service) representative for repairing.

【2】 Notes for usage of Hydraulic unit

⚠ WARNING

1. **Do not use fire around Hydraulic unit**
 - ⊙ Do not use fire near Hydraulic unit and Do not place flammable items near Hydraulic unit.
2. **Do not use in the rain.**
3. **Do not incline Hydraulic unit or do not move Hydraulic unit during operation.**
 - ⊙ It may cause the accidents such as falling down or improper operation.
4. **When lifting Hydraulic unit, pay attention to the surroundings.**
 - ⊙ After making sure that there is no one or no obstacle in the surroundings, then lift Hydraulic unit by using shackle etc.
 - ⊙ When lifting Hydraulic unit, do not enter under Hydraulic unit.
 - ⊙ Do not give any impacts when lifting up or down. The impact could cause the damage or breakage of Hydraulic unit.
5. **For storing, set Hydraulic unit at the flat place and keep Hydraulic unit by setting the wheel stopper.**
 - ⊙ Use wheel stopper for sure. If wheel stopper is not used, Hydraulic unit could move suddenly which will cause unexpected accidents.
6. **Use the proper voltage which is indicated on the nameplate.**
 - ⊙ Use three-phase 400V · 50/60Hz of power source and connect to over 25A of commercial power source.
 - ⊙ In case that you apply for the voltage which is over the indicated voltage, it will cause the accidents.
7. **Operation of remote control switch must be handled by an operator who has connected to Hydraulic equipment with Hydraulic unit.**
 - ⊙ After making sure the safety of surrounding hydraulic equipment, operation of remote control switch must be handled by an operator who will operate hydraulic equipment connected with Hydraulic unit.
8. **Connect Hydraulic hoses straightly.**
 - ⊙ If you connect Hydraulic unit such conditions in that the hoses are extremely bent or twisted, it will cause the decreasing of the pressure, accidents, or personal injury.
9. **Do not use Hydraulic hoses if there are cracks or breakages.**
 - ⊙ If there are cracks or breakages on hydraulic hoses, it will cause not only for leaking the oil but also causing the accident or injury.
10. **Do not put except hydraulic actuation oil in the hydraulic actuation oil tank.**
 - ⊙ Use specified hydraulic actuation oil in the hydraulic actuation oil tank. Do not mix with other liquid such as water, gasoline, kerosene etc.

⚠ WARNING

11. Use hydraulic equipment to match the capacity of Hydraulic unit.
 - ⊙ Before using hydraulic equipment, please make sure that the capacity of Hydraulic unit matches hydraulic equipment. If you operate and connect hydraulic equipment which does not match for the specification, it will cause the accidents or damages.
12. The oil temperature of hydraulic actuation oil must be kept within the range of 20°C ~ 60°C.
 - ⊙ In case that you use the machine in the cold weather, please do the running operation until the oil temperature increases over 20°C
 - ⊙ Regarding supplying of cooling water to Hydraulic unit, adjust the amount of water in order to be the range of 20°C ~ 60°C.
13. When Hydraulic unit stops, hydraulic equipment will also stops. Please pay attention for both of machines.
14. Set the discharge amount within the maximum discharge amount and the maximum number of rotation according to the hydraulic equipment which you use.
15. When using “Hakken” brand hydraulic equipment, adjust the set discharge pressure below 21MPa.
16. After operating Hydraulic unit, the hydraulic actuation oil will increase, and piping area will be also high temperature. Especially please be careful after finishing the operation.

⚠ CAUTION

1. In case that you store Hydraulic unit the place where the temperature goes below 0°C, please remove the water inside of Hydraulic unit by blowing the air after using. If water is not removed cleanly, it will cause the frozen and the damages.
2. When the amount of hydraulic actuation oil become below LOW sign on the temperature gauge and oil amount indicator, please fill oil up in the tank.
 - ⊙ The amount of hydraulic actuation oil must be within the range of HI ~ LOW sign on the temperature gauge and oil amount indicator.
3. Use specified hydraulic actuation oil.
 - ⊙ Use CONSEC specified mineral abrasion resistance actuation oil ISO-VG46.
(When Hydraulic unit is shipped from the factory, 「JOMO HYDLUX 46」 is applied for hydraulic actuation oil.)
4. Do not use old hydraulic actuation oil.
 - ⊙ The old hydraulic actuation oil might contain air, water and dust, and it causes not only dropping the pressure, but also damaging to Hydraulic unit.
5. After disconnecting hydraulic hoses, please make sure to attach the coupler caps.
6. Inspect the Return filter regularly.
 - ⊙ Regarding inspection of return filter, please refer to 「Inspection and Replacement of Return filter」 in the page 21.

 CAUTION

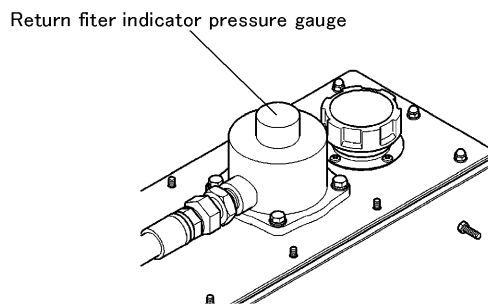
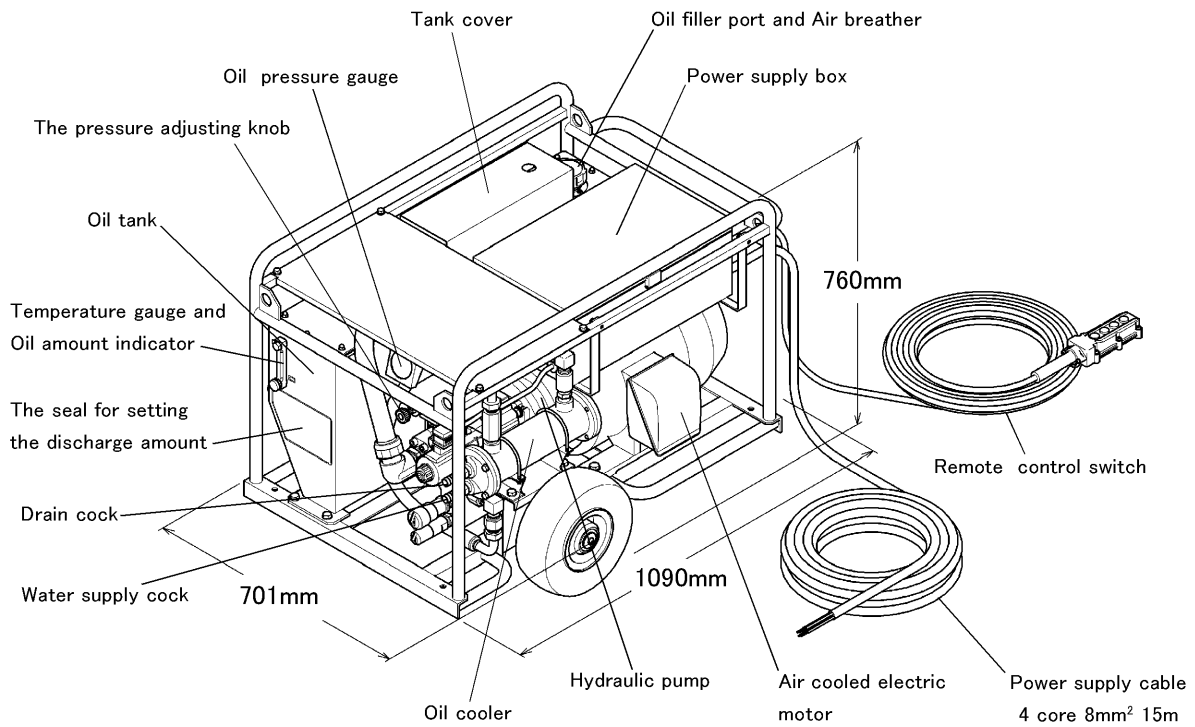
7. In case of using the new hydraulic hoses (option) to extend the length of hoses, the amount of oil in the tank will be decreased due to no oil inside of the new hoses. Please refill the oil in the tank by checking the oil amount indicator.

◎ Without connecting hydraulic equipment, first connect to hydraulic hoses with Hydraulic unit, then connect to the discharge the end of the new hose with returning end of the new hose like a loop. While checking oil amount indicator, refill oil tank by inching with remote control switch.

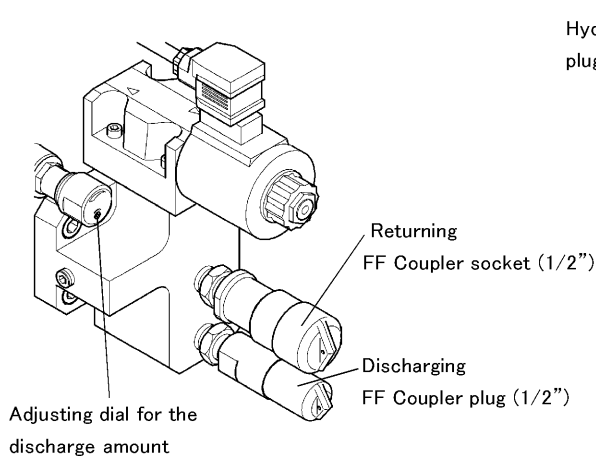
8. The couplers for Hydraulic unit E-1114Ax are FF couplers which is manufactured by NITTO KOKI CO.,LTD.

◎ In case that you use the hydraulic equipment with BS couplers (manufactured by Bridgestone corporation), you need the exchanging adapter (option) which will change from BS couplers to FF couplers. Please refer to 「Options」 in the page 10.

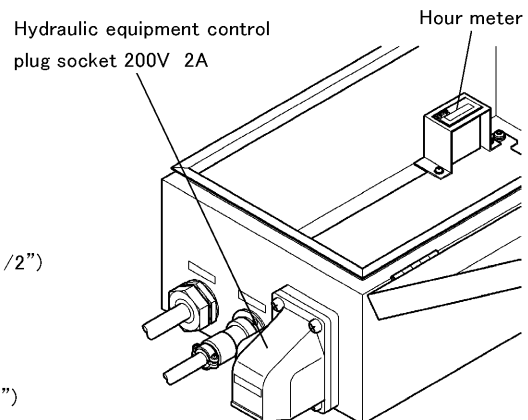
2 . DESCRIPTION



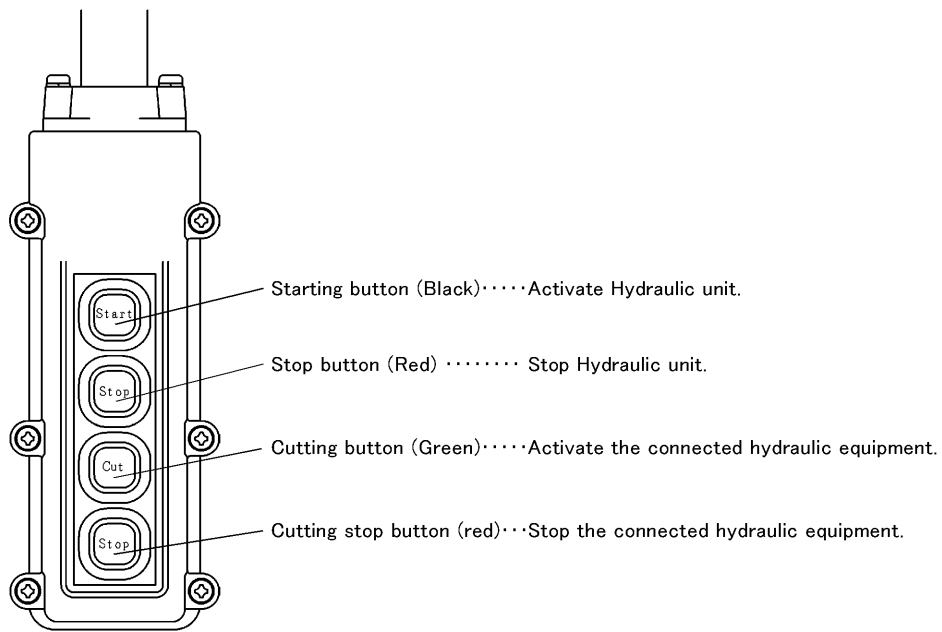
The detail of Hydraulic oil tank. (Remove the Tank cover)



The detail of Hydraulic pump



The detail of Power supply box



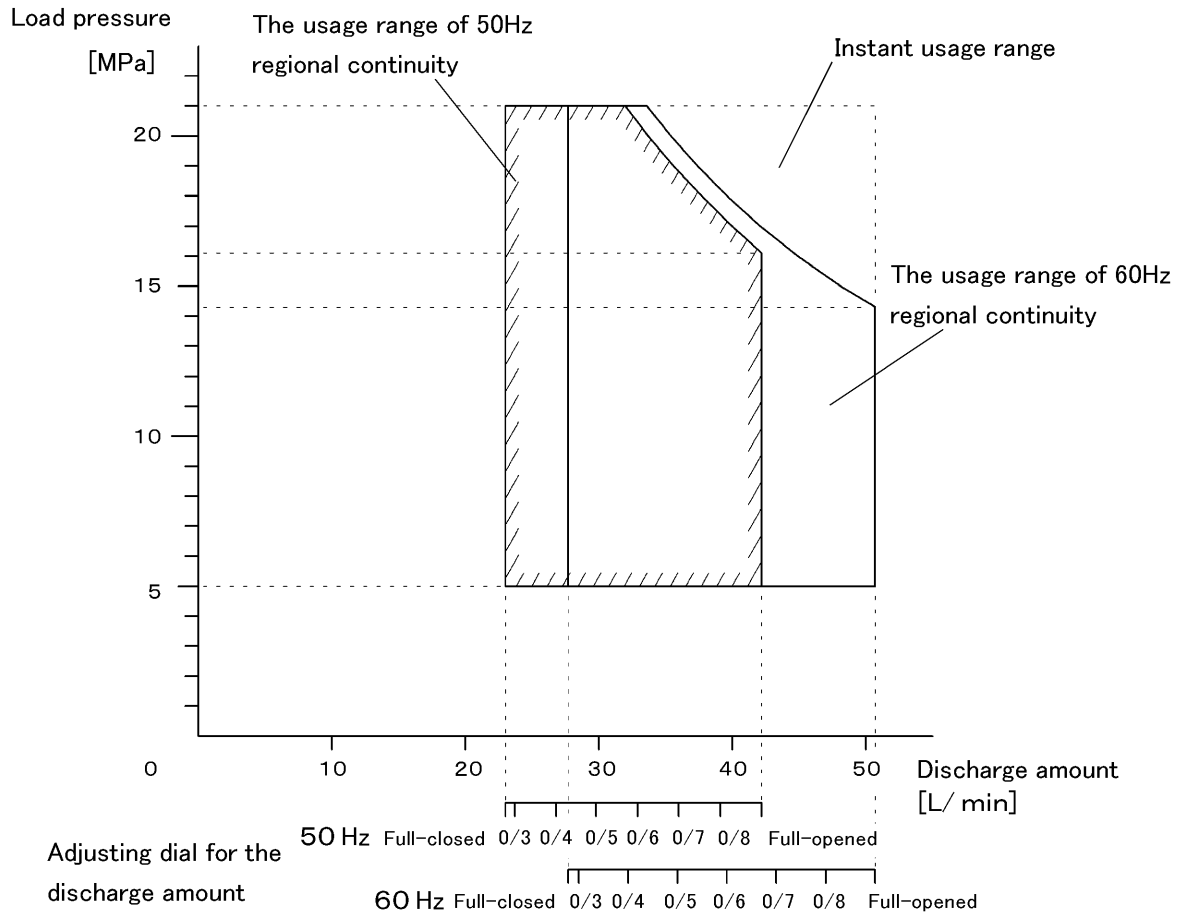
The detail of remote control switch (Cable length 20m)

3 . SPECIFICATIONS

【1】 Specification table

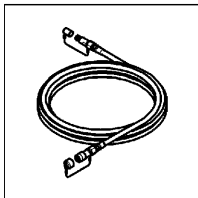
Model		E-1114Ax	
Power supply		3-phase 400V 50/60Hz Commercial power source over 25A	
Electric motor		Three(3) -phases induction motor Enclosed outer fan shape 11 kW 4P	
Hydraulic pump	Name		Variable capacity piston pump
	Rated pressure		28 MPa
	The range of adjusting discharge amount.		23.0~42.2 L/min (50 Hz)
			27.7~50.7 L/min (60 Hz)
	Factory setting	Discharge pressure	14 MPa
Discharge amount		40.8/49.0 L/min (50/60 Hz)	
Oil tank capacity		57 L	
Hydraulic actuation oil		mineral abrasion resistance actuation oil ISO-VG46	
Output of Hydraulic equipment control socket plug		Single phase 200 V 50/60 Hz 2A	
Size	Width		701 mm
	Length		1090 mm
	Height		760 mm
The weight of Hydraulic horse Assy. (including hydraulic actuation oil)		20.0 kg each	
Gross weight (Including gross weight and Remote control switch)		310 kg	

【2】 Load pressure · Characteristic of discharge amount

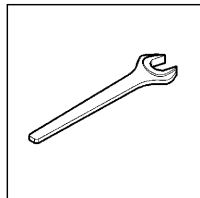


※ Depending on the area (power frequency), the usage range of continuity will be different.

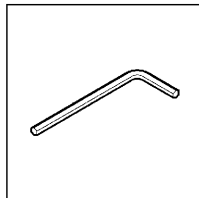
4 . STANDARD ACCESSORIES



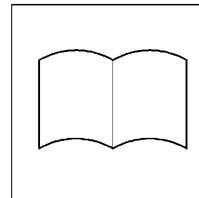
Hydraulic hoses 5/8"
Assy. FF plug and
socket 20m...2pce



Single-end wrench
13mm
...1pce



Hex. bar wrench
2mm
... 1pce

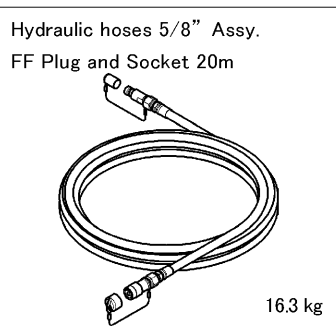


Instruction manual
... 1pce

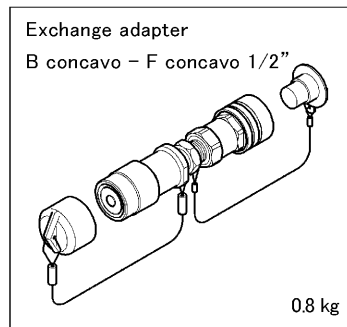
5 . APPLICATIONS

- ◎ Hydraulic power and controlling device for “Hakken” brand Hydraulic core drill, Hydraulic wall cutter, Compact hydraulic wire saw and Hydraulic plunge cutter.
- ◎ Hydraulic power and controlling device for other manufacturer’s hydraulic equipment.

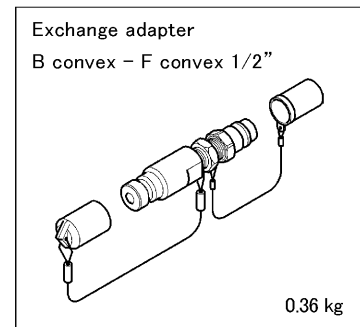
6 . OPTIONS (SOLD SPARATELY)



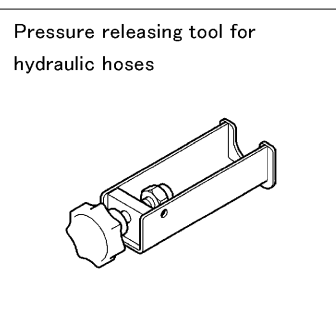
This is the extended hydraulic horse for FF couplers, and you need two of them. (hydraulic actuation oil is not included)



In case of using hydraulic machine which is applied for BS coupler specification (manufactured by Bridgestone Corporation), the Exchange adapter B concavo and F concavo 1/2" are connected to the side of convex of the coupler of the hydraulic hose.



In case of using hydraulic machine which is applied for BS coupler specification (manufactured by Bridgestone Corporation), the Exchange adapter B convex and F convex 1/2" are connected to the side of concavo of the coupler of the hydraulic hose.



In case that you can not connect to the couplers of Hydraulic unit by using Hydraulic 5/8" Assy. FF plug, Pressure releasing tool removes the inside pressure of hydraulic hoses.

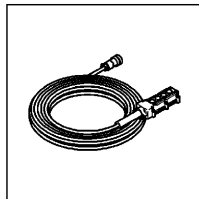
POINT

Hydraulic unit E-1114Ax applies for FF couplers (manufactured by NITTO KOKI CO.,LTD.) on the main feeding pipes. In case that you use the BS couplers, the exchange adapter is necessary for exchanging from BS couplers (manufactured by Bridgestone corporation) to the FF couplers. Please use 「B concavo - F concavo」 and 「B convex - F convex」 as for the pair.

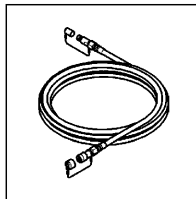
7 . INSTRUCTIONS FOR OPERATION

【1】 Preparation for starting Hydraulic unit

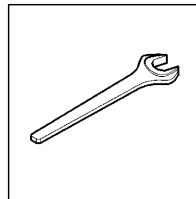
The items which you need to prepare.



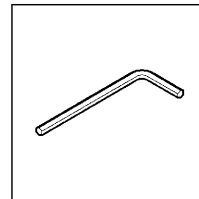
Remote control switch... 1 pcs



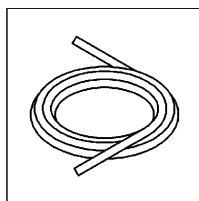
Hydraulic hoses 5/8" Assy. FF Plug and Socket 20m ...2pce



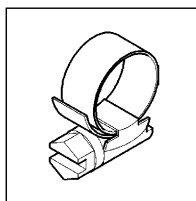
Single-ended wrench 13mm ...1pce



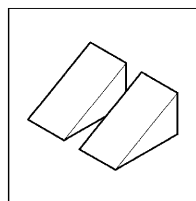
Hex. bar wrench 2mm ... 1pce



Water supply hoses ... 2 pcs



Hose band ...Depending on your necessity.



Wheel stopper ...at least 2 pcs

- 1) Set Hydraulic unit at the flat area and well ventilated, and fix the both of wheels by using the Wheel stopper in order not to move, and also fix the caster by the Wheel stopper.
- 2) Inspect before the operation. Refer to 「Checking before operation」 in the page 19.
- 3) Connect the Remote control switch to the Power supply box of Hydraulic unit.

【2】 Connection of Power supply

Electric cable are composed of R (Red), S (White), T (Blue) and Earth (Green). Connect with Power supply correctly.

⚠ WARNING

1. Be careful for receiving the electric shocks. Use the Power source installed with Earth leakage breaker.
2. Use the Power source proper voltage which is described on the name plate. The Power source must be applied for "Three-phase 400V, 50/60Hz", and must be connected to the Commercial supply source by applying over 25A.
3. When connecting the Electric cable to the Power supply, also connect to the Earth cord (Green cord) for sure.

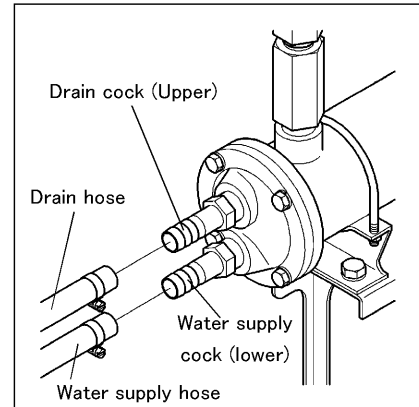
POINT

1. In case that you connect to the wrong wiring, Hydraulic unit will not activate. (Plugging relay is installed.)
2. When Hydraulic unit does not start, two of these R, S, T wires must be alternatively connected again.

【3】 Connection of Hydraulic hoses and Water supply hoses

1. Connection of Water supply hoses

- 1) Connect the water supply hose from the tap water to the Water supply cock, and fix it by using the hose band.
- 2) Connect the drain hose to the drain cock, and use the drain water as for the cutting water which is connected to the Hydraulic machine. Fix the drain hose by using the hose band.

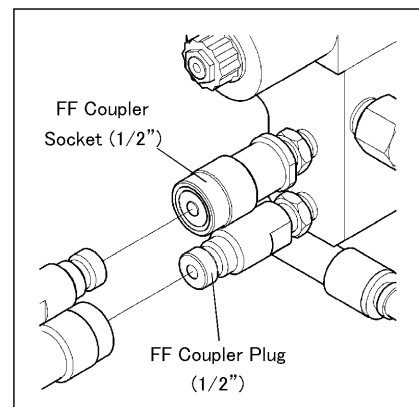


⚠ CAUTION

1. We have suggested that cooling water can be used as for the feeding cut water. However in the actual cut operation, if the amount of cooling water is not enough, please supply the water by yourself.
2. Do not connect Water supply cock (Lower) and Drain cock (Upper) wrongly. In case that you connect upside down, the efficiency of cooling will go down and the temperature of hydraulic actuation oil will increase.
3. Regarding the amount of cooling water, please adjust the oil temperature between 20°C to 60°C. In case that the amount of water is not enough, the temperature of drain will increase, so please be careful for the amount of cooling water.
4. Use clean water as for the cooling water.

2. Connection of Hydraulic hoses Assy.

Connect Hydraulic hoses Assy. to FF couplers of Hydraulic unit.



⚠ CAUTION

1. Press FF couplers until it clicks, then connect.
2. In case that there are dust or dirt on FF couplers, please clean them up, then connect.
3. In case of using the new hydraulic hoses (sold separately) to extend the length of the hoses, the amount of oil is decreased due to no actuation oil in the hose. For this reason, connect the extended new hose of discharge and returning like a loop to Hydraulic unit, and supply the actuation oil with doing the inching by the remote control, and also check the oil amount indicator. The extend hoses must be connected one by one, then supply the actuation oil. (Approximately 6L oil is necessary for per hydraulic hose Assy. There are approximately 12L between HI and LOW in the oil amount indicator.)

POINT

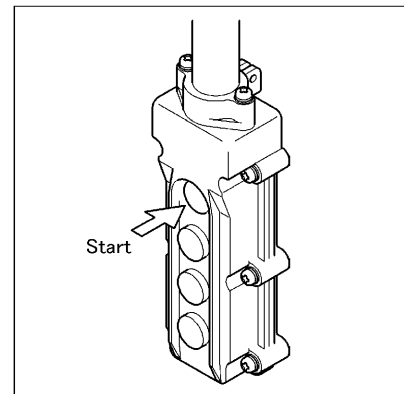
When using “Hakken” brand hydraulic equipment with BS coupler (manufactured by Bridgestone corporation), 「Exchange adapter」 is necessary (Option).

【4】 Starting of Hydraulic unit

- 1) Prepare for starting Hydraulic unit and connect to Power supply.
Refer to 「Preparation for starting Hydraulic unit」 and 「Connection of Power supply」 in the page 11.
- 2) Connect Water supply hoses to Hydraulic unit, and supply the water until the oil temperature increase between 20°C to 60°C.
- 3) Press 「Starting button」 on Remote control switch.

⚠ CAUTION

1. In case that Hydraulic unit does not start, please check that there are no wrong wiring in the Power supply cable. Please refer to (Connection of Power supply) in the page 11.
2. After starting Hydraulic unit, check the amount of actuation oil. In case that the oil is not enough, please refill it.

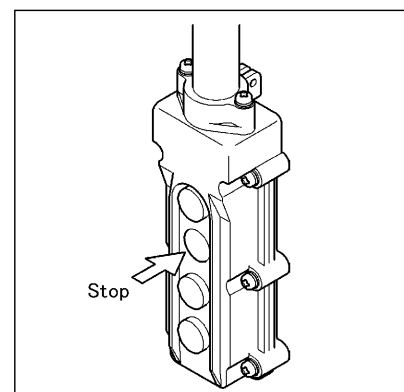


【5】 Stopping Hydraulic unit

- 1) Follow the instructions in the manual of hydraulic equipment, stop hydraulic equipment.
- 2) Press 「Stop button」 on the Remote control switch and stop Hydraulic unit.

⚠ WARNING

When stopping Hydraulic unit, make sure that connected hydraulic equipment is completely stopped. If you stop Hydraulic unit in that hydraulic equipment is still operating, it is extremely dangerous.



【6】 Running-operation of hydraulic actuation oil

⚠ CAUTION

In case that oil temperature is below 20°C, it is necessary for running - operation of hydraulic actuation oil.

- 1) Prepare for Starting Hydraulic unit and Connect to Power supply. Refer to 「Preparation for starting Hydraulic unit」 and 「Connection of Power supply」 in the page 11.
- 2) Connect Water supply hoses and Hydraulic hoses Assy. to Hydraulic unit. Then connect the end of discharge each hose to the end of returning hose like a loop. Please refer to 「Connection of Hydraulic hoses and Water supply hoses」 in the page 12.
- 3) Start Hydraulic unit.
Please refer to 「Starting of Hydraulic unit」 in the page 13.
- 4) Press 「Cutting button」 on Remote control switch and start discharging.
- 5) Check oil temperature by Temperature gauge and Oil amount indicator. When oil temperature increases around 20°C ~ 60°C, running-operation of Hydraulic actuation oil is completed.
- 6) Press 「Cutting stop button」 on Remote control switch and stop discharging.
- 7) Stop Hydraulic unit.
Please refer to 「Stopping Hydraulic unit」 in the page 13.
- 8) Remove the end of discharge hose and the end of returning hose which are connected like a loop.

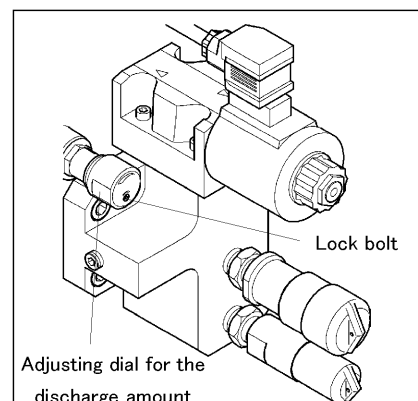
【7】 Setting discharge amount

- ⊙ Hydraulic unit uses Variable capacity piston pump, so you can set the rotation speed of Hydraulic unit by changing the discharge amount.
- ⊙ Factory setting is "40.8/49.0L/min (50Hz/60Hz)".

⚠ WARNING

1. When changing the discharge amount, start Hydraulic unit before changing.
2. Please carefully read the instruction manual of hydraulic equipment which is connected to Hydraulic unit, and adjust the discharge amount within maximum discharge amount of hydraulic equipment. In case that you use it more than maximum discharge amount, it will cause the damages for hydraulic equipment.

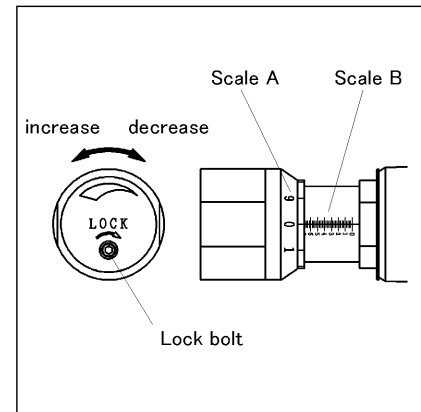
- 1) Start Hydraulic unit. Please refer to 「Starting of Hydraulic unit」 in the page 13.
- 2) Loosen the lock bolt by using the Hex. bar wrench (2mm), and set the discharge amount by turning the Adjusting dial for the discharge amount.



- 3) The discharge amount is set by referring the discharge amount seal which is on the Hydraulic tank and as following table. After setting, tighten the Lock bolt.

Setting measure of the discharge amount.

Scale A / B	Full-opened	0/8	0/7	0/6	0/5	0/4	0/3	Full-closed	
Discharge amount	50Hz	42.2	39.1	36.0	32.9	29.8	26.8	23.7	23.0
【L/min】	60Hz	50.7	47.0	43.3	39.6	35.9	32.2	28.5	27.7



- 4) Stop Hydraulic unit. Please refer to 「Stopping Hydraulic unit」 in the page 13.

【8】 Setting discharge pressure (Maximum load pressure)

- ⊙ The pressure of Hydraulic unit is set at 14 MPa as for the factory setting. Please set the machine below the rated pressure of connected hydraulic equipment.

⚠ CAUTION

Read Instruction manual of connected hydraulic equipment carefully. Pressure must be adjusted within rated pressure of hydraulic equipment. If pressure is set above rated pressure, this could lead to the damage.

POINT

1. When changing pressure, always start Hydraulic unit before changing it.
2. Rated pressure of most “Hakken” brand hydraulic equipment is maximum 21 MPa.

- 1) Conduct running-operation of hydraulic actuation oil.
Please refer to 「Running -operation of hydraulic actuation oil」 in the page 14.

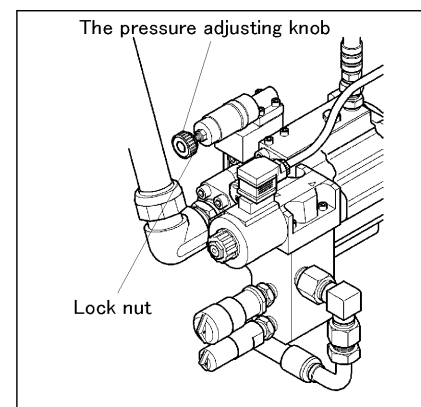
- 3) Start Hydraulic unit. Please refer to 「Starting of Hydraulic unit」 in the page 13.

- 4) Press 「Cutting button」 on Remote control switch.

- 5) Loosen the lock nut by using the Single-end wrench (13mm), and turn the pressure adjusting knob.

In case of increasing the pressure, tighten The pressure adjustment knob. In case of decreasing the pressure, loosen The Pressure adjustment knob.

Set the necessity pressure by controlling the Oil pressure gauge, and tighten the Lock nut by using the Single-end wrench (13mm).



- 6) Press 「Cutting Stop Button」 on Remote control switch.
- 7) Stop Hydraulic unit.
Please refer to 「Stopping Hydraulic unit」 in the page 13.

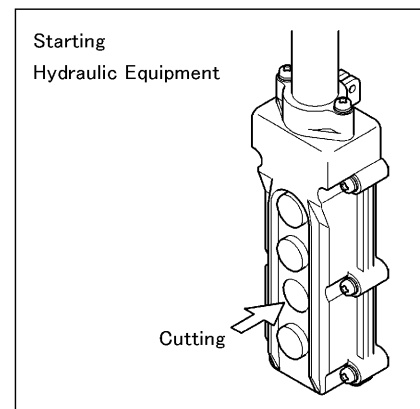
【9】 Use of Hydraulic equipment

⚠ WARNING

Read Instruction manual of hydraulic equipment carefully before using.

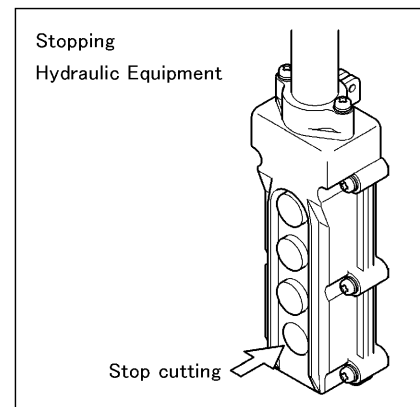
- 1) Conduct running-operation of hydraulic actuation oil.
Please refer to 「Running-operation of hydraulic actuation oil」 in the page 14.
- 2) Set the discharge amount of hydraulic actuation oil according to hydraulic equipment which is used. Please refer to 「Setting discharge amount」 in the page 14.
- 3) Set the discharge amount of hydraulic actuation oil according to hydraulic equipment which is used. Please refer to 「Setting discharge pressure (Maximum load pressure)」 in the page 15.
- 4) Connect hydraulic equipment.
As for the controlling Power supply of hydraulic equipment, Single-phase 200V 2A plug socket is available. (Do not plug in 200V type Core drill in this Single-phase 200V 2A plug socket.)

- 5) Starting and Stopping of hydraulic equipment (Starting discharge and stopping discharge of hydraulic equipment).
After pushing 「Cutting button」 on Remote Control switch, electromagnetic valve opens and hydraulic actuation oil starts flowing. After pushing 「Cutting stop button」 on Remote control switch, electromagnetic valve closes and hydraulic actuation oil stops flowing.



⚠ WARNING

Remote control switch must be handled by an operator who directly uses connected hydraulic equipment, and make sure for the safety of surrounding area.



【10】 After operation

1) Stop Hydraulic unit.

Please refer to 「Stopping Hydraulic unit」 in the page 13.

2) Remove Hydraulic hoses and Water supply hoses by the reverse procedure of 「Connection of Hydraulic hoses and Water supply hoses」 in the page 12.

 CAUTION

1. In case that there are dust on the couplers when removing the Hydraulic hoses, the part of joint couplers will be difficult to close perfectly. If the couplers are such condition, and the hydraulic equipment is placed higher than Hydraulic unit by removing the Hydraulic hoses from hydraulic equipment, the air will go to the hydraulic hose Assy. As a result, the hydraulic actuation oil will overflow from the oil tank. Therefore, please firstly remove the Hydraulic hoses Assy. from Hydraulic unit.
2. After removing Hydraulic hoses, install the coupler caps in order not to have the dust or debris on the part of the couplers.
3. Make sure for stopping the water supply, then, remove the Water supply hoses.

3) Remove the water inside of the water pipe.

In case that you store the machines long term or store the place where is below 0°C, remove the water by air etc.

 CAUTION

If the inside of water in the oil cooler freeze, it may cause the damages.

4) Conduct cleaning and maintenance.

Please refer to 「Maintenance, Regular Inspection, Servicing」 in page 20.

8 . TROUBLE SHOOTING DURING OPERATION

If you feel the abnormality, please stop the operation immediately, and inspect the causes under the safe condition by utilizing following table.

Problem	Cause	Countermeasure
Although pressing the Starting button of Remote control switch, Hydraulic unit does not start.	Power supply cable is not connected.	—
	Remote control switch comes off.	—
	Power supply capacity is small.	In case that you exchange to the large capacity of power supply, refer to 「Connection of Power supply」in this manual.
	The breaker in the Power supply box is OFF.	Turn Breaker ON.
	Breaking of wire.	The distributors repair.
	Connection of R,S,T wires are wrong. (Backstop relay operates)	In case that you alternate whichever two of R·S·T wires, refer to「Connection of Power Supply」in this manual.
	The fuse in the Power supply box is blowout.	After resolving the cause of over current in the operation circuit, please replace to the new fuse.
Hydraulic unit stopped.	The breaker in the Power supply box is dropped.	After confirming whether the discharge pressure · the discharge amount are set within the continuous operation range or not, turn the breaker ON. Please refer to (Load pressure·Characteristic of discharge amount)
	Power supply capacity is small.	In case that you exchange to the large capacity of power supply, refer to 「Connection of Power supply」in this manual.
Although pressing the Cutting button of Remote control switch, Hydraulic equipment does not work.	Connect Hydraulic hoses Assy. is not proper.	—
	Setting failure for the discharge pressure and the discharge amount.	—
	Breaking of wire.	The distributors repair.
	Failure of magnetic valve.	The distributors repair.
The pressure of Oil pressure gauge does not increase.	Hydraulic actuation oil is dirty or deteriorated.	Exchange of Hydraulic actuation oil.
	The temperature of hydraulic actuation oil is too high.	Refer to the table in the page 19 「Temperature of hydraulic actuation oil goes up」.
	Since the amount of Hydraulic actuation oil is not enough, the air is contained in the Hydraulic actuation oil.	Add Hydraulic actuation oil and conduct Running-operation of Hydraulic actuation oil until all the air leaks.
	There are cracks or damages on the Hydraulic hoses.	Exchange for the new product.
	Setting failure of the discharge pressure.	Inspection of setting and readjustment.
	The damage of Hydraulic pump.	The distributors repair.

Problem	Cause	Countermeasure
Abnormal noise comes out of Hydraulic Pump.	Since the amount of Hydraulic actuation oil is not enough, the air is contained in the Hydraulic actuation oil.	Add Hydraulic actuation oil and conduct Running-operation of Hydraulic actuation oil until all the air leaks.
	The damage of Hydraulic pump.	The distributors repair.
Pressure in Oil Pressure Gauge goes up, but connected Hydraulic Equipment lacks power.	The temperature of hydraulic actuation oil is too low.	Conduct Running-operation of Hydraulic actuation oil or replace the Hydraulic actuation oil for the cold weather.
	Element of Return filter is dirty.	In case that you change the element, refer to「Inspection and Replacement of Return filter」in this manual.
	Setting failure of the discharge amount.	Inspection of setting and readjustment.
	Power supply capacity is small.	In case that you exchange to the large capacity of power supply, refer to 「Connection of Power supply」in this manual.
Temperature of hydraulic actuation oil goes up.	The amount of hydraulic actuation oil is not enough.	Add more hydraulic actuation oil.
	Water is not supplied.	Refer to「Connection of Hydraulic hoses and Water supply hoses」in this manual.
	Water supply is not enough.	
	Hydraulic actuation oil is deteriorated.	Exchange of Hydraulic actuation oil.

9 . MAINTENANCE AND SERVICING

【1】 Checking before operation

1. Inspect the damages for Electric motor, Power supply box, Power supply cable and Remote control switch.
2. Inspect the leaking of oil on the piping of the Hydraulic oil tank, Hydraulic pump, and Hydraulic hoses Assy.
3. Check hydraulic actuation oil.
 - 1) Place Hydraulic unit at the flat place.
 - 2) Make sure that the amount of Hydraulic actuation oil is between HI and LOW sign on Oil amount indicator. Also make sure that hydraulic actuation oil is not dirty.

- 3) In case the amount of hydraulic actuation oil is below LOW sign of Oil amount indicator, add Hydraulic actuation oil. In case hydraulic actuation oil is dirty, or viscosity is not enough, change hydraulic actuation oil.

⚠ CAUTION

Be careful for not entering the dust through the filter during filling hydraulic actuation oil up.
In case that the oil spills, please wipe up.

POINT

Regarding Hydraulic actuation oil, please use mineral abrasion resistance actuation oil ISO-VG46 which is specified by CONSEC. (Factory setting : 「JOMO HYDLUX 46」 is used as for Hydraulic actuation oil.)

【2】 Maintenance, Regular inspection, Servicing

1. Clean and Maintain after the operation.

- 1) Clean all surface of Hydraulic hoses Assy.
- 2) Clean all surface of Power supply box.
- 3) Clean Remote control switch.

2. Change hydraulic actuation oil

Water, metal powder, and other substances are accumulated at the bottom of the hydraulic oil tank regularly. Please extract hydraulic actuation oil from Drain port and replace to the new oil regularly.

We recommend to exchange hydraulic actuation oil every 6 months.

Please refer to the (Hour meter) in the power supply box. When exchanging the oil, please clean up the suction filter or replace to the new filter.

POINT

In the cold weather, please use the hydraulic actuation oil for the cold weather.

3. Inspection and Replacement of Return filter

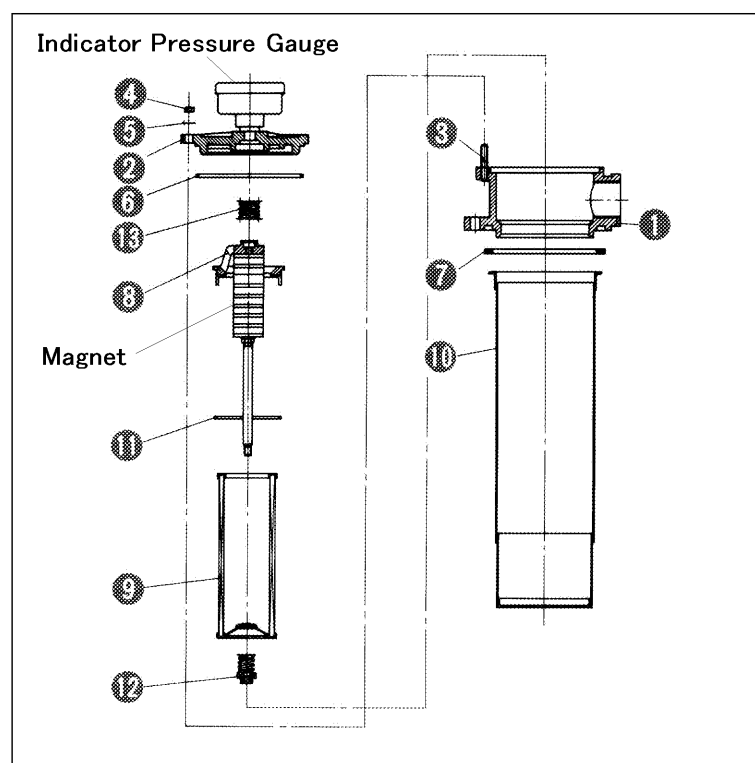
Return filter TTF-06-35-G-10 is installed in order to filter the dirty of hydraulic actuation oil and substances. In case that the inside of return filter is gummed by dirt, the indicator pressure gauge of the upper return filter will indicate according to the condition of gum.

1) Inspection of Return filter

After starting Hydraulic unit, Indicator pressure gauge shows the red zone (above 0.12MPa), replace to the new element.

2) Exchange of element.

In case that you remove the tank cover, you can also remove the return filter.



2-1) Loosen Nut ④, then, remove Cover ②.

2-2) Lift up Insert ⑧, carefully pull out Element ⑨ (TXX2-10).

2-3) Regarding exchanging Element ⑨, fix Insert ⑧, loosen Nut ⑫ for bypass Assy. and remove Element. Also please wash the Magnet.

2-4) Assembling should be done in the reverse procedure. Regarding installing the Element, please tighten the Nut ⑫ for bypass Assy. until it stop moving.

2-5) Insert assembled Element in to Housing ①, tighten Nut ④.

⚠ CAUTION

When tightening Nut ④, tighten them diagonally and securely.

【3】 Starting procedure of Hydraulic unit after long term storage

First conduct 「Checking before operation」 「Maintenance, Regular inspection, Servicing」 in page 20.

- 1) Checking hydraulic actuation oil Check amount of oil, fouling, oil leakage. Drain water through Drain cock at the bottom of Oil tank. If it is necessary, please refer to 「Change hydraulic actuation oil」 in page 20.
- 2) Starting by inching After conducting the inching (by pressing the Starting button (black) and Stop button (Red) instantly and alternately) by using Remote control switch around 10 times, then, start Hydraulic unit.
- 3) Removal of air Refer to 「Running - operation of hydraulic actuation oil」 in the page 14. By running the unit from 5 ~ 20 minutes to remove the air in the oil hydraulic circuit.
- 4) Running-in operation of Hydraulic Equipment Connect hydraulic equipment with Hydraulic unit. Adjust discharge at minimum discharge flow and run hydraulic equipment for approximately 10 ~ 20 minutes by pushing Cutting button (green) on Remote control switch. During running-in, check for abnormal noise or oil leakage.

【4】 Repairs

- ◎ The machine is manufactured by high precision. In case that the machine does not work well, please do not repair by yourself, and contact to the distributors.
- ◎ If you have any questions, please feel free to contact us.

10 . MAINTENANCE INSTRUCTIONS

Storing for the Unit and Accessories

When you store the units and the accessories, please store them in the safe and dried place, and avoid to store as following places.

- ◇ Reaching easily for the children.
- ◇ Avoid the rain and humidity.
- ◇ The temperature extremely changes.
- ◇ Avoid the direct sunlight.
- ◇ There are inflammable and explosive substances.

We may change the product appearances in the manual without prior notice.

M E M O

MEMO



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