

MARUZEN

HYDRAULIC HANDHELD ROCK DRILL

MODEL DH204

OPERATING MANUAL



FOR THE PURPOSE OF SAFETY, PLEASE READ THIS MANUAL THOROUGHLY BEFORE ATTEMPTING TO USE THIS ROCK DRILL. ANY INCORRECT OPERATING PROCEDURES WILL CAUSE DAMAGE TO THE MACHINE. ALWAYS KEEP THIS MANUAL IN AN EASILY ACCESSIBLE PLACE.



MARUZEN KOGYO CO., LTD.

(Revised March.16, 2023)

FOREWORD

This manual is an important part of your equipment. It provides rules and guidelines which will help you use this machine safely and effectively. You **MUST** familiarize yourself with the functions and operations by reading the manual thoroughly before you begin using this machine. For your safety, it is especially important that you read and observe all precautions in this manual and labels on the machine. The precautions **MUST** be always followed strictly when performing operation and maintenance. * Fail to follow the guidelines and safety alerts in the manuals and on the machine or use this machine in alternative ways from the manuals may result in system failure or serious personal injury.

Keep this manual with the equipment or in an easily accessible place in all times for future reference. Make sure all personnel involved in working on this machine can consult it periodically. In case this manual should be lost or damaged, immediately contact us or your dealer to purchase a new copy.

We recommend you always use Maruzen genuine components and parts. Replacing components and parts from other sources may cause damages to this machine and endanger operators.

MARUZEN KOGYO CO., LTD.

155-8 NAGABUSE, MISHIMA-SHI,
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SAFETY INFORMATION

To enable you to use this machine safely, safety precautions and labels are given in this manual and affixed to the machine to give explanations of situations involving potential hazards and of the methods of avoiding such situations.

SAFETY ALERT CLASSIFICATIONS

The following safety alert symbols are used to inform you that there is a potential hazardous situation that may lead to personal injury or damage.

In this manual and on machines labels, the following safety alert symbol is used to express the potential level of hazard.



Indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

**** Safety alert symbols are to emphasize all operation which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.**

SAFETY ALERTS

DO NOT OPERATE THE MACHINE UNLESS THE FOLLOWING SAFETY INSTRUCTIONS HAVE BEEN THOROUGHLY READ AND UNDERSTOOD!

SAFETY ALERTS

DO NOT OPERATE THE MACHINE UNLESS THE FOLLOWING SAFETY INSTRUCTIONS HAVE BEEN THOROUGHLY READ AND UNDERSTOOD!

	Read and understand all of the instructions and safety information in this manual before operating.
	Wear eye protection.
	Wear ear protection.
	Wear a dust mask.
	Wear a helmet.
	Wear protective gloves.
	Wear foot protection boots.
	Do not touch oil with your bare hands.
	The rock drill body will be hot during and after use. Do not touch it with your bare hands.
	Contains high pressure gas.



WARNING

Before operating the tool, be sure to wear personal protective equipment such as follows:

1. Helmet
2. Protective goggles
3. Protective boots
4. Safety gloves
5. Ear protection
6. Dust mask

* Failure to observe this precaution could result serious personally injuries.



WARNING

Do not operate the tool if

1. you are taking medication, feeling drowsy, unwell or tired.
2. you are under the influence of drugs or alcohol.
3. your hands, feet, lower back or other parts of your body hurt or are injured.

* Failure to observe this warning could result in serious injury or even death.



WARNING

Do not touch with your bare hands.

1. Following by rapid raise of the oil temperature, the temperature of the machine goes up while and after the operation. **DO NOT** touch the machine with your bare hands.
 2. The temperature of tools will also raise while or after the operating. **BE SURE** that you always wear protective tool while using tools.
- * Failure to observe this warning could result getting burned.



CAUTION

When lending someone the tool

Make sure the safety instructions have been thoroughly read and fully understood by the person who is going to use the tool.

* Failure to observe this precaution can result serious personal injuries or damage the machines.



WARNING

Avoid blank hammering.

Operating the tool horizontally may cause sudden ejection of the chisel.

Excessive blank hammering is considered tool abuse and may cause tool damages.

* Failure to observe this precaution can damage the rock drill.



WARNING

Never operate the rock drill when bystanders are in the work area.

1. Do not operate the rock drill if any people are within the area where flying debris or movement of the rock drill may injure them.
2. For preventing flying debris, make sure protective fences have been set up.

* Failure to observe this warning can result in personal injury.



WARNING



Pay special attention to high-pressure gas.

1. High-pressure gas will build up inside the accumulator of the rock drill
2. Do not loosen the retaining nut, unless it is necessary for maintenance (and then only after depressurising the machine)

*Failure to observe this precaution can result in serious injury



WARNING

Pay special attention to high-pressure gas.

There is a risk of sudden breakage of hydraulic hoses which causes the oil inside to blow out.

1. Depressurize the machine before disconnecting any hoses.
2. Do not check for oil leaks with your bare hands since high-pressure oil is invisible and can cause serious injury. **ALWAYS** use cardboard or wood pieces to assist your inspection.



WARNING

Choking, scalping and/or lacerations can occur if loose clothing, personal jewelry, neckwear, hair or gloves are not kept away from the tool and accessories.

INTRODUCTION

1. This hydraulic rock drill is only designed for the following working tasks.
 - (1) Drilling holes on rocks, concrete, etc. with drilling rod.
 - (2) Breaking rocks, concrete etc. with grooved moil point.

2. **DO NOT** operate this rock drill on the following situations:
 - (1) Submerging part of the rock drill or the entire rock drill in water or seawater.
 - (2) Using the machine with non-genuine tools or spare parts.
 - (3) Connecting the machine to a power source with an oil flow and/or pressure that exceed the range prescribed.
 - (4) Operating the machine with an oil temperature below 10°C or over 100°C.
 - (5) Using the machine with a shank size that is different from the prescribed size.
 - (6) Attaching the machine to other construction machinery.
 - (7) Using the machine for any other purpose than stated in this manual.
 - (8) Connect with extension hose its length exceeds 1/2 in x 20m.
 - (9) Use in explosive atmosphere or use at place where can get encountering electric power.

SPECIFICATIONS & DESCRIPTIONS

Overall Dimensions L694x W410 x T110

Overall Weight 24.5 Kg (Tool excluded)

Working Pressure 7.8~11.8MPa

Max. Pressure 20.6 MPa

Oil Flow 20~30L/min

Blow Per Minute 1000-1350 bpm

Rotation Direction Counter clock wise

Vibration Level
(EN ISO 28927-10) 7.69 m/s² Uncertainty K=1.01 m/s² (20L/min)
7.56 m/s² Uncertainty K=0.96 m/s² (25L/min)
8.58 m/s² Uncertainty K=0.70 m/s² (30L/min)

Sound Power (2000/14/EC)

-Measured Sound Power Level Lwa = 102dB(A)

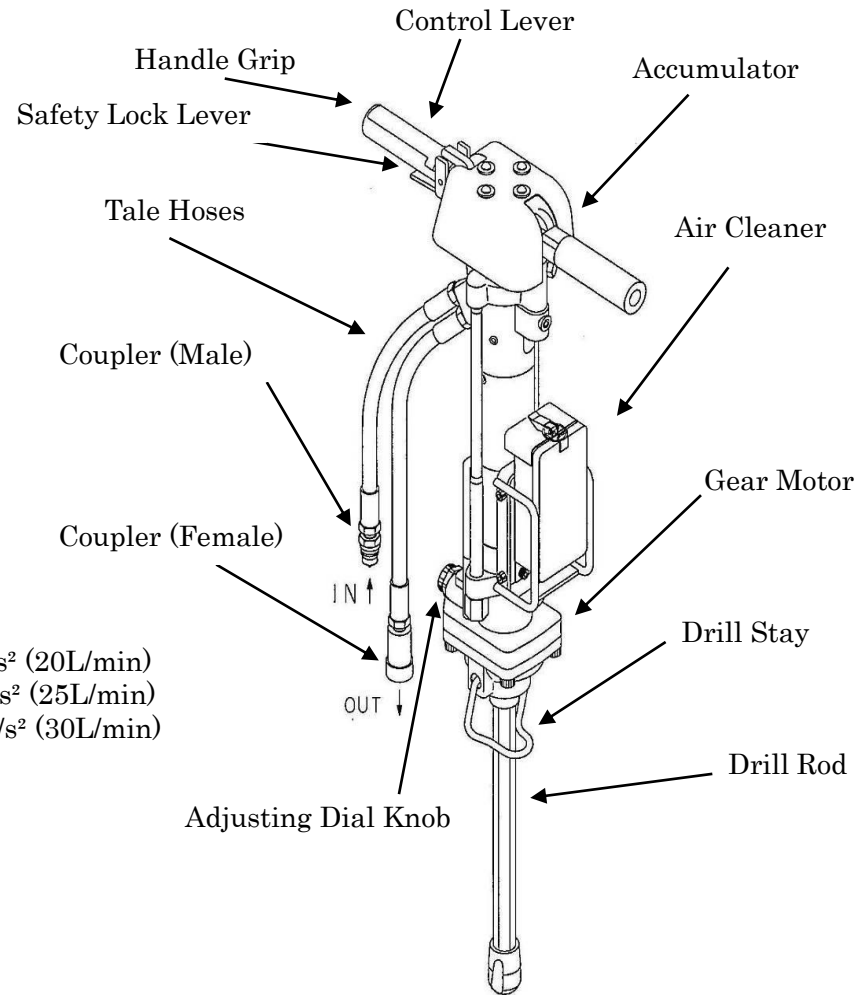
-Guaranteed Sound Power Level Lwa = 103dB

Shank Size 7/8" x 4-1/4"(22x108mm) hex

Coupling 3/8 in couplers

Extension Hose 1/2 in x 20m (max) *Use only hose couplings that can be used with 21Mpa.

Recommended Hydraulic Oil ISO VG32 or equivalent



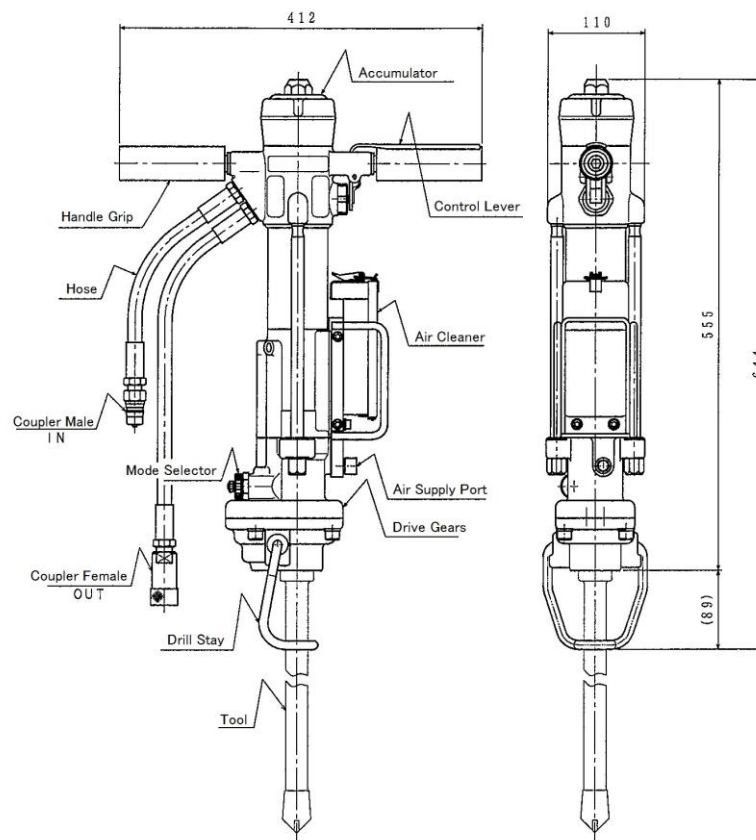
INTRODUCTION

1. This hydraulic rock drill is designed to be used for the following purposes.
 - (1) Equipped with drilling rod for drilling holes on rocks, concrete and etc.
 - (2) Equipped with grooved moil point for breaking rocks, concrete and etc.

2. **DO NOT** operate this rock drill on the following situations:
 - (1) Drench part of the rock drill or whole rock drill into water or seawater.
 - (2) Connect with power source which its oil flow and pressure exceeds the range prescribed.
 - (3) Operating with oil temperature below -10°C or over 90°C.
 - (4) Use tools other than Maruzen genuine tools.
 - (5) Use connection hose which 3/8" diameters wide x over 10m long or 1/2" diameters wide x over 20m long.
 - (6) Use the equipment for purposes other than stated in this manual.

SPECIFICATIONS & DESCRIPTIONS

Overall Weight	20kg (Without hose)
Overall Dimensions	L555mm x W412mm x T110mm
Working Pressure	8.8 ~ 11.8 MPa
Max. Pressure	20.6 MPa
Oil Flow Range	STD: 20 ~ 25L/min
Blow per Minute	STD: 1000 ~ 1350bpm Option: 1500bpm
Rotation Speed	STD: 0 ~ 500 rpm Option: 0 ~ 600 rpm (4 adjustable speeds)
Shank Size	Hex. 22mm x 108mm
Back pressure	2.5MPa
Coupling	3/8" Couplers
Sludge Discharge	Built-in Compressor
Hose Length	1/2" x 20m
Recommended oil viscosity	ISO VG32, VG46 or equivalent.



AIR SUPPLY FROM OUTER SOURCE

In case of deeper drilling (1.5m – 3.0m), air supply from outer source (air compressor) is more effective for drilling.

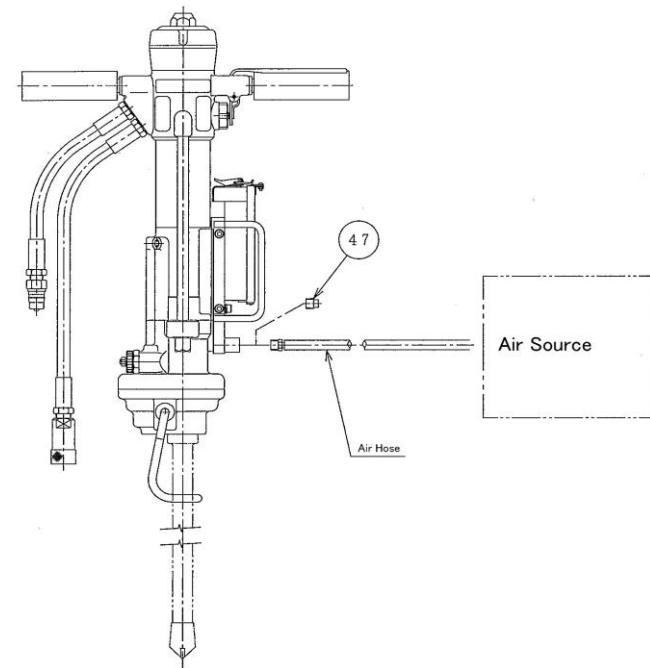
Recommended specifications of air source (air compressor)

Air Consumption: 0.57m³/ min

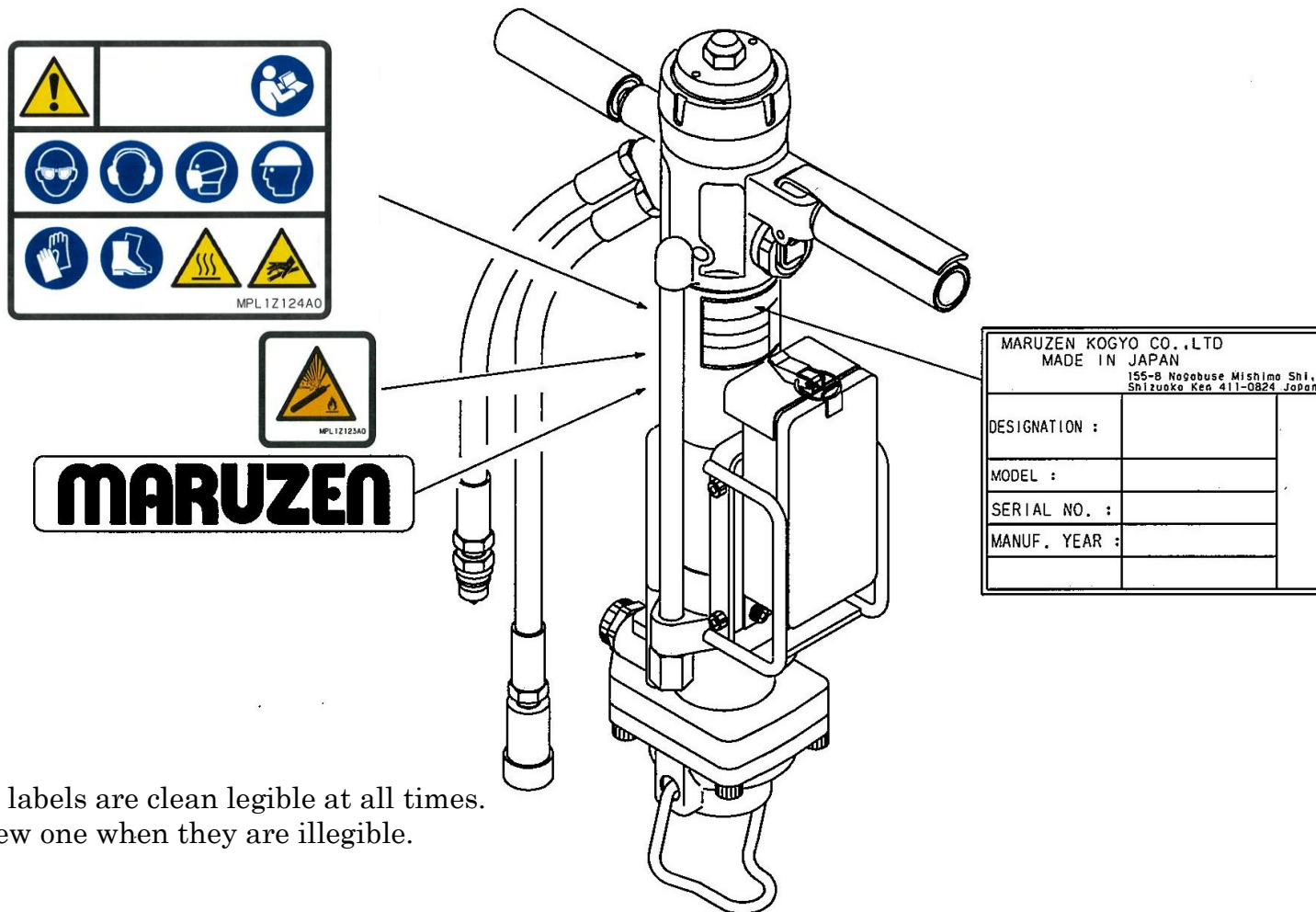
Air Pressure: 0.5MPa

Remarks:

- 1) When the air pressure of air source (compressor) is higher use regulator and adjust the air pressure.
- 2) Be careful not to enter microscopic dust, sand or moisture into the machine through the air line. Otherwise, machine may be mechanically trouble. To supply clean and dry air into the machine, set-up of the air cleaner is recommendable.



PRECAUTION LABELS AND POSITIONS



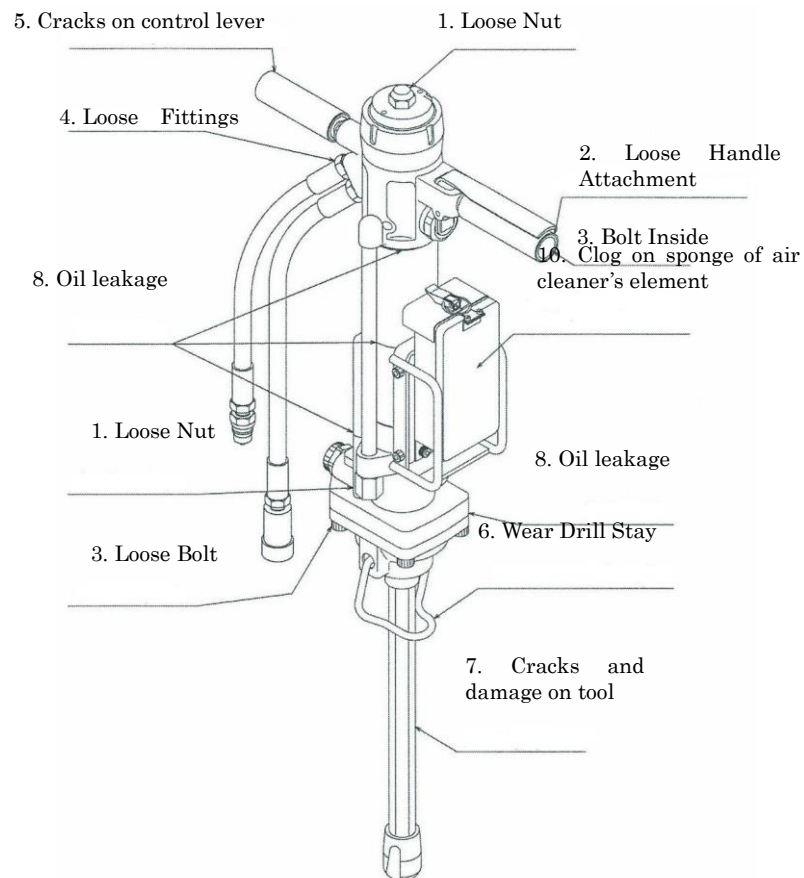
* Make sure labels are clean legible at all times.
Replace new one when they are illegible.

INSPECTIONS BEFORE EACH OPERATION

For keeping the rock drill in good condition, make sure the following inspection items are done each time before using. (Refer the drawing on the right)

Inspection Items	Countermeasures
1. Looseness nuts	Tighten the loosen nut
2. Looseness of handle attachment	Tighten handle attachment
3. Looseness of bolt	Tighten bolts
4. Looseness of hose fittings	Tighten hose attachment
5. Cracks on handle grip rubbers	Replace new one
6. Wear of drill stay	Replace new one
7. Cracks or damage on tool	Replace new one
8. Oil leakage	Ask your dealer for repair and service
9. Cracks on control lever	Replace new one
10. Clean the air cleaner	Refer to page 13

***For the detailed procedure, ask Maruzen dealer.**

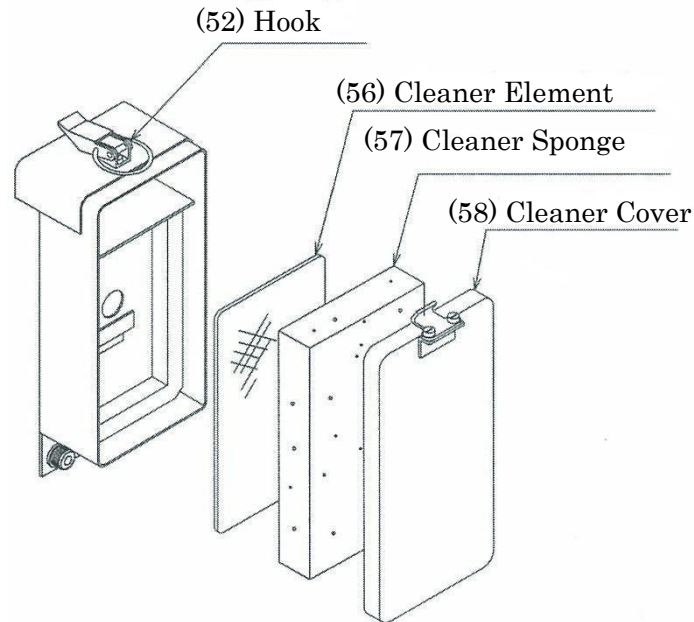


An air cleaner is equipped to prevent dust being sucked into built – in compressor. Refer to the drawing below for air cleaner cleaning.

Remove the cleaner case and air (blow) clean the “(56) Element” and “(57) Sponge” every day. Fail to do the cleaning can hasten the ware of compressor, piston etc.

Also, when you use the air supply port of DH204. from air compressor some moisture attaches (56) element and (57) sponge.

After using the air supply port with air compressor, always wash and clean the (56) Element and (57) sponge as above and keep. them dry.



OPERATION

1. Before Start

- (1) Open the drill stay and insert the drill rod.

Make sure if the drill rod is not too much worn out or exceed usage limit.

NOTE: Ensure that power source and drill is disconnected when inserting the drill rod to prevent unexpected activation.

NOTE: Ensure to use drill rod with shank size 7/8" x 4-1/4" (22x108mm) hex. Do not use other sizes. Ensure the holes of drill rod and bit is not plugged.

- (2) Close the drill stay. Make sure the rod (or other tools) is firmly locked.
- (3) Make sure couplers are clean. (No dust, mud or other foreign material attach to them) Connect rock drill with power source with extension hoses.
- (4) Start the power source. Allow hydraulic oil to flow into rock drill. (Switch the valve and etc)

2. Start drilling.

- (5) Set the tip of the rod on the point where you aim to drill, push down the rock drill slowly, grip the safety lock lever and control lever to start drilling.

For preventing rock drill bouncing around while operating, let the tip of the rod closed to one of your feet and drill until the rock drill can be stably operated.

NOTE: Be careful about the injury by drill rod hitting your feet.

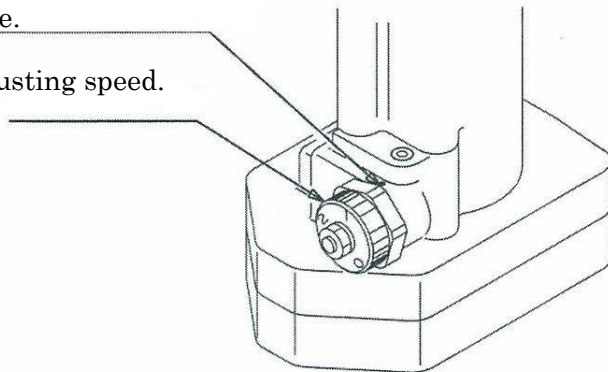
- (6) Adjust the rotation speed according to the type of the rock.
- (7) Hold the tool correctly; be ready to counteract normal or sudden movements and have both hands available.
- (8) Always maintain proper footing and balance when using the tool. Adopt to keep comfortable posture.

- (9) High-reaction torque can be developed in the case of stalling, which can be caused by excessive loads being applied to the drill bit, by the drill bit snagging on the material being drilled into or by the drill bit breaking through the material being drilled.

Mode	2 0 L		2 5 L		Applications
	r p m	b p m	r p m	b p m	
0	—	1270	—	1530	Breaking
1	140-230	940	160-250	1275	Hard rock
2	250-340	800	270-360	1170	Medium to hard rock
3	480-570	510	500-590	915	Soft rock

Adjust the scale mark to the line here.

Knob for adjusting speed.



3. Breaking

- (10) Fluted moil point allows the escape of the air.
Don't use any breaker tools except fluted ones on shank.
Otherwise, compressor component may be damaged.
- (11) Open the drill stay and insert moil point.
- (12) Close the drill stay. Make sure the moil point has been fastened firmly.
- (13) Adjust the knob to "O" position.

4. After the operation

- (14) After the operation, stop the power source.
- (15) Use the moil point to push up the piston to the end.
- (16) Detach the connection hoses.
- (17) Make sure all the couplers on standard hoses (attached to rock drill) and connection hoses are attached to each other to prevent dirt etc. entering.
- (18) Open the drill stay, remove the tool (moil point)
- (19) Clean all the dirt, mud etc. on the rock drill.

GUIDELINE

While using power source other than Maruzen power units, ask Maruzen or Maruzen dealers before the operation.

1. Always use Maruzen genuine tools. Using other than Maruzen genuine tools may cause damage of rock drill and personal injury.
2. Make sure the power source is OFF when connecting the rock drill to the power source.
3. DO NOT operate the tool unless thoroughly trained or under the supervision of an instructor.
Operators and maintenance personnel shall be physically able to handle the bulk, weight, and power of the tool. Keep out of the reach of children.
4. DO NOT modify this drill. Modifications can reduce the effectiveness of safety measures and increase the risks to the operator.
5. Do not discard the safety instructions; give them to the operator.
6. Do not use the drill if it has been damaged.
7. Work in a well-ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.
8. For multiple hazards, read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on, or working near the drill.
Use of the tool can expose the operator's hands to hazards, including cuts, abrasions, and heat.
9. Pay attention to the following while operating the rock drill.
 - (1) Be careful about not being injured by the tip of the tool.
 - (2) Be careful about not being tripped or fallen by the extension hoses.

- (3) Make sure there are no obstacles at jobsite. Clear the work area of objects which might cause operator to trip or fall.

Be careful about not being tripped by obstacles while operating.

- (4) While pulling out the drill rod from the hole, be careful not to fall over.
 - (5) Make sure the rock drill is set horizontally. Be careful about dropping rock drill after the operation.
 - (6) Be careful about getting injured your back while lifting the rock drill.
 - (7) Keep hands away from the rotating chuck and drill bit.
- 10. Connect male and female couplers on the same extension hoses together after disconnecting from power source and rock drill.
 - 11. When rock drill does not stop after releasing the control lever. STOP the power source IMMEDIATELY.
Or if power stops suddenly, release the control lever.

You MUST bring the rock drill to Maruzen dealers for repairing and inspection.
 - 12. In case of sudden breakage of hydraulic hose occurs and oil blow out the hoses, STOP the power source IMMEDIATELY.
 - 13. When disconnecting couplers, a small amount of oil may drip down. Make sure that surrounding area does not get dirty by oil.
 - 14. Do not replace tools (drill rod, moil point and etc.) while rock drill is still connected with power source.
 - 15. When connecting and disconnecting couplers, make sure dirt, dust and other foreign material does not enter or stick to couplers and hoses.

16. If the oil temperature is below 10°C, warm up the power source by running it for a while before start operating.
17. DO NOT assemble this rock drill into any other construction machinery.
18. DO NOT submerging part of the rock dill or entire rock drill into water or sea water.
19. Tools shall be inspected periodically to verify that the ratings and markings required by this part of ISO 11148 are legibly marked on the tool.
The employer/user shall contact the manufacturer to obtain replacement marking labels when necessary.
20. Be aware that the failure of the workpiece, or accessories, or even of the inserted tool itself can generate high-velocity projectiles.
21. Ensure that the workpiece is securely fixed.
22. Where dust or fumes are created, the priority shall be to control them at the point of emission.
23. All integral features or accessories for the collection, extraction or suppression of airborne dust and fumes should be correctly used and maintained in accordance with the manufacturer's instructions.
24. Select, maintain, and replace the consumable/inserted tool as recommended in the instructions handbook to prevent an unnecessary increase in dust or fumes.
25. Appropriate controls to reduce the risk may include actions such as damping materials to prevent workpieces from "ringing".
26. If the operator experiences symptoms, such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warning signs should not be ignored.
The operator should tell the employer and consult a qualified

health professional.

27. If you experience numbness, tingling, pain or whitening of the skin in your fingers or hands, stop using the drill, tell your employer and consult a physician.
28. DO NOT use damaged hydraulic hoses or worn hydraulic hoses.

It may cause burst of the hose when using damaged or worn hydraulic hose.
29. Make sure the followings have been done before store rock drill in long term.
 - (1) Wipe entire body of rock drill with wet cloth with hydraulic oil.
 - (2) Put a cover on rock drill and store at the dry place.
30. Proceed with care in unfamiliar surroundings. There can be hidden hazards, such as electricity or other utility lines.
31. Ensure that there are no electrical cables, gas pipes, etc., that can cause a hazard if damaged by use of the tool.
32. Use only clean oil.
33. Ensure that couplings are clean and correctly engaged before operation.
34. Do not install or remove the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.
35. Be sure all hoses connections are tight.
36. Wipe all couplers clean before connecting. Failure to do so can result in damage to the quick couplers and cause overheating.

DUST AND FUMES

1. Dust and fumes generated when using drills can cause ill health (for example, cancer, birth defects, asthma and/or dermatitis); risk assessment and implementation of appropriate controls for these hazards are essential.
2. Risk assessment should include the dust created by the use of the tool and the potential for disturbing existing dust
3. Operate and maintain the drill or tapper as recommended in these instructions, to minimize dust and fume emissions.
4. Where dust or fumes are created, the priority shall be to control them at the point of emission.
5. All integral features or accessories for the collection, extraction or suppression of airborne dust and fumes should be correctly used and maintained in accordance with the manufacturer's instructions.
6. Select, maintain and replace the consumable/inserted tool as recommended in the instructions handbook to prevent an unnecessary increase in dust or fumes.

PROTECTION EQUIPMENT

1. Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations.
2. Use respiratory protection in accordance with employer's instructions and as required by occupational health and safety regulations.
3. Wear warm clothing when working in cold conditions and keep your hands warm and dry.
4. Always wear impact-resistant eye protection during the operation of the drill or tapper. The grade of protection required should be assessed for each use.

5. Wear suitable gloves to protect hands.

SOUND

1. Exposure to high noise levels can cause permanent, disabling hearing loss and other problems, such as tinnitus (ringing, buzzing, whistling or humming in the ears). Therefore a risk assessment and implementation of appropriate controls for these hazards are essential.
2. Operate and maintain the drill as recommended in the instructions handbook, to prevent an unnecessary increase in the noise level.
3. Select, maintain and replace the consumable/inserted tool as recommended in the instructions handbook, to prevent an unnecessary increase in noise.

VIBRATION

1. Exposure to vibration can cause disabling damage to the nerves and blood supply of the hands and arms.
2. Operate and maintain the drill as recommended in the instructions handbook, to prevent an unnecessary increase in vibration levels.
3. Do not allow the inserted tool to chatter on the workpiece, as this is likely to cause a substantial increase in vibration.
4. Select, maintain and replace the consumable/inserted tool as recommended in the instructions handbook to prevent an unnecessary increase in vibration levels.
5. Hold the tool with a light but safe grip, taking account of the required hand-reaction forces, because the risk from vibration is generally greater when the grip force is higher.

DAILY CHECKING

Check before each operation.

Do not inspect or clean the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.

1. Check if there is any oil leakage from hoses or rock drill itself.
2. Check if there are any cracks or damage in tools.
3. Check if there are any damage on safety lock lever.

PERIODICAL INSPECTION

Ask your dealer for the periodical inspections.

Inspection Items	Operating Hours
Nitrogen gas charge in accumulator	300 hours or 1 Year
Replacement of accumulator diaphragm	500 hours or 2 years
Replacement of Valve Rod O ring	500 hours or 2 years
Replacement of U-cup packing	500 hours or 2 years
Replacement of each O ring	More than 3 years

* Accumulator Nitrogen gas pressure: 3.9MPa (40kgf/cm²)

TOOL DISPOSAL

To dispose of the machinery, shall be performed in accordance with the national, or local laws, ordinances, rules, and standards.

TROUBLE SHOOTING

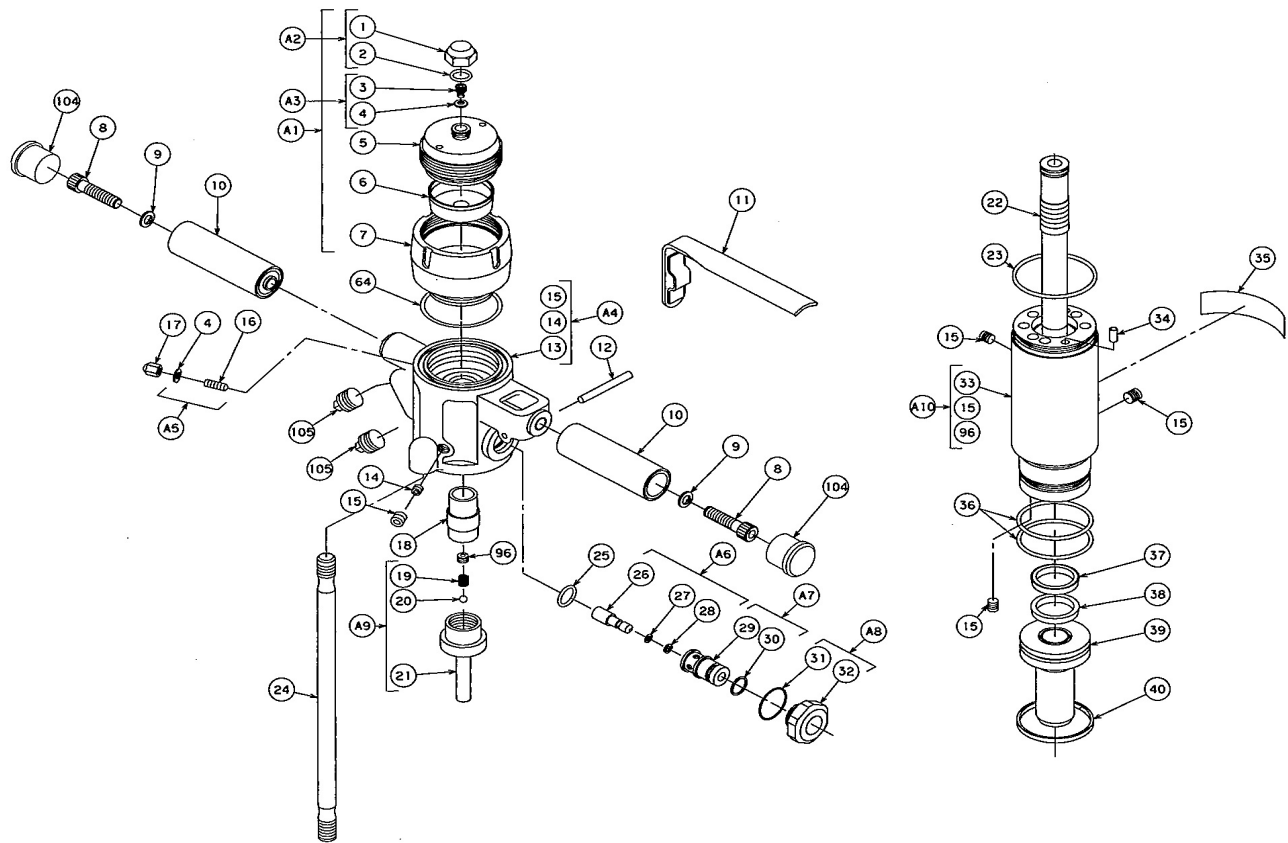
Symptoms	Causes	Countermeasures
Grip the control lever but does not start	1. Power source is off (Switch lever is not in ON position) 2. Selector valve is off 3. Hoses are not connected 4. Couplers are not connected properly 5. Relief valve pressure is set too low 6. Damage of control lever(11) 7. Control lever (11) is not functioning 8. High pressure side and oil return side was connected inversely	1. Start the power source (Turn the switch lever to On position) 2. Allow hydraulic to flow into rock drill 3. Connect hoses 4. Check out if all the couplers have been connected properly 5. Adjust pressure to the range of 11.7~20.6MPa * 6. Replace a new control lever(11) * 7. Disassemble rock drill, clean and remove dirt and dust between control lever(11) and valve body (13)* 8. Connected high pressure hoses to the upper side of rock drill
Breaking but rod does not rotate	1. Dial knob(71) is on "0" position 2. Damage of the key(87) in gear motor(88) 3. Foreigner substance inside gear motor (88)	1. Dial the knob(71) to desire rotation speed 1 ~ 3 2. Disassemble and replace the gear motor(87, 88) 3. Disassemble and replace the gear motor (88)
Functioning but weak hammering or low hammering speed	1. Low rate of oil flow from power source 2. Not enough hydraulic oil 3. Pressure in relief valve in power source is set too low	4. Turn the engine rotation rate up and increase the rate of oil flow (Adjust oil flow to the necessary rate) 5. Refill hydraulic oil Adjust pressure to the range of 140~210kgf/cm² (13.7~20.6MPa) *

Hammering in normal speed, but weak hammering	1. Low rate of accumulator gas pressure 2. Damage of accumulator diaphragm(6) 3. Oil temperature is abnormally high 4. Back pressure is too high	1. Refill Nitrogen gas 40kgf/cm² (3.9MPa) * 2. Replace diaphragm (6)* 3. Inspect hydraulic power unit, clean radiator and fan 4. Use wider hydraulic hoses. Increase the oil temperature to lower the back pressure
Poor in dust discharge	1. Clog of air cleaner element(56) 2. Foreigner substance inside lead valve(44, 43) 3. Damage of lead valve(44) 4. Damage of piston ring(40) 5. Damage of bush(A12)	1. Check the air cleaner element (56) and sponge (57) and replace them if necessary. 2. Disassemble and clean 3. Replace new one * 4. Replace new one * 5. Replace new one *
Oil leakage from valve rod	1. Damage, wear or harden of O ring(25, 27,30,31)	1. Replace O ring(25,27,30,31) *
Dust mixed with oil	1. Damage of U cup packing(37) 2. Damage of U cup packing (37) due to the damage(scars) of piston (22)	1. Replace new one (37) * 2. Replace new U cup packing (37). Remove the scars on piston (22) by oil stone
Abnormally high rate of hammering (bpm) and strong back action	1. Overflow of hydraulic oil	1. Adjust the oil flow to the range of 20 ~ 25L/min

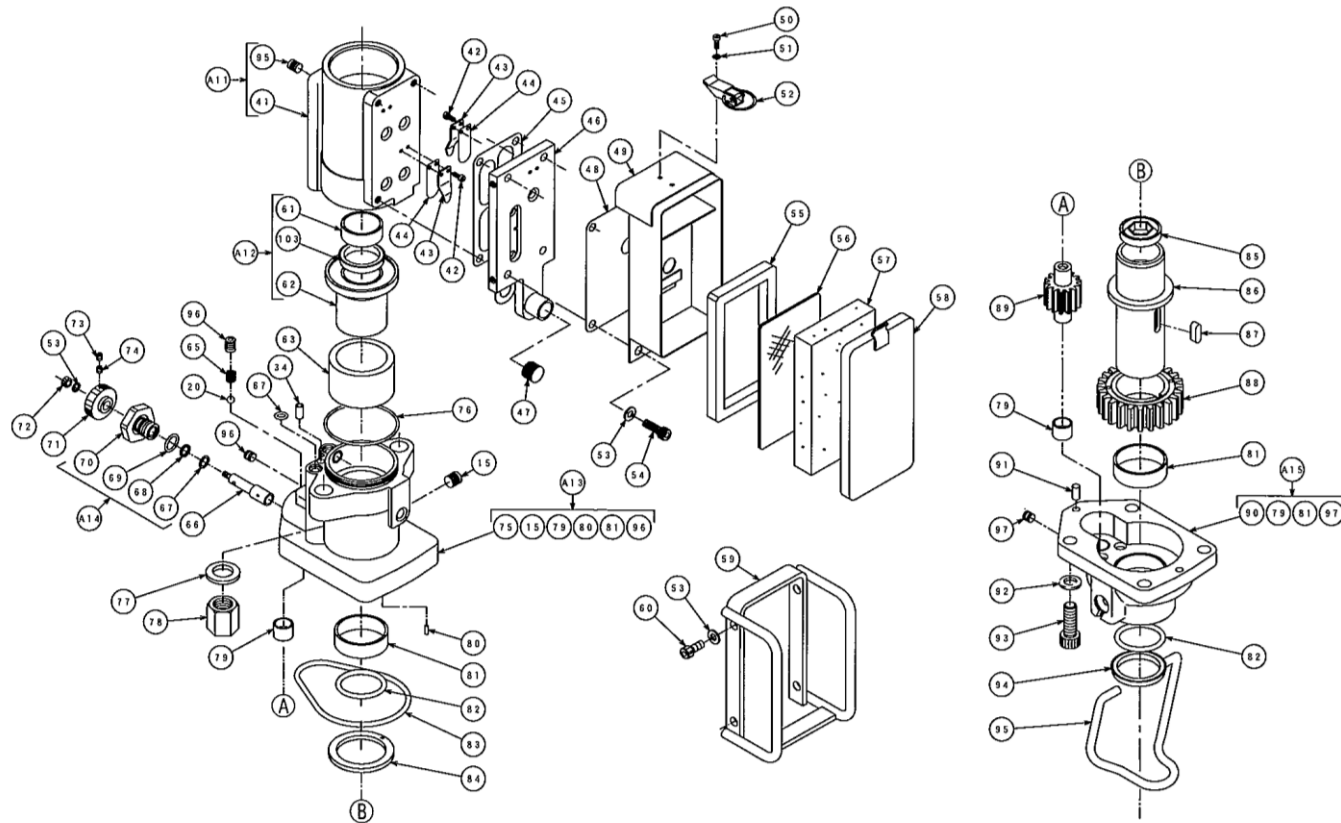
Oil leakage of gear case	1. Damage of internal shaft O Ring (82) 2. Damage of O (83) ring in motor block	1. Replace new one (82)* 2. Replace new one (83)*
Air blow for discharge dust does not work	1. Damage of piston (22) 2. Damage of lead valve (44) 3. Damage of bush (A12)	1. Replace new one (22) * 2. Replace new one (44)* 3. Replace new one (A12)*
While in Breaking mode, air can't escape from the compressor causes bland hammering	1. Fail to use grooved moil point	1. Use only grooved moil point

For items with *, ask Maruzen dealers for service and maintenance.

DH204 EXPRODED VIEW



DH204 Exploded View



PARTS LIST MODEL DH204

NO.	CODE	DESCRIPTION	Q'TY	NO.	CODE	DESCRIPTION	Q'TY
* 1	M1KTE108A	CAP NUT	1	24	MD08Z004A	THROUGH BOLT	2
2	OS-22.4	O RING	1	25	FR0307W-P14	O-RING	1
3	1120-413-D	CAP BOLT	2	26	M1KTE111A	VALVE ROD	1
* 4	WS-06<<<<<<<<<BH	SEAL WASHER	1	27	OP-5	O-RING	1
5	M1XTE110A	LID	1	28	OBP-5	BACK UP RING	1
6	MB02E006A	DIAPHRAGM	1	29	M1KTZ280A	VALVE GUIDE	1
* 7	M1XTD105A	SHELL	1	30	CO-0601	O-RING	1
* 8	BH-12*50	BOLT	2	31	CO-0621	O-RING	1
9	WF-12-2L (JIS B1252)	WASHER	2	* 32	M1KTZ281A	BUSH	1
* 10	M1KTE119A	HANDLE GRIP	2	* 33	MD09Y004A	CYLINDER	1
11	M1KTE112A	CONTROL LEVER	1	34	PR-6*20	PIN	2
* 12	PR-5*36	PIN	1	35	MB29Z023A	MARUZEN STICKER	1
13	M1XTC101B	VALVE BODY	1	36	OG-50	O-RING	2
14	M1XTE112A	M6 ORIFICE PLUG(ϕ 2.8)	1	* 37	IUIS-22.4-30-5	U-CUP PACKING	1
15	BPH1-PT1/8	PLUG	8	38	DS-LBI22.4,28,4.5,6	DUST SEAL	1
16	SH-6*16(TOGARISAKI)	STOPPER SCREW	1	39	MD09Z002A	HAMMER PISTON	1
17	MB24Z035A	CAP NUT	1	40	MD08Z015A	PISTON RING	1
* 18	M1XTE108A	CONTROL VALVE	1	* 41	MD08Y034A	COMPRESSOR CYLINDER	1
19	WR6-25	SPRING	1	42	SR-3*6(3P)	SCREW, PAN HEAD	8
20	QB-1/4	STEEL BALL	2	43	MOMTE105A	RETAINER (B)	4
21	MD09Z006A	INNER TUBE	1	44	1410-425	LEAD VALVE	4
22	MD09Y001A	PISTON	1	45	MD08Z016A	SEAT PACKING	1
23	OG-60	O-RING	1	46	MD09Y007A	VALVE SEAT	1

NO.	CODE	DESCRIPTION	Q'TY	NO.	CODE	DESCRIPTION	Q'TY
* 47	BPH1-PT1/4	PLUG	1	70	MD08Z007B	VALVE GUIDE	1
48	1410-429	PACKING (B)	1	71	MD08Z008C	DIAL	1
49	MD09Z008A	CLEANER CASE	1	72	N-6	NUT	1
50	SR-3*8 (2P)	SCREW	2	73	SH-4*5(HIRASAKI)	STOPPER SCREW	1
51	WS-3	WASHER	2	74	SH*4*5(TOGARISAKI)	STOPPER SCREW	1
52	C-150-3	SNAP LOCK	1	75	MD09X003A	MOTOR BLOCK	1
53	WS-06	WASHER	4	76	OS-56	O-RING	1
54	BH-6*25 (3P)	BOLT	8	77	WF-14-2L(JIS B1252)	WASHER	2
55	1410-442	PACKING	1	78	1120-423	NUT	2
56	1410-441	ELEMENT	1	79	K5B1415	DU BUSH	2
57	1410-431	CLEANER SPONGE	1	80	PR-2.5*6	PIN	1
58	MD09Z009A	CLEANER COVER	1	81	MD08Z054A	BUSH (A)	2
59	MD09Z010A	GUARD	1	82	OP-42	O-RING	2
60	BH-6*15	BOLT	4	83	OG-90	O-RING	1
61	K5B3215	DU BUSH	1	84	MD08Z011B	THRUST WASHER	1
62	MD09Z005B	BUSH	1	85	1034-710	AIR SEAL	1
63	MD09Z011A	COLLER	1	86	MD08Z010B	INTERNAL SHAFT	1
64	OG-65 (1B)	O-RING	1	87	MD08Z022A	KEY	1
65	WH6*15(MISUMI)	SPRING	1	88	MD08Z005A	DRIVE GEAR	1
66	MD08Z009E	SELECTOR VALVE	1	89	MD08Z006A	IDLE GEAR	1
67	OP-08	O-RING	3	90	MD08X043A	GEAR HOUSING(A)	1
68	OBP-08	BACK UP RING	1	91	EK-0621	ROLLER	2
69	OS-16	O-RING	1	92	WF-10-2H	WASHER	4

NO.	CODE	DESCRIPTION	Q'TY	NO.	CODE	DESCRIPTION	Q'TY
93	BH-10*25	BOLT	4	101			
94	DS-MDSI 40	DUST SEAL	1	102			
95	MD08Y044A	DRILL STAY (A)	1	103	FQ0568C1	DUST SEAL	
* 96	BPH1-PT1/16	PLUG	6	104	105-14401		2
97	MB850-040	EXPANDER	3	105	BPQ-1/4	PLUG	2
98							
99							
100							

* Parts with * mark are part of the assemblies.

ASSEMBLIES

NO.	CODE	DESCRIPTION	Q'TY	COMPLETE PARTS
A1	M1XTZ501A	ACCUMULATOR ASSY	1	1, 2, 3, 4, 5, 6, 7 (Nitrogen gas is not filled)
A2	MB24Z508A	CAP NUT ASSY	1	1, 2
A3	MB24Z509A	CAP BOLT ASSY	1	3, 4
A4	MD08Z060A	VALVE BODY ASSY	1	13, 14, 15
A5	M1XTZ506A	STOPPER SCREW ASSY	1	4, 16
A6	M1XTZ505A	VALVE ROD ASSY	1	26, 27, 28
A7	M1XTZ510A	VALVE GUIDE ASSY	1	29, 30
A8	M1XTZ511A	BUSH ASSY	1	31, 32
A9	MD09Z016A	INNER TUBE ASSY	1	19, 20, 21
A10	MD09Z014A	CYLINDER ASSY	1	15, 33, 96
A11	MD08Z055A	COMPRESSOR CYLINDER ASSY	1	41, 95
A12	MD09Z012A	BUSH ASSY	1	61, 62, 103
A13	MD09Z013A	MOTOR BLOCK ASSY	1	15, 75, 79, 80, 81, 96
A14	MD09Z018A	VALVE GUIDE ASSY	1	66, 67, 68, 69, 70
A15	MD08Z019B	GEAR HOUSING ASSY	1	79, 81, 90, 97
A16	MD09Z015B	SEAL KIT	1	2, 4(2), 23, 25, 27, 28, 30, 31, 36(2), 37, 38, 64, 67(3), 68, 69, 82(2), 83, 94