

**HYDRAULIC DIAMOND CORE DRILL
(HOUSING ASSY.)**

SPU-32A

SPU-24A

SPU-16A

SPU-12A

INSTRUCTION MANUAL

⚠ WARNING

- © Read and understand this Instruction Manual carefully and completely for your own safety.
- © Save this Manual for future reference.

≡ HAKKEN ≡

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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 Core Drill” .
- ⊙ Before use, read and understand this Manual, and follow all the safety instructions for your own safety.
- ⊙ Save the Manual for future reference.

【1】 Safety Notice For Hydraulic Machinery

WARNING

1. Do not use for other than specified purposes.
2. Keep work area clean.
 - ⊙ Cluttered work areas invite accidents.
3. Keep bystanders and children away.
 - ⊙ Never allow bystanders to contact hydraulic unit itself, other hydraulic equipment, control panel or cord and hose.
 - ⊙ Keep bystanders away at a safe distance from work area.
4. Avoid dangerous environments.
 - ⊙ Do not use hydraulic unit itself or control panel in rain, damp or wet locations.
 - ⊙ Keep work area well lit.
 - ⊙ Do not use your Machine in the presence of explosive or flammable gas or liquid.
5. Wear proper apparel.
 - ⊙ Do not wear loose clothing or jewelry since these may be caught in moving parts.
 - ⊙ When working outdoors, wear rubber gloves and insulated no-skid footwear.
 - ⊙ Wear a protective hair covering to contain long hair.
6. Wear safety glasses.
 - ⊙ When working, wear safety glasses. Use a dust mask for dusty operations.
7. Do not overreach and maintain control.
 - ⊙ Keep proper footing and balance at all times.
8. Stay alert.
 - ⊙ Do not come close to the rotating parts. Doing so could get entangled in it or could get injured.
 - ⊙ During operation, carefully watch the proceedings, surroundings and how the situation stands to reduce risks.
 - ⊙ Use common sense.
 - ⊙ Do not use your Machine when you are tired or distracted.
9. Guard against electric shock.
 - ⊙ Always earth hydraulic unit.
 - ⊙ Use power source equipped with earth leakage breaker.
 - ⊙ When working, always wear rubber gloves and rubber shoes.

⚠ WARNING

10. Do not abuse cord.
 - Ⓞ Never carry tool by its cord/hose or disconnect it by yanking the cord/hose from power receptacle.
 - Ⓞ Keep cord/hose from heat, oil, sharp objects, cutting edges and moving parts.
11. Use recommended Accessories and attachment only.
 - Ⓞ Using tools and devices not recommended in this Manual or Consec catalog can lead to accidents and personal injuries.
12. Check parts for damages.
 - Ⓞ Before each use, check carefully Guards 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.
 - Ⓞ For repairs or replacement of Guards or parts, follow the instruction of this Manual. Unless otherwise specified in the Manual, have them repaired or replaced by Consec's sales (service) representative. If Switch is damaged, have it replaced by Consec's sales (service) representative.
 - Ⓞ Do not use your Machine if its Switch does not turn it on or off.
13. Switch off and unplug your Machine in the following cases.
 - Ⓞ When working, the strange noise can be heard from hydraulic operative portion.
 - Ⓞ When other hazardous situation could be anticipated.
14. Stop Hydraulic Unit in the following cases.
 - Ⓞ When connecting or disconnecting hydraulic hoses.
 - Ⓞ When changes cutting tools such as core bits, blades or wire.
 - Ⓞ When not in use or before repairing.
 - Ⓞ When working, the strange noise can be heard from hydraulic unit.
 - Ⓞ When other hazardous situation could be anticipated.
15. Do not start Hydraulic Unit when not using Hydraulic Equipment.
16. Do not force tool.
 - Ⓞ Operate tool at a speed designed for it for optimum performance.
17. Remove all Adjusting Keys, and Wrenches.
 - Ⓞ Before switching on the power, make certain all the Adjusting Keys and Wrenches, etc. used for adjustment are removed from the Machine.
18. Maintain your Tool and Machine carefully.
 - Ⓞ For safe, efficient operation, maintain all cutting edges sharp.
 - Ⓞ Follow the instructions in this Manual for lubrication or replacement of Accessories.
 - Ⓞ Check cord/hose regularly. When damaged, contact its sales store or Consec's sales (service) representative for repairs or replacement.
 - Ⓞ Always keep Grip dry, clean and free from oil or grease.

⚠ WARNING

19. Store idle tools securely.

- ⊙ When not in use, store tools in a dry secured place. Keep out of reach of children.

20. Have your Machine repaired by Consec's sales (service) representative.

- ⊙ This Machine is manufactured in compliance with applicable safety standards. Do not modify your Machine and Tool.
- ⊙ Have your Machine and Tool repaired by Consec's sales (service) representative. Repairs by unauthorized personnel may cause Machine failure, damages or personal injury.

【2】 Notes For Usage Of Hydraulic Core Drill

⚠ WARNING

1. As for Hydraulic Unit, use "Hakken" brand hydraulic unit.

- ⊙ This Instruction Manual is based on the use of Hydraulic Unit E-1812Ax. Read and understand this Instruction Manual carefully and understand it before using it.

2. Always wear Rubber Gloves · Rubber Shoes.

- ⊙ This machine uses water. Therefore always wear Rubber Gloves · Rubber Shoes during operation.

3. Pay attention to buried lines such as conduit.

- ⊙ If core bit touched live electric wire or conduit, an operator might get an electric shock.
- ⊙ When drilling or cutting wall · floor, please carefully check the buried items.

4. Operation at high place, please obey related laws.

- ⊙ Secure safety for the foot. Do not operate at the place 1.5m higher than the foot.
- ⊙ Operation at high place, place the machine at the safe and stable place.

5. When abnormality occurs, stop the hydraulic unit.

- ⊙ If the rotation of Core Bit is stopped or abnormality occurs during operation, stop the hydraulic unit by pushing 「Stop Button」 .

6. Use special care when drilling through floors.

- ⊙ When drilling through floors, cores and water generally drop from Core Bit at completion of drilling. Before starting operation, make arrangement to provide for protection of all personnel and material below the area.

⚠ WARNING

7. When drilling upside (on the ceiling), special care is necessary.
 - ⊙ Take measures for the prevention of falling down of pole base. Take measures such as supporting by support jack.
 - ⊙ Prevent the Drill Head from falling out of pole base. Use support jack M24 (separately sold) or EHAC stopper (separately sold).
 - ⊙ As for collecting cutting water, use ceiling water collector.
 - ⊙ When drilling through the ceiling, concrete core will drop into core bit. At this time, please hold the handle securely.
8. Secure Pole Base properly.
 - ⊙ It is very important to anchor Pole Base securely on the work surface. Unsecured anchoring may cause rattling of Core Drill, fracturing Diamond Core Bit. Bit may also jam in hole and be damaged.
9. Be sure to use Water Collector.
 - ⊙ Install Water Collector securely for complete water trapping and drainage.
10. Prevent body contact with rotating Core Bit and Main Shaft.
 - ⊙ Keep away from rotating Core Bit and Main Shaft, which could invite serious injury.
11. Tighten L bolt and secure Drill Head before releasing hand from Feeding Handle.
12. When loosening L bolt, hold firm grip of Feeding Handle to prevent Drill Head from moving.
13. Closing and Opening of the switching valve must be done slowly.
 - ⊙ While Core Bit is rotating, if the switching valve is suddenly closed, Core Bit could become loose. Please pay attention to this.
14. Do not use Vacuum Pad for the fixing of Pole Base.
 - ⊙ Since the hydraulic motor induces much bigger torque, if Vacuum Pad is used, Pole Base could pop up during operation.

⚠ CAUTION

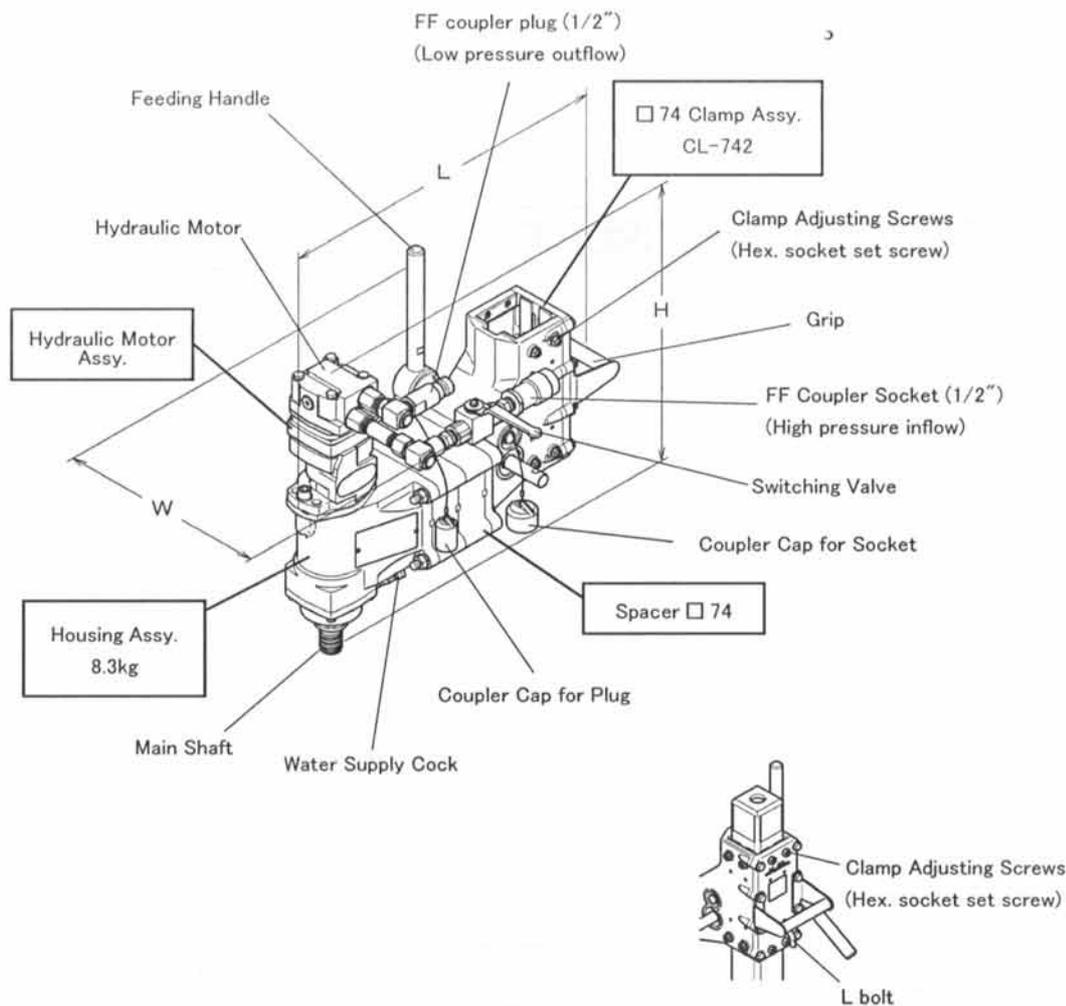
1. Make proper Clamp adjustment.
 - ⊙ Make Clamp adjustment not to allow a play between Pole Base and Clamp. Follow the instructions in 「Checking and Adjustment of Clamp」 .
2. Apply grease on Core Bit Attaching Screw.
 - ⊙ Apply grease on Core Bit Attaching Screw before attaching Core Bit onto Main Shaft. This will make it easy to remove Bit after operation.
3. Keep feeding water during entire drilling operation.
 - ⊙ Overheating of Core Bit reduces not only drilling performance but also its life. So be sure to keep feeding water during entire drilling operation.
 - ⊙ Use clear water only. Use of waste water recycling may lead to Machine failure.

⚠ CAUTION

4. Turn Switch on and wait until Core Bit speed increases to the full, and then start drilling.
 - ⊙ As for the drilling, open the switching valve and wait until Core Bit speed increases to the full, and then start drilling.
5. Do not turn Motor on with Core Bit resting on the work surface.
 - ⊙ Such mishandling can cause fracturing of Core Bit Crown or failure of Core Drill.
6. Avoid sudden stop of rotation or locking of Core Bit in the course of drilling.
 - ⊙ This can cause fracturing of Core Bit Crown (segment) or failure of Core Drill.

2 . DESCRIPTION

(DRILL HEAD HOUSING ASSY.+HYDRAULIC MOTOR ASSY.+SPACER□74+□74CLAMP ASSY.)



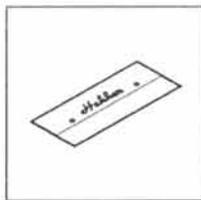
Above drawing shows SPU-24A assembled with options.

3 . SPECIFICATIONS

(DRILL HEAD HOUSING ASSY.+HYDRAULIC MOTOR ASSY.+SPACER□74+□74CLAMP ASSY.)

Model	SPU-12A	SPU-16A	SPU-24A		SPU-32A		
Type of Hydraulic Motor	2-060	HB-05	HB-08		HB-14		
Rated Pressure [MPa]	21				19		
Rating Torque [daN·m]	19	24	34		61		
Max. Discharge [L/min]	54	79	95				
Max. rpm [min ⁻¹]	850	898	746		373		
Number of necessary spacers	None		1	2	3	4	
Max. Bit Diameter	mm	53~305	110~406	205~508	205~600	305~700	305~800
	Inches	2~12	4~16	8~20	8~24	12~28	12~32
Core Bit Installing Screw	A Rod Screw						
L [mm]	466		518	570	622	674	
H [mm]	450	474	480		500		
W [mm]	328	357					
Drill Head Weight [kg]	30.0	31.0	32.5	33.5	36.0	37.0	

4 . STANDARD ACCESSORIES



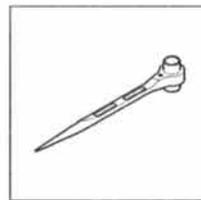
Tool Pouch
t0.3 × 149 × 363
... 1 pce



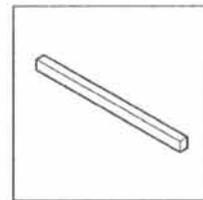
Single-ended Spanner
46mm
... 1 pce



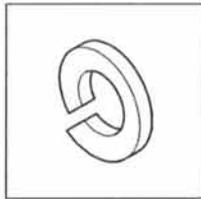
Single-ended Spanner
21 · 24mm
... 1 pce each



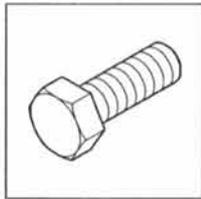
Ratchet Wrench
21 × 26mm
... 1 pce



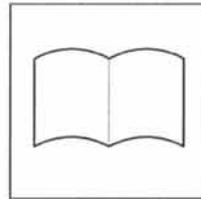
Key
10 × 8 × 152
... 1 pce



Spring Washer
12
... 4 pcs



Hex. Bolt
M12 × 45
... 4 pcs

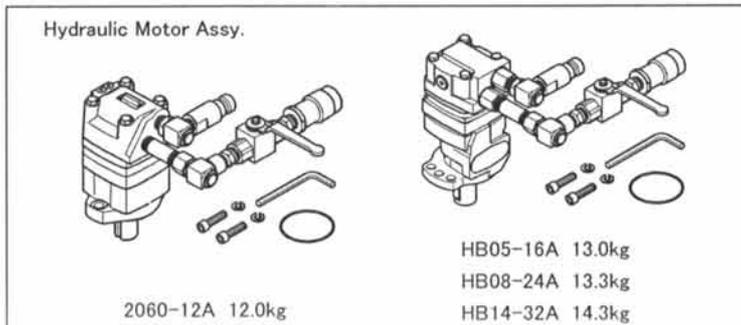


Instruction Manual
... 1 pce

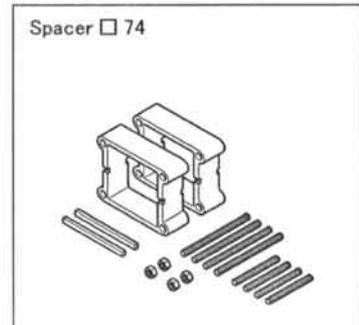
5 . APPLICATIONS

- ⊙ Core drilling in concrete for road, dam, tunnel and bridge construction.
- ⊙ Sampling test pieces.
- ⊙ Core drilling of pilot hole for guard rail post and fence post.
- ⊙ Core drilling in concrete for wiring and plumbing for air conditioning, telephone, electricity, water and gas supply.

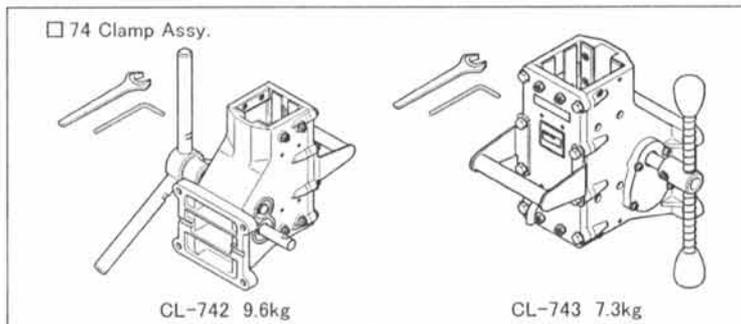
6 . OPTIONS (SEPARATELY SOLD)



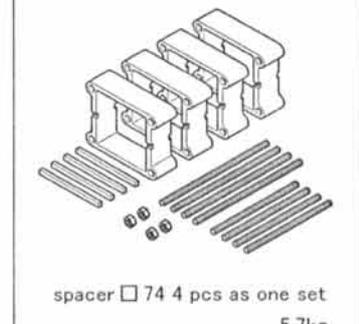
Based on the necessary capacity, one of four motors can be chosen.



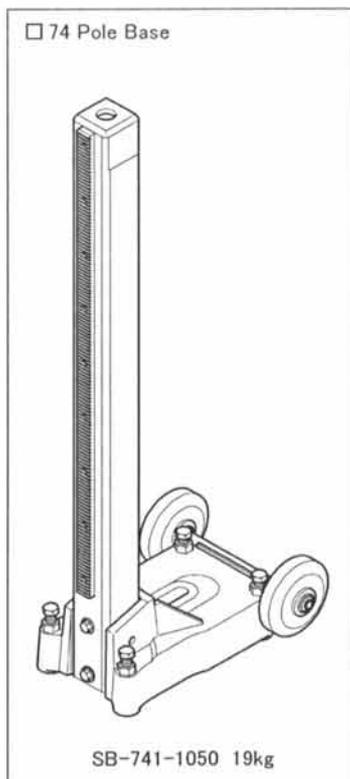
Spacer □ 74 2 pcs as one set
 3.0kg



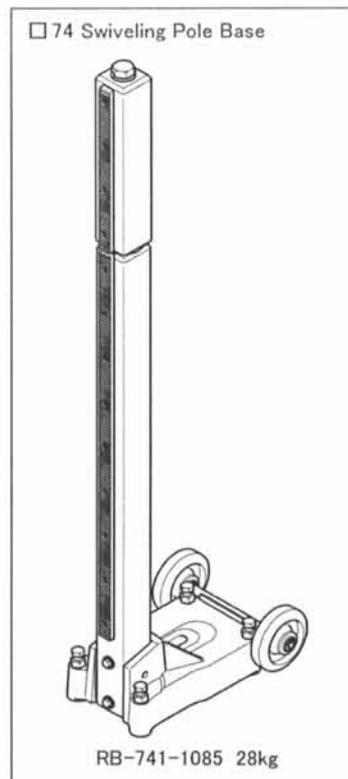
Alloyed metal slide plate is used. There are 3 pcs-handle type, CL-742 and sliding 1-handle type, CL-743.



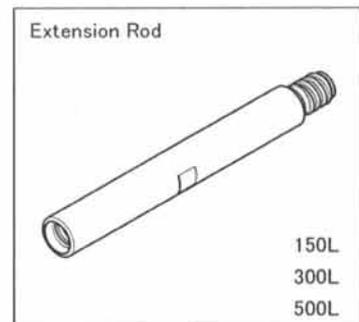
When using the size of 16~32" Core Bit, spacers are used between Housing Assy. and □ 74 Clamp Assy.



The size of column is 74×74mm.
 The length is 1050mm.



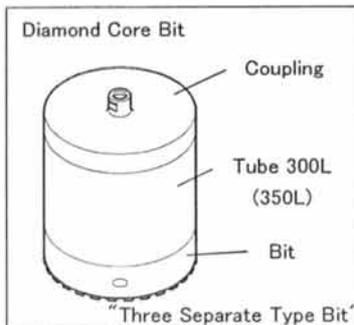
When drilling a deep hole, without removing Drill Head out of Pole Base, you can swivel it at the top of pole.



For drilling a deep hole



Available for several Core Bit installing screws



Bit, Tube, Coupling, three separate type Diamond Core Bit.



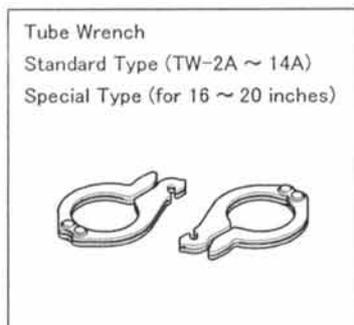
One Body Type Diamond Core Bit from the size of 205mm~1500mm

Bit Name	Outer Dia. [mm]		Bit effective [mm]	Tube effective [mm]	Coupling effective [mm]	Overall Length [mm]
	Pro Bit	Nokoba Bit				
2"	53.2	53.0	35	270 (320)	40	405 (455)
2 1/2"	64.8	64.6	40			410 (460)
3"	77.6	77.4				440 (490)
3 1/2"	90.1	89.9				460 (510)
4"	110.4	110.2	70	270	40	460
5"	128.4	128.2	90			
6"	160.4	160.2				
7"	180.4	180.2				
8"	205.4	205.2				
9"	230.4	230.2				
10"	254.4	254.2				460
12"	305.4	305.2				
14"	355.4	355.2				
16"	—	—				
18"	—	—				
20"	—	—				

※ Drilling Depth is adding effective Drilling Depth of Bit, Tube and Coupling.

※ The length of Bit and Overall Length do not include the height of segment tip.

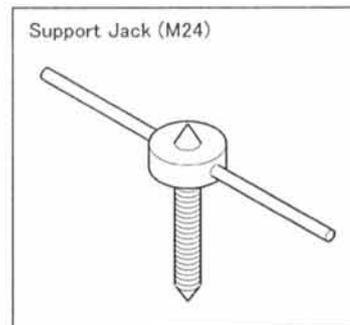
※ () is depth when using Tube 350L.



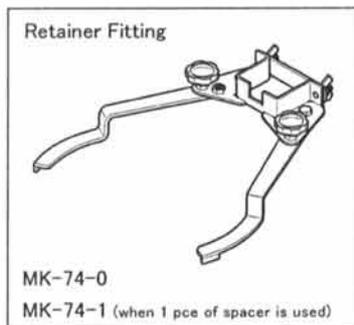
Special tool for installing and removing Bit, Tube and Coupling. Handle is attached on Special Type.



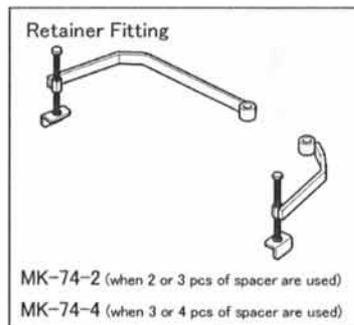
For Tube Wrench



For securing of Pole Base by Support Jack without using Anchor Bolt. When drilling upside on the ceiling, this can prevent falling down of pole base.

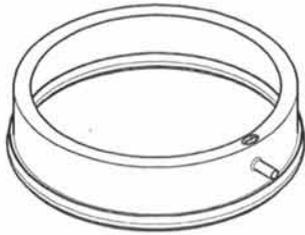


This fitting is for fixing Water Collector. Used by installing to Pole Base.



This fitting is for fixing Water Collector. Used by installing to Leveling Bolt.

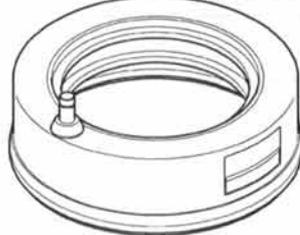
Water Collector



MS-2 ~ MS-20

Drains water and prevents spattering of water from drilling operation.

Ceiling Water Collector



CP-1 ~ CP-8

Drains water and prevents spattering of water from upside drilling operation.

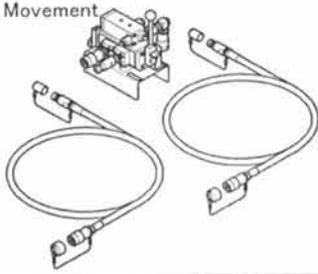
Water Tank
T-13A



4.5kg

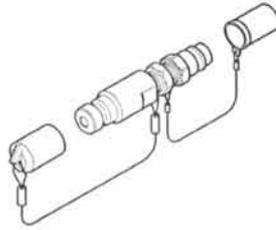
For use where water supply is inconvenient. Tank capacity is 13L and water can be fed at high place by air pressure.

Hydraulic Control Device of Main Movement



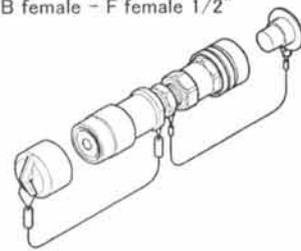
This softens the starting shock and able to operate at intended speed. When Hydraulic Unit G-2800A is used, Exchange Adapters for male and female coupler are necessary.

Exchange Adapter
B male - F male 1/2"



When Hydraulic Unit G-2800A is used, this is used as coupler adapter (male side) on Hydraulic Hoses.

Exchange Adapter
B female - F female 1/2"



When Hydraulic Unit G-2800A is used, this is used as coupler adapter (female side) on Hydraulic Hoses.

Extension Hoses
Plug - Socket 20m



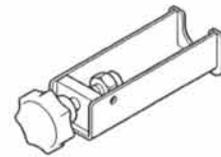
This Extension Hose is specially for Hydraulic Unit G-2800A. 2 pcs are required for use. (It does not contain Hydraulic actuation oil.)

Hydraulic hoses 5/8" ASSY
FF Plug and Socket 20m



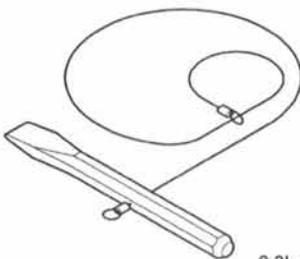
This is used when extending Hydraulic Hoses. 2 pcs are required for use. (It does not contain Hydraulic actuation oil.)

Pressure Relief Tool for hydraulic hoses



When it is difficult to connect couplers of Hydraulic hoses 5/8" ASSY FF Plug and Socket 20m, this tool can be used to release the pressure inside.

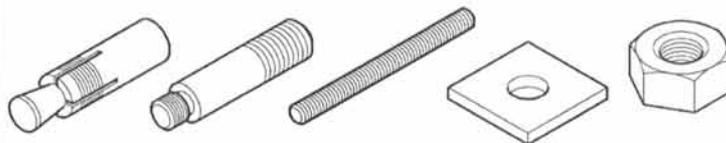
Core Extracting Wire



0.3kg

To extract core, this is used together with hammer.

Anchor Fixing Set

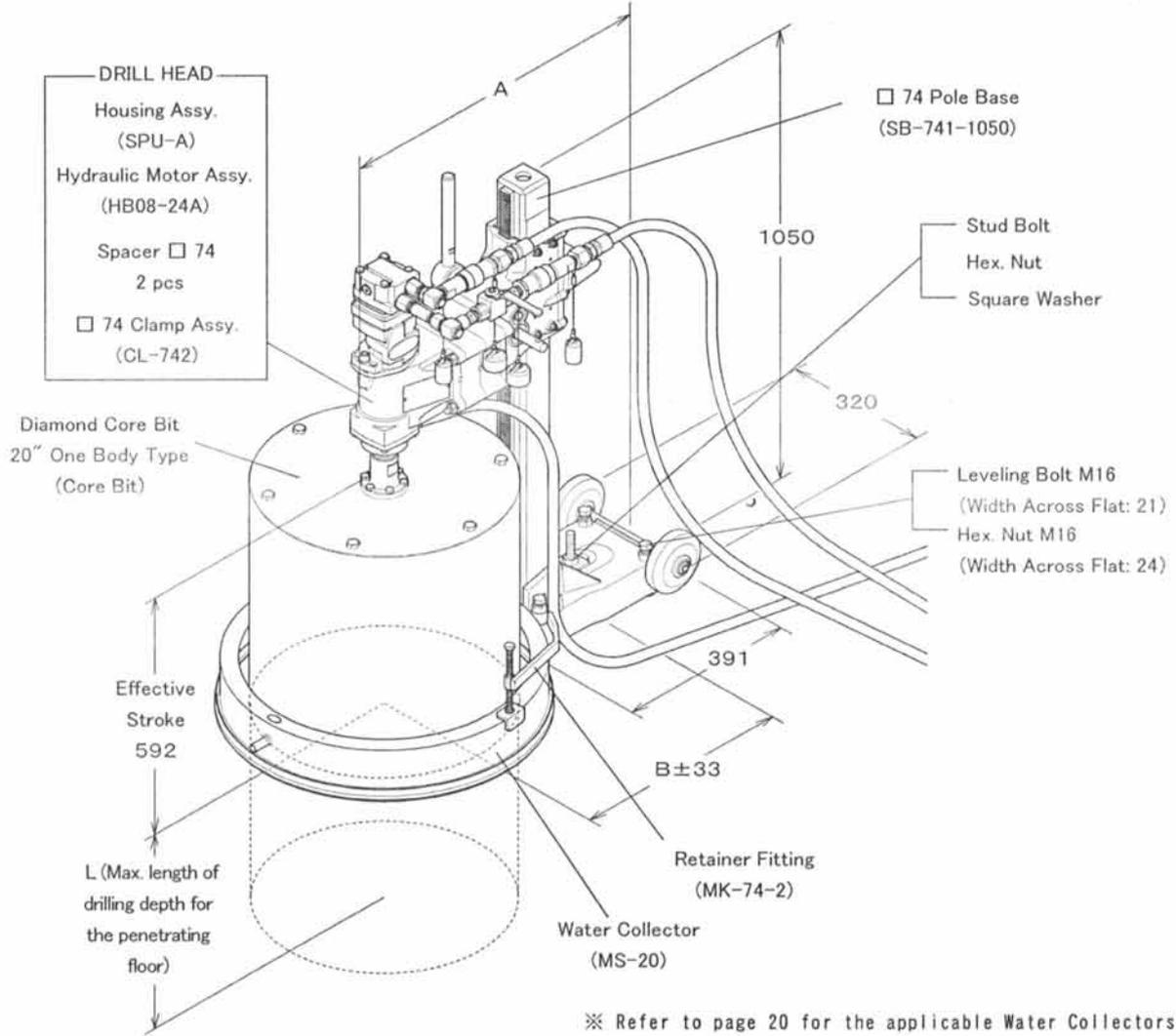


Cut Anchor Driving Holder Stud Bolt Square Washer Hex. Nut

They are used for the fixing of Pole Base.

7 . GENERAL DRAWING IN USE AND SPECIFICATIONS

[1] Fixing by anchor for □ 74 Pole Base SB-741-1050



※ Refer to page 20 for the applicable Water Collectors and Retainer Fittings.

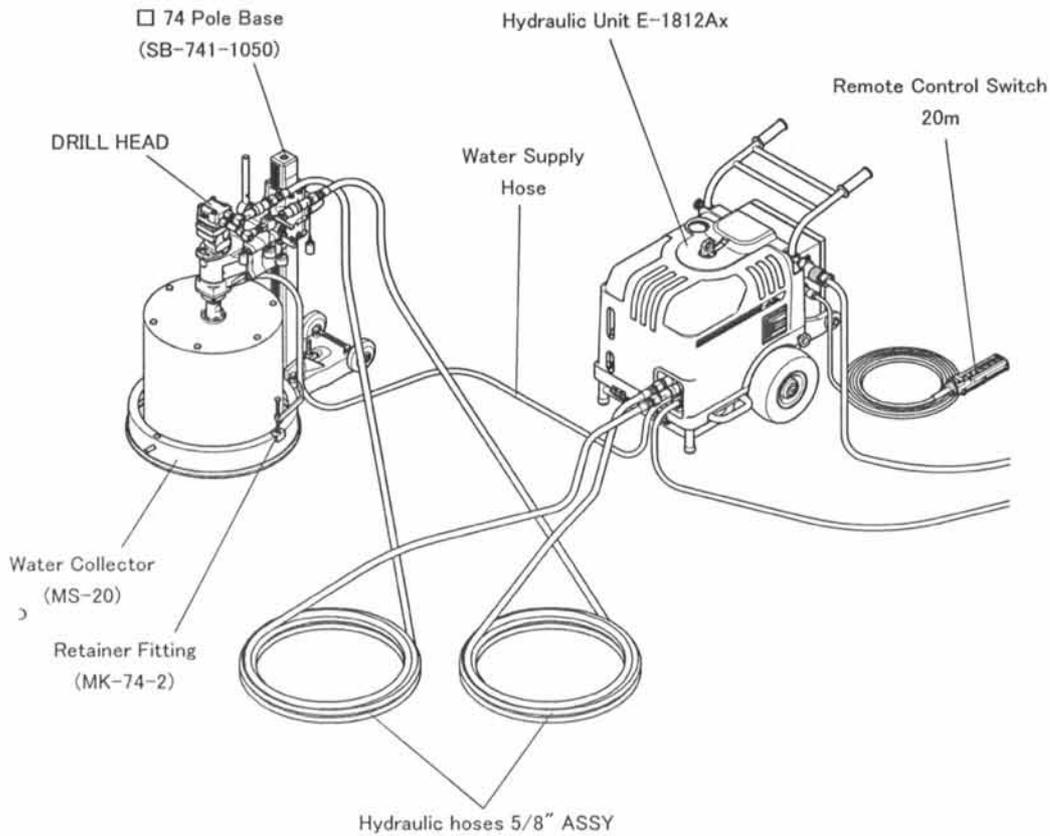
Drill Head Weight	33.5 kg
Max. Weight for the complete Core Drill (excluding core bit)	59.0 kg

Number of Spacer □74	Measurement A (mm)	Measurement B (mm)
4	870	584
3	818	532
2	766	480
1	714	428
None	662	376

※ When drilling for penetrating floor, concrete core could stay at the inside of Core Bit. Therefore try to make the weight of concrete core less than 210kg. To make sure for the possible weight, please refer to the length of core in the below table.

B, T, C Size	32"	30"	28"	26"	24"	22"	20"	18"	16"	14"	12"	10"	Less than 9"
Max. length L of drilling depth for the penetrating floor (mm)	180	200	230	270	310	370	450	550	700	900	1250	1800	2000

【2】 Standard Specification Drawing (E-1812Ax)



【3】 Max. rpm of Main Shaft based on different hydraulic units[min^{-1}]

Hydraulic Unit	Model	SPU-12A	SPU-16A	SPU-24A	SPU-32A
	Frequency				
E-1812Ax	50Hz	739	531	372	186
	60Hz	Note 1) 850	635	445	222
G-2800A	—	781	562	394	197
E-1100R Hiv	50Hz	637	458	321	161
	60Hz	765	551	385	193

Note 1) In case Hydraulic Unit E-1812Ax and SPU-12A are used together in the 60Hz frequency area, the turning Discharge Adjusting Screw less than 1/2 (Discharge : 54L/min) will cause rpm becoming more than specified Max. rpm of Main Shaft. Therefore always using the turning Pressure Adjusting Screw more than 1/2.

[4] Table for the setting of discharge of Hydraulic Unit : In the 50Hz frequency area

Table for the setting of discharge of Hydraulic Unit

Hydraulic Unit	Hydraulic Core Drill	Diameter of Core Bit																			
		2"	3"	4"	5"	6"	7"	8"	9"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"
E-1812Ax	SPU-12A	0	0	0	2	4	5	Max.	Max.	Max.											
	SPU-16A	—	—	0	0	1	2 1/2	3 1/2	4 1/2	5 1/2	Max.	Max.	Max.								
	SPU-24A	—	—	—	—	—	—	1/2	1 1/2	2 1/2	4	5	Max.	Max.	Max.						
	SPU-32A	—	—	—	—	—	—	—	—	—	0	0	1/2	1 1/2	2 1/2	3 1/2	4	4 1/2	5	Max.	Max.
G-2800A	SPU-12A	0	0	1	4	6 1/2	9	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	SPU-16A	—	—	0	0	2	4 1/2	6 1/2	8	9 1/2	11	11	11	11	11	11	11	11	11	11	11
	SPU-24A	—	—	—	—	—	—	2	3	4 1/2	7 1/2	9	11	11	11	11	11	11	11	11	11
	SPU-32A	—	—	—	—	—	—	—	—	—	0	0	1 1/2	3 1/2	4 1/2	6	7	8	9	10	11
E-1100R Hiv	SPU-12A	0	0	0	1	3 1/2	5	6 1/2	7 1/2	8 1/2	9 1/2	9	9	9	9	9	9	9	9	9	9
	SPU-16A	—	—	0	0	0	1 1/2	3 1/2	4 1/2	6	7	8	9	9	9	9	9	9	9	9	9
	SPU-24A	—	—	—	—	—	—	0	0	1 1/2	4	5 1/2	6 1/2	7 1/2	8 1/2	9	9 1/2	9	9 1/2	9	9 1/2
	SPU-32A	—	—	—	—	—	—	—	—	—	0	0	0	1/2	1 1/2	3	4	5	5 1/2	6	6 1/2

Note 1) The peripheral speed of core bit is calculated at 225m/min.

Note 2) Above table is only the rule of thumb. Actually drilled object might change the conditions. In that case please re-adjust the discharge of Hydraulic Unit.

【5】 Table for the setting of discharge of Hydraulic Unit : In the 60Hz frequency area

Table for the setting of discharge of Hydraulic Unit

Hydraulic Unit	Hydraulic Core Drill	Diameter of Core Bit																				
		2"	3"	4"	5"	6"	7"	8"	9"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	
E-1812Ax	SPU-12A	1/2	2	3 1/2	5	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
	SPU-16A	—	0	1/2	2 1/2	4	5	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
	SPU-24A	—	—	—	—	2 1/2	3 1/2	4	5 1/2	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
	SPU-32A	—	—	—	—	—	—	—	0	1	2	3 1/2	4	5	5 1/2	Max.						
G-2800A	SPU-12A	0	0	1	4	6 1/2	9	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	SPU-16A	—	0	0	0	2	4 1/2	6 1/2	8	9 1/2	11	11	11	11	11	11	11	11	11	11	11	11
	SPU-24A	—	—	—	—	—	2	3	4 1/2	7 1/2	9	11	11	11	11	11	11	11	11	11	11	11
	SPU-32A	—	—	—	—	—	—	—	0	0	1 1/2	3 1/2	4 1/2	6	7	8	9	10	11	11	11	11
E-1100RHiv	SPU-12A	0	0	1	3	5	7	8	8 1/2	10	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2
	SPU-16A	—	0	0	0	1 1/2	4	5	6	7 1/2	8 1/2	9 1/2	10	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2
	SPU-24A	—	—	—	—	—	1 1/2	3	4	5 1/2	7	8	8 1/2	9 1/2	10	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2
	SPU-32A	—	—	—	—	—	—	—	0	0	1 1/2	3	4	5	5 1/2	6 1/2	7	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2

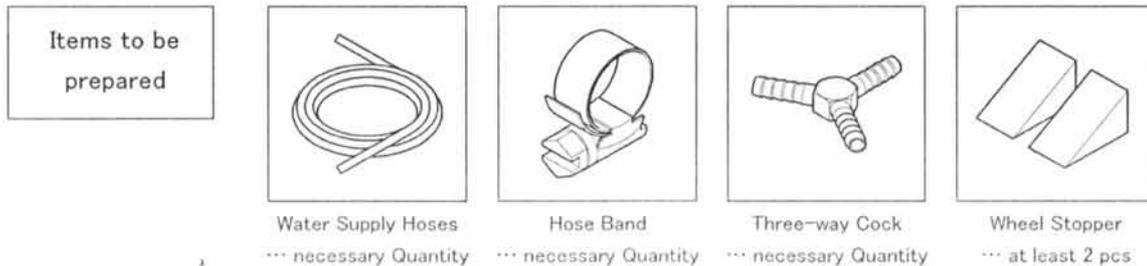
Note 1) The peripheral speed of core bit is calculated at 225m/min.

Note 2) Above table is only the rule of thumb. Actually drilled object might change the conditions. In that case please re-adjust the discharge of Hydraulic Unit.

8 . OPERATIONAL INSTRUCTIONS

- ◎ The following operational instructions are based on the use of Hydraulic Unit E-1812Ax. In case other type of Hydraulic Unit is used, please assume model name E-1812Ax as other type of model name. As for the use of Hydraulic Unit, please follow the instructions in Instruction Manual of Hydraulic Unit.

【1】 Preparation for Hydraulic Unit E-1812Ax



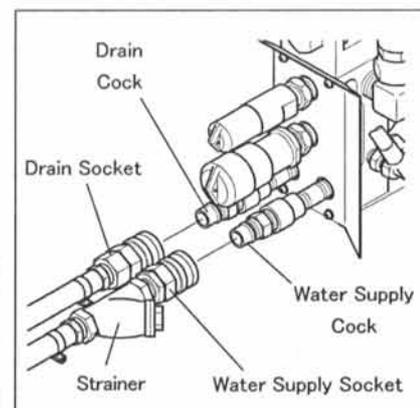
1. Connect Power Supply

- ◎ Connect Hydraulic Unit E-1812Ax with Power Supply.

- ⚠ WARNING :**
1. Be careful not to get Electric Shock. Use Power Source installed with Earth Leakage Breaker.
 2. When connecting Electric Cable with Power Supply, always make sure that the breakers at the engine and distribution panel are cut off. Also connect Earth (Green) always.

2. Connection of Hydraulic Hoses and Water Supply Hoses

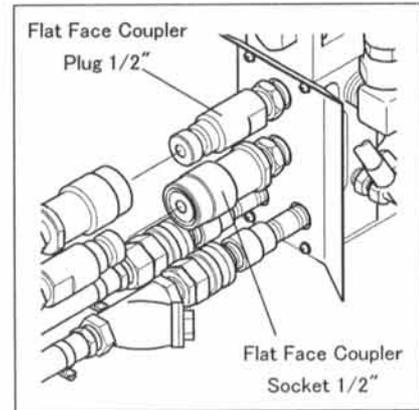
- 1) Connect Water Supply Hose from running water to Water Supply Socket, connect this socket with Water Supply Cock. Connect Water Supply Hose for Hydraulic Core Drill to Drain Socket. Then connect Drain Socket with Drain Cock. Fix Water Supply Hoses with Hose Bands.



⚠ CAUTION

1. In this manual, we have suggested that cooling water can be used to feed cutting water. However in the actual cutting operation, if the amount of cooling water is not enough due to the extreme change of Hydraulic actuation oil, separately prepare another source of cutting water.
2. Regarding amount of cooling water, it must be more than 10L/min and it must be adjusted so that the temperature of actuation oil become 20°C~ 60°C.
3. Always use clean water as cooling water.

- 2) Connect Hydraulic Hoses Assy. with Hydraulic hoses 5/8" ASSY.



- ⚠ CAUTION :**
1. When connecting Flat Face Couplers, push them until they are completely engaged.
 2. When Flat Face Couplers have dust or debris, wipe them out before connecting them.
 3. In the case using new hydraulic hoses (separately sold) to extend the length of hoses, the amount of oil is reduced because there is no oil inside of new hoses. Before connecting Hydraulic equipment, first connect hydraulic hoses with Hydraulic Unit, then connect discharge end of new hose with return end of new hose like a loop. While checking oil amount indicator, refill oil tank by inching with remote controller. Extending Hydraulic Hoses Assy. They must be connected always one by one to refill oil tank. If two new hoses are connected at once, the amount of oil is reduced dramatically and this could cause the damage. (Approx. 6L of oil is necessary to refill each hose.)

POINT

To connect with Hydraulic Unit G-2800A or E-1100R Hiv, Exchange Adapters (separately sold) are necessary.

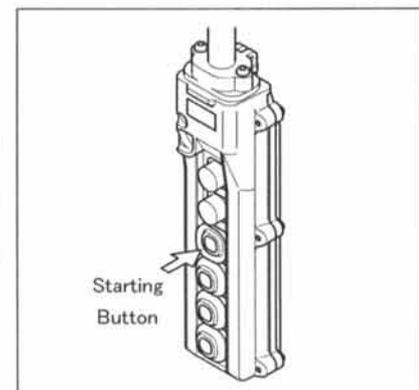
3. Method of setting discharge (Rotational speed of Main Shaft)

- ◎ Hydraulic Unit uses a variable delivery piston pump. Therefore by changing the discharge, RPM of connected hydraulic motor (the peripheral speed of Diamond Blade) can be changed freely.
- ◎ When E-1812Ax is shipped, it is set at 42/50L/min (50Hz/60Hz).

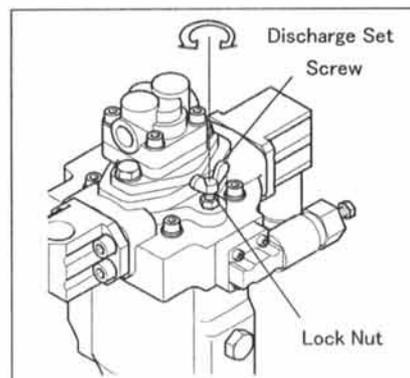
- 1) Push 「Starting Button」 on Remote Control Switch to start Hydraulic Unit.

POINT

When changing discharge, always start Hydraulic Unit before changing it.



2) Loosen Lock Bolt by Hex. Bar Wrench (2mm) and turn Discharge Adjusting Dial to adjust the discharge. Please refer to 「Table for the setting of discharge of Hydraulic Unit」 in page 12 and 13.



① Set discharge at 「Maximum」 . The position of 「Maximum」 discharge is where Discharge Set Screw is loosen freely once and tighten back until discharge set screw slightly contacts Lock Nut.

② Referring the table for the setting of discharge of Hydraulic Unit in page 14, set the discharge as desired. When decreasing discharge, tighten Discharge Set Screw. When increasing the discharge, loosen Discharge Set Screw.

Rule of thumb for discharge

[L/min]

Number of turning	0	1	2	3	4	5	Maximum
Frequency							
50Hz	47.3	43.2	39.0	34.9	30.7	26.6	23.6
60Hz	56.6	51.6	46.7	41.7	36.8	31.8	28.3

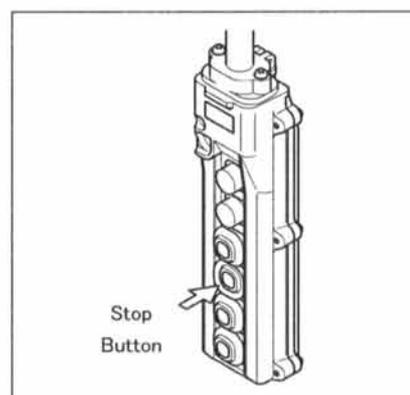
CAUTION : Discharge must be within maximum stream flow of Hydraulic Motor. If discharge is set above maximum stream flow, this could lead to the damage.

POINT

It is said that the suitable peripheral speed of core bit is at 200 ~ 250m/min in general. However it could be different depending on the drilled object or the conditions of the site. Based on the situations, re-adjust the setting of RPM.

3) Always tighten Lock Nut to fix the position after the setting.

4) Push 「Stop Button」 on Remote Control Switch to stop Hydraulic Unit.



4. Method of Setting Pressure (Max. Load Pressure)

◎ While doing this, Hydraulic hoses 5/8" ASSY must be disconnected.

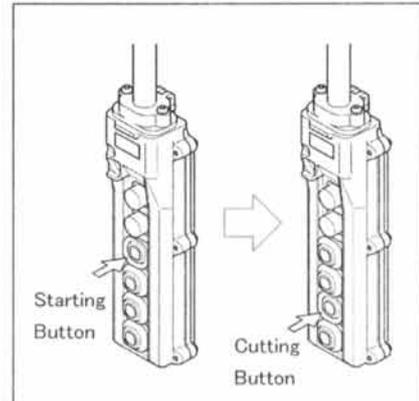
POINT

If Hydraulic hoses 5/8" ASSY is connected, the set pressure will not be shown in Oil Pressure Gauge.

1) Conduct running-in operation of hydraulic actuation oil.
When oil temperature becomes within the range of 20°C~ 60°C, running-in operation is complete.

2) Press 「Starting Button」 on Remote Control Switch to start Hydraulic Unit.

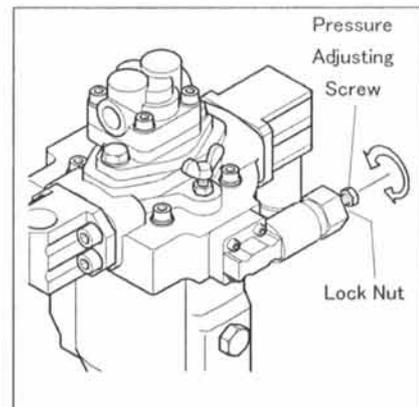
3) 6 seconds after starting, push 「Cutting Button」 on Remote Control Switch.



4) Loosen Lock Nut by Single-ended Spanner (13mm) and turn Pressure Adjusting Screw by Single-ended Spanner (13mm).

5) When increasing pressure, tighten Pressure Adjusting Screw. When decreasing pressure, loosen Pressure Adjusting Screw.

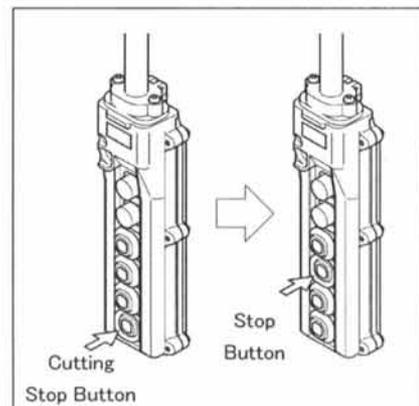
6) Looking at Oil Pressure Gauge, adjust the pressure at 21MPa and tighten Lock Nut by Single-ended Spanner (13mm) to fix it.



⚠ CAUTION : When setting the pressure, please make sure that the set pressure does not overreach Rated Pressure[MPa] specified in the name plate. If it is used at more than Rated Pressure, this could lead to the damage of hydraulic motor.

7) Push 「Cutting Stop Button」 on Remote Control Switch to stop Hydraulic Unit.

8) Push 「Stop Button」 on Remote Control Switch to stop Hydraulic Unit.



【2】 Installation of Anchor Bolt

- ① Open an anchor hole, L mm from the center of hole to be drilled, using a hammer drill. As for a marked position, please refer to Table for Position of Anchoring below.
- ② Remove the dust in the hole by blowing by Dust Blower and insert the Anchor.
- ③ Drive the Anchor by hitting by a hammer using a driving holder.

- ⚠ WARNING :**
1. Take care so that chips are completely blown out of the hole. Otherwise, anchors could come loose.
 2. If it is not driven deep enough, the anchor could come loose.
 3. Use concrete anchors specified by CONSEC.

Table for Position of Anchoring

Model	Applicable Bit Diameter	Number of Spacer	Position of Anchor L (mm)
SPU-32A	3 0 " ~ 3 2 "	4	5 8 4 ± 3 3
	2 6 " ~ 2 8 "	3	5 3 2 ± 3 3
SPU-32A SPU-24A	2 2 " ~ 2 4 "	2	4 8 0 ± 3 3
	1 8 " ~ 2 0 "	1	4 2 8 ± 3 3
SPU-32A	1 2 " ~ 1 6 "	None	3 7 6 ± 3 3
SPU-24A	8 " ~ 1 6 "		
SPU-16A	4 " ~ 1 6 "		
SPU-12A	2 " ~ 1 2 "		

【3】 Installation of Hydraulic Diamond Core Drill

- 1) Screw the Stud Bolt into the anchor and place Pole Base. Tighten Hex. Nut using Ratchet Wrench to fix Pole Base temporarily.

- ⚠ CAUTION :**
1. Screw the Stud Bolt more than five screw threads. In case this can not be done, it is possible that screw threads are damaged. In this case, replace Stud Bolt or install another anchor.
 2. While doing this, securely hold Pole Base so that it does not fall down.

- 2) Mount Drill Head on the Pole Base.

- ⚠ CAUTION :**
1. First slowly mount it until pinion gear of feeding handle touches rack gear of pole base. Then turn feeding handle so that two gears are engaged completely. If you hardly hit rack gear of pole base by pinion gear of feeding handle, they could be damaged.
 2. Be careful not to drop Drill Head.

- 3) By turning feeding handle, move Drill Head until the tip of main shaft will touch the surface to be drilled. Then tighten L bolt.
- 4) Loosen Hex. Nut using Ratchet Wrench and move Pole Base to match the position of main shaft and the position to be drilled.
- 5) Adjust the leveling bolts so that Pole Base does not rattle. After adjusting it, tighten Hex. Nut using Ratchet Wrench to fix Pole Base. To make sure the vertical bar and the horizontal bar, use the level.

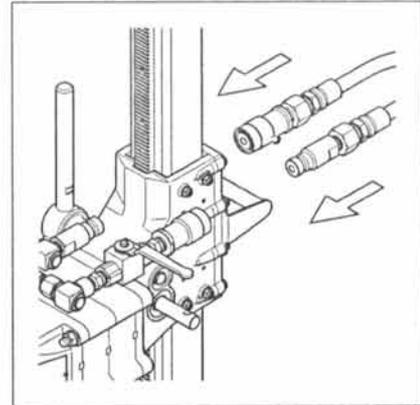
⚠ CAUTION : If Pole Base still rattles, adjust the leveling bolts again.

【4】 Connection of Hydraulic hoses 5/8" ASSY.

- 1) Connect Hydraulic hoses 5/8" ASSY. with hydraulic motor.

⚠ WARNING

1. When connecting Flat Face Couplers, push them until they are completely engaged.
2. When Flat Face Couplers have dust or debris, wipe them out before connecting them.



【5】 Installation of Diamond Core Bit

- 1) Loosen L Bolt and move Drill Head to the top of Pole Base by turning feeding handle. Then fix L Bolt again.
- 2) Attach a small amount of grease to the thread of main shaft and screw Core Bit to the end.

⚠ WARNING : Installation of Diamond Core Bit shall be done while Hydraulic hoses 5/8" ASSY. is connected with Drill Head and Switching Valve is opened. If the main shaft is turned without Hydraulic hoses 5/8" ASSY. is connected, this could cause the damage to the hydraulic motor.

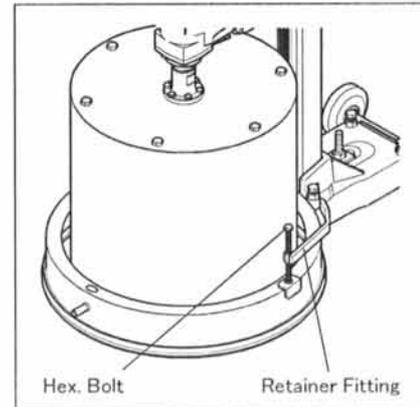
- ⚠ CAUTION** :
1. When a larger Core Bit is installed, the spacer is necessary. Please refer to 「Assembling of Drill Head」 in page 25.
 2. Be careful not to drop Core Bit.

【6】 Preparation for feeding water

- ◎ Close Water Cock and connect Water Supply Hose from either the drain port of Hydraulic Unit or running water using water supply couplers or hose bands.

【7】 Installation of Water Collector

- ◎ Place Water Collector to match the position of drilling. Hold it by Retainer Fitting to fix it. As for the degree of holding, adjust it by Hex. Bolt.
- ◎ Regarding the suitability of Retainer Fitting and Water Collector based on the number of used spacers, please see the table below.



⚠ CAUTION

1. Place Water Collector and Retainer Fitting so that they don't touch Core Bit.
2. When placing Water Collect next to the wall, the angle of drain port is limited. Be careful so that water will not spill out of Water Collector.

Suitable Retainer Fitting and Water Collector for the number of used spacers

Number of spacers	Retainer Fitting	Retainer Fitting	Water Collector
4	—	MA -7 4 -4	MS -4 ~MS -2 0
3	—	MA -7 4 -4	MS -1 6 ~MS -2 0
	—	MA -7 4 -2	MS -2 ~MS -1 6
2	—	MA -7 4 -4	MS -2 0
	—	MA -7 4 -2	MS -8 ~MS -2 0
1	—	MA -7 4 -2	MS -1 6
	MK -7 4 -1	—	MS -2 ~MS -1 6
None	MK -7 4 -0	—	MS -2 ~MS -1 4

【8】 Preparation for treatment of drain water

1. Example of treatment of drain water on the floor

Example 1) To connect the suction port of vacuum cleaner with drain port of Water Collector.

Example 2) Suck the water out from Water Collector into bucket using water pump.

2. Example of treatment of drain water on the wall or ceiling

Example 1) To connect the suction port of vacuum cleaner with drain port of Water Collector.

Example 2) To connect the one end of water hose with drain port of Water Collector and put the other end of water hose into bucket.

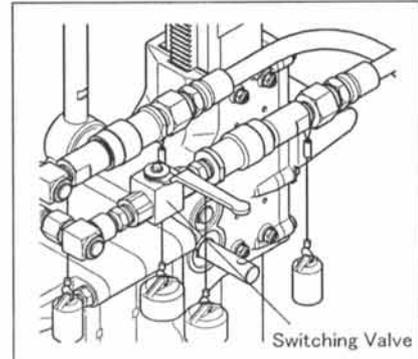
【9】 Core Drilling

- 1) Open the faucet of running water and slowly open Water Supply Cock to adjust the amount of feeding water.

⚠ CAUTION : Allow water to flow at 2 ~ 3 liters per minute.

- 2) Loosen L Bolt and move the tip of Core Bit to the position of slightly above drilling surface by turning feeding handle.
- 3) Push 「Starting Button」 on Remote Control Switch to start Hydraulic Unit.

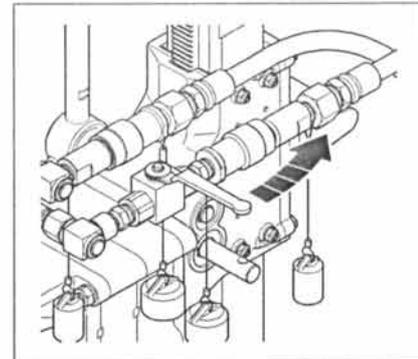
- 4) As Switching Valve is closed, Push 「Cutting Button」 on Remote Control Switch.



- 5) Slowly open Switching Valve and start rotating Core Bit.

⚠ WARNING

There is abnormality such as noise or vibration, immediately push 「Stop Button」 on Remote Control Switch to stop Hydraulic Unit. Do not touch Core Bit while it is rotating.



- 6) Start drilling.

Feed Core Drill by turning Feeding Handle slowly until Core Bit comes in light contact with work surface. While starting to drill, apply light pressure on Feeding Handle until Drill Bit penetrates to 5 ~ 10 mm depth. Then keep drilling under uniform pressure.

⚠ WARNING : If Feeding Handle is turned too quick, this can cause Core Bit to hit the work surface hard, damaging Core Bit or Core Drill and also resulting in hazards.

- 7) After drilling to desired depth, stop water supply. Move Drill Head by turning Feeding Handle until Core Bit is free from the hole and secure it L Bolt.

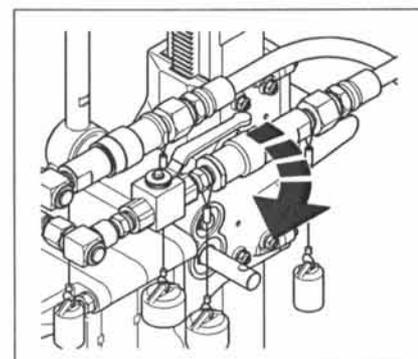
⚠ CAUTION :

1. Get Core Bit out of the hole immediately after stopping water supply.
2. Take precautions to prevent water in Core Bit from spattering around.

- 8) Slowly close Switching Valve and stop rotating Core Bit.

⚠ WARNING

If Switching Valve is closed too quickly, Core Bit could come loose. Pay enough attention to this.



- 9) Push 「Stop Button」 on Remote Control Switch to stop Hydraulic Unit.

【10】 After Completion of Drilling

- 1) Remove Water Supply Hose, Water Collector and Retainer Fitting.
- 2) Remove Core Bit from Main Shaft using Single-ended Wrench.
- 3) Remove Drill Head from Pole Base.
- 4) Remove Pole Base.

⚠ WARNING : When Retainer Fitting is not used, either attach it in the reverse direction or remove it from pole base. If Retainer Fitting is still attached as both arms being open, it is dangerous. It could cause injury or be damaged while carrying Pole Base.

⚠ CAUTION :

1. When removing Water Collector, waste water or sludge may ooze out of Water Collector. Use a Vacuum Cleaner for cleaning.
2. Removal of Diamond Core Bit shall be done while Hydraulic hoses 5/8" ASSY. is connected with Drill Head and Switching Valve is opened. If the main shaft is turned without Hydraulic hoses 5/8" ASSY. is connected, this could cause the damage to the hydraulic motor.
3. After removing Core Bit, if grease is applied to the thread of main shaft, this could prevent the main shaft from rusting.

【11】 Dismantling of Hydraulic Unit E-1812A

- ◎ Remove Hydraulic hoses 5/8" ASSY. and Water Supply Hoses.

⚠ CAUTION :

1. When disconnecting Hydraulic hoses 5/8" ASSY., if the debris, the dust etc. are attached to the couplers, the couplers can not close perfectly. While the couplers are in this condition, if Drill Head is placed at higher level than at where Hydraulic Unit is placed and Hydraulic hoses 5/8" ASSY. are disconnected from Drill Head, the air will go into the Hydraulic hoses 5/8" ASSY. As a result, Hydraulic actuation oil could overflow out of Oil Tank. Therefore when disconnecting Hydraulic hoses 5/8" ASSY., first disconnect the side of Hydraulic Unit.
2. After disconnecting Hydraulic hoses 5/8" ASSY., use coupler caps so that hydraulic couplers are free from dust or debris.
3. Please make sure water feeding has stopped before disconnecting Water Supply Hoses.

9 .TROUBLE SHOOTING DURING OPERATION

【1】 Trouble Shooting During Operation

If a problem becomes apparent during operation, immediately stop the operation to ensure that the equipment is safe, and investigate using the following table.

Problem	Cause	Solution
Core Bit stops	Core Bit is locked	Refer to 「 Core Bit is locked」 below in this table
	Hydraulic Motor has stopped.	Refer to 「 Hydraulic Motor has stopped」 below in this table.
Core Bit is locked	Iron chips or aggregates are caught between Core and Core Bit.	Refer to 「 When Diamond Core Bit is Locked」 in this manual.
	Interference against Drilled Core	Refer to 「 Interference against Drilled Core」 below in this table.
Hydraulic Motor has stopped	Power failure	
	Hydraulic Unit has stopped.	Refer to Instruction Manual of Hydraulic Unit.
Hydraulic Motor does not rotate	Connection of Hydraulic hoses 5/8" ASSY. is not good.	Connect couplers correctly again.
	Set discharge of Hydraulic Unit is not good.	Adjust discharge again.
	「 Starting Button」 「 Cutting Button」 of Hydraulic Unit is not working.	Refer to Instruction Manual of Hydraulic Unit.
	Hydraulic Motor is damaged.	Repair Hydraulic Motor.
Cutting is not good.	RPM is not suitable.	Adjust discharge of Hydraulic Unit again.
	Cutting steel inside.	
	Amount of feeding water is too much.	
	Core Bit Crown is blinded.	Contact Consec sales representative.
	Core Bit Crown is worn.	Replace Core Bit with new one.
	Drilled Concrete Core is broken.	Remove broken core out of Core Bit.
	Interference against Drilled Core	Refer to 「 Interference against Drilled Core」 below in this table.
	Oil temperature of Hydraulic Unit is high.	Refer to Instruction Manual of Hydraulic Unit.
Interference against Drilled Core	Too much forcing at the start of drilling.	
	Too much drill force	
Refer to 「 When Drilling is Misaligned and Interfering with the Rotation of Core Bit」 in this manual.	Amount of feeding water is too little.	
	Abnormal vibration	Refer to 「 Abnormal vibration」 below in this table.
	Pole Base is bent.	Repair Pole Base.
	Core Bit Crown is worn and drilled diameter is becoming smaller.	Replace Core Bit with new one.
Abnormal vibration	Drill Head Clamp is not well adjusted.	Refer to 「 Regular Servicing」 in this manual.
	Anchor Bolt is not screwed enough to secure Pole Base.	Fix Pole Base properly again.
	Level of Pole Base is not well adjusted.	Adjust the level again.
	Main Shaft is misaligned.	Repair it.
	Core Bit is misaligned.	Replace Core Bit with new one.
	Drilled Concrete Core is broken.	Remove broken core out of Core Bit.

※ Interference against Drilled Core : The body of Core Bit is contacting against the inside wall of drilled core. As a result, it is becoming an obstacle for the normal rotation of Core Bit.

【2】 When Diamond Core Bit is Locked (Lodged)

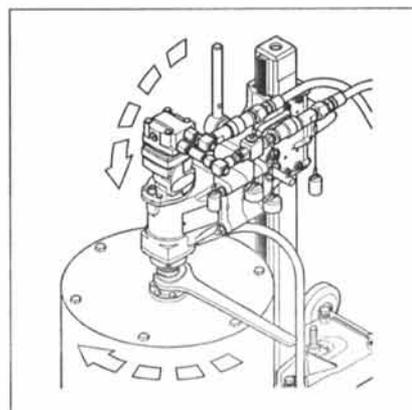
⚠ WARNING : When Diamond Core Bit is locked, immediately push 「Stop Button」 on Remote Control Switch to stop Hydraulic Unit. Keep Switching Valve as open.

- ◎ Using Single-ended Wrench, try to rotate Core Bit slowly in both directions to move and lift it out from the hole by turning Feeding Handle little by little.

⚠ CAUTION

Too much force on Feeding Handle can cause

1. Damage or Breakage of Core Drill
2. Fracturing of Core Bit Crown (segment)



【3】 When Drilling is Misaligned and Interfering with the Rotation of Core Bit

⚠ WARNING : When drilling is misaligned and interfering with the Rotation of Core Bit, immediately close Switching Valve and stop drilling. Push 「Stop Button」 on Remote Control Switch to stop Hydraulic Unit.

- 1) Loosen the fixing of Pole Base such as Hex. Nut or Leveling Bolts, and make fine adjustment so as to minimize such interference and secure it.
- 2) To remove the interfering portion, start drilling again from the work surface in the Drilled Hole.
- 3) If Core Bit is still interfering against Drilled Core wall even after repeating 1) and 2), drill a hole in a different position or drill a larger hole to contain the Original Misaligned Hole.

10 . HOW TO DISASSEMBLE DIAMOND CORE BIT

- ◎ Three Separate Type Diamond Core Bit should be disassembled using Tube Wrench and Tube Wrench Handle (separately sold). After disassembling, clean the threads with clean cloth and apply Grease on them for easier replacement in the future.

⚠ CAUTION :

1. If Core Bit is worn, replace with new one. The use of worn Core Bit reduces drilling performance and overloads Hydraulic Motor.
2. Be sure to use optional Tube Wrench and Tube Wrench Handle for dismounting Bit, Tube, Coupling of larger diameter than 2" (53mm). Since their walls are thin, the use of tools other than recommended may cause deforms or damages.
3. When disassembling Bit, Tube and Coupling, do not hit Tube Wrench and Tube Wrench Handle by Hammer etc. This cause deforms or damages.

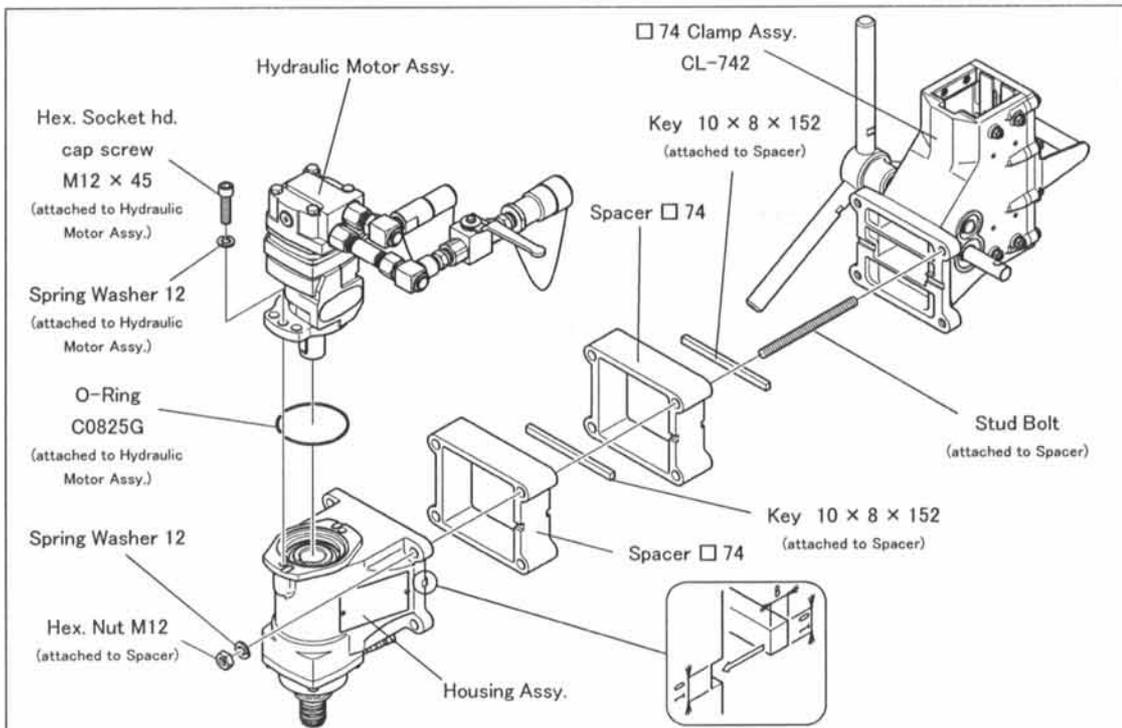
11 . ASSEMBLING OF DRILL HEAD (ATTACHING SPACERS)

- ◎ As for SPU-24A and SPU-32A, as the diameter of drilling becomes larger and larger, the attaching of spacers become necessary. Therefore referring to the table below, attach the spacers.
- ◎ Maximum number of spacers can be attached is 2 pcs for SPU-24A and 4 pcs for SPU-32A.

No. of spacers		None	1 pce	2 pcs	3 pcs	4 pcs
Attaching Bolt	Size	Hex. Bolt M12 × 45	Stud Bolt M12 × 110	Stud Bolt M12 × 165	Stud Bolt M12 × 215	Stud Bolt M12 × 270
	Q'ty	4 pcs				
Attaching Key	Size	10 × 8 × 152				
	Q'ty	1 pce	2 pcs	3 pcs	4 pcs	5 pcs
Distance from Core Bit to Anchor Bolt (mm)		376 ± 3.3	428 ± 3.3	480 ± 3.3	532 ± 3.3	584 ± 3.3
Applicable Core Bit Dia. (with Water Collector)	Inches	8 ~ 1.4	1.6	1.8 ~ 2.0		
	mm	205 ~ 35.5	40.6	45.7 ~ 50.8		
Applicable Core Bit Dia. (without Water Collector)	Inches	8 ~ 1.6	1.8 ~ 2.0	2.2 ~ 2.4	2.6 ~ 2.8	3.0 ~ 3.2
	mm	205 ~ 40.6	45.7 ~ 50.8	55.0 ~ 60.0	65.0 ~ 70.0	75.0 ~ 80.0

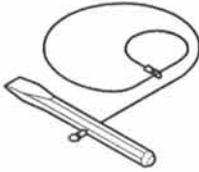
- ⚠ CAUTION :**
1. When attaching the spacers, always attach the keys. If the keys were not used, misalignment and interfering with the rotation of Core Bit will occur during drilling operation.
 2. When mounting the key, first insert the side of 10mm in the groove and make sure there is no rattling.
 3. Be careful so that there is no caused space on the matching surface of Housing Assy. and spacer, □ 74 Clamp Assy. and spacer. Also be careful so that spacers do not incline.

- Fix Hydraulic Motor Assy. and Housing Assy. with Hex. Socket hd. cap screw M12x45 (2 pcs), Spring Washer 12 (2 pcs), O-Ring tightening and using Hex. Bar Wrench 10mm.
- Fix □ 74 Clamp Assy., Spacers and Housing Assy. with Hex. Nut M12 (4 pcs), Spring Washer 12 (4 pcs), Stud Bolts (4 pcs) tightening and using Single-ended Spanner 19mm.



12 . HOW TO USE CORE EXTRACTING WIRE

◎ As one method of Core extracting, there is a method for Core Extracting Wire. In the below diagram, Drilled Cores available for extracting by wire are shown.



Drilling Core Dia.	4" (110 mm)	5" (128 mm)	6" (160 mm)	7" (180 mm)	8" (205 mm)	9" (230 mm)	10" (254 mm)
Drilling Core Length	800 mm	500 mm	400 mm	300 mm	200 mm	170 mm	140 mm
Weight	About 18 kg						

- 1) Insert the Chisel of Core Extracting Wire into the drilled groove and hammer it to break the Drilled Core.
- 2) When the Drilled Core starts to move, wind the looped wire of Core Extracting Wire around the Core. If the wire is applied at deeper position around the Core, the Core can be removed easily.
- 3) Slowly pull Core Extracting Wire to lift the Drilled Core out and then remove the Core by holding by hand.

⚠ WARNING : 1. Do not lift the Core high in the air by Core Extracting Wire.
2. Use Core Extracting Wire for Core extracting purpose only.

13 . MAINTENANCE, INSPECTION AND REPAIR

【1】 Maintenance

- 1) Clean and maintain your Machine after each use.
Use dry cloth for cleaning the surface of your Machine.
- 2) Maintenance of Hydraulic Motor Assy.
Do not splash Hydraulic Couplers with water and wipe them with a dry cloth.

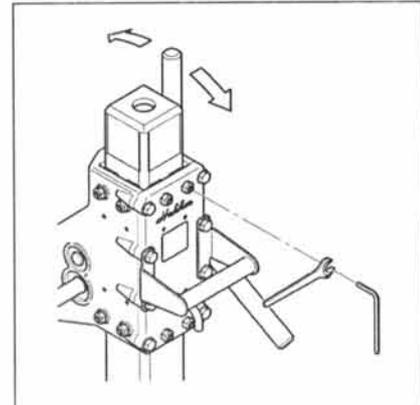
【2】 Regular Inspection, Servicing

- ◎ Check Drill Head, Pole Base, Water Collector, Retainer Fitting and Core Bit for cracks and damages. Also check Hydraulic Motor, Switching Valve and Hydraulic Couplers for oil leakage.
- If any of above problems are found, please contact its sales dealer or Consec's sales representative.

【3】 Regular Servicing

1. Checking and Adjustment of Clamp

- ⊙ While moving Feeding Handle, tighten 8 pcs of Hex. Socket Set Screws on Clamp in good balance with Hex. Bar Wrench (4mm) and adjust the gap between Pole and Clamp. As for the degree of adjustment, first tighten Hex. Socket Set Screws till the rattling stops. Then loosen them back by one quarter of one turning. (In this case if Core Drill is fixed on the floor, Drill Head do not slide (fall) down because of its weight.) After adjustment, tighten Lock Nut using Single-ended Spanner (13mm) to fix these screws.



⚠ CAUTION : If Hex. Socket Set Screws are fastened too tight, the movement of Clamp on the Pole becomes heavy. When Slide Plate is worn and starts to rattle, re-adjustment is necessary.

2. Checking of attaching screws

- ⊙ Check periodically every attaching screws for loosening. If found loose, tighten it.

【4】 Repairs

- ⊙ This product is manufactured to precise dimensions. If it does not operate properly, contact your nearest dealer or Consec's distributor. Do not repair it yourself.
- ⊙ Do not hesitate to contact your nearest dealer or Consec's distributor if you have any questions regarding use or handling of this product.

14 . MAINTENANCE INSTRUCTIONS

Storing the Product and Accessories

When the Product and accessories are not in use, ensure that they are stored safely in a dry location, and under the following conditions.

- ◇ Store the unit out of reach of children.
- ◇ Store away from rain and humidity.
- ◇ Do not store in locations subject to rapid changes in temperature.
- ◇ Store the unit out of direct sunlight.
- ◇ Do not store in locations where inflammable, explosive substances are present.

Do not store the product at such places.

Specifications of the Product described in this manual are subject to change without prior notice.



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