

# MARUZEN

## HYDRAULIC CHIPPING HAMMER

### MODEL BH051V

(Anti-Vibration Model)

## OPERATING MANUAL



**CAUTION**

FOR THE SAFETY PURPOSE, PLEASE READ THIS MANUAL THOROUGHLY BEFORE ATTEMPTING TO USE THIS CHIPPING HAMMER. ANY FALES OPERATING PROCEDURES WILL CAUSE DAMAGES OF THE MACHINE. ALWAYS KEEP THIS MANUAL TO AN EASILY ACCESSABLE PLACE.



**MARUZEN KOGYO CO., LTD.**

(Revised April 21, 2012)

# 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 followed strictly at all times 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.

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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.

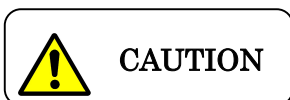
In this manual and on machines labels, the following safety alert symbol are used to express the potential level of hazard.



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.

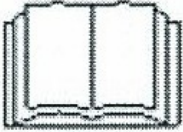





Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

**\*\* 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!

	 <b>WARNING</b>
	<b>Read and understand operating manual before operating.</b>

	 <b>WARNING</b>
	<b>Be Cautious About High Pressure Hydraulic Oil</b> There is a risk of sudden breakage of hydraulic hoses which causes the oil inside belch out. <ol style="list-style-type: none"><li>1. Relief the pressure inside before disconnecting hoses.</li><li>2. <b>DO NOT</b> inspect oil leakage with your bare hands. Because oil leakage is very often not noticeable, <b>ALWAYS</b> use cardboard or wood pieces to assist your inspection</li></ol>



## WARNING



### Be Cautious About High Heat

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 equipments while handling tools.

\* Failure to observe this precaution can result getting burned.



## WARNING



Before operating the equipment, be sure to ware personal protective equipments such as follows:

1. Helmet
2. Protective goggles
3. Protective boots
4. Safety gloves
5. Hearing Protection
6. Mask

\* Failure to observe this precaution can result serious personally injuries.

**WARNING**

**Do not operate the equipment if you are or if your**

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

**\* Failure to observe this precaution can result serious injury or even death.**

**CAUTION**

**When lending someone the equipment**

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

**WARNING**

**Avoid Blank Hammering**

**Excessive blank hammering may be considered equipment abuse and may cause equipment damage.**

**Failure to observe this precaution can result damage to the breaker.**



**WARNING**

**Never operate the breaker when bystanders are in the work area**

- 1. Do not operate the breaker if any people are within the area where flying debris or movement of the breaker may injure them.**
- 2. For preventing flying debris, make sure protection fences are being set up.**

**Failure to observe this precaution can result personal injury.**



## INTRODUCTION

1. This hydraulic chipping hammer is designed to be used for the following purpose.

(1) Breaking concrete and asphalt.

2. **DO NOT** operate this chipping hammer under the following situations:

(1) Drench part of the breaker or whole breaker into water or seawater.

(2) Connect with power source which its oil flow and pressure exceeds the breaker's allowable range.

(3) Operating with oil temperature below 10°C or over 100°C.

(4) Use shank which its size is different from prescribed.

(5) Attach to other construction machinery.

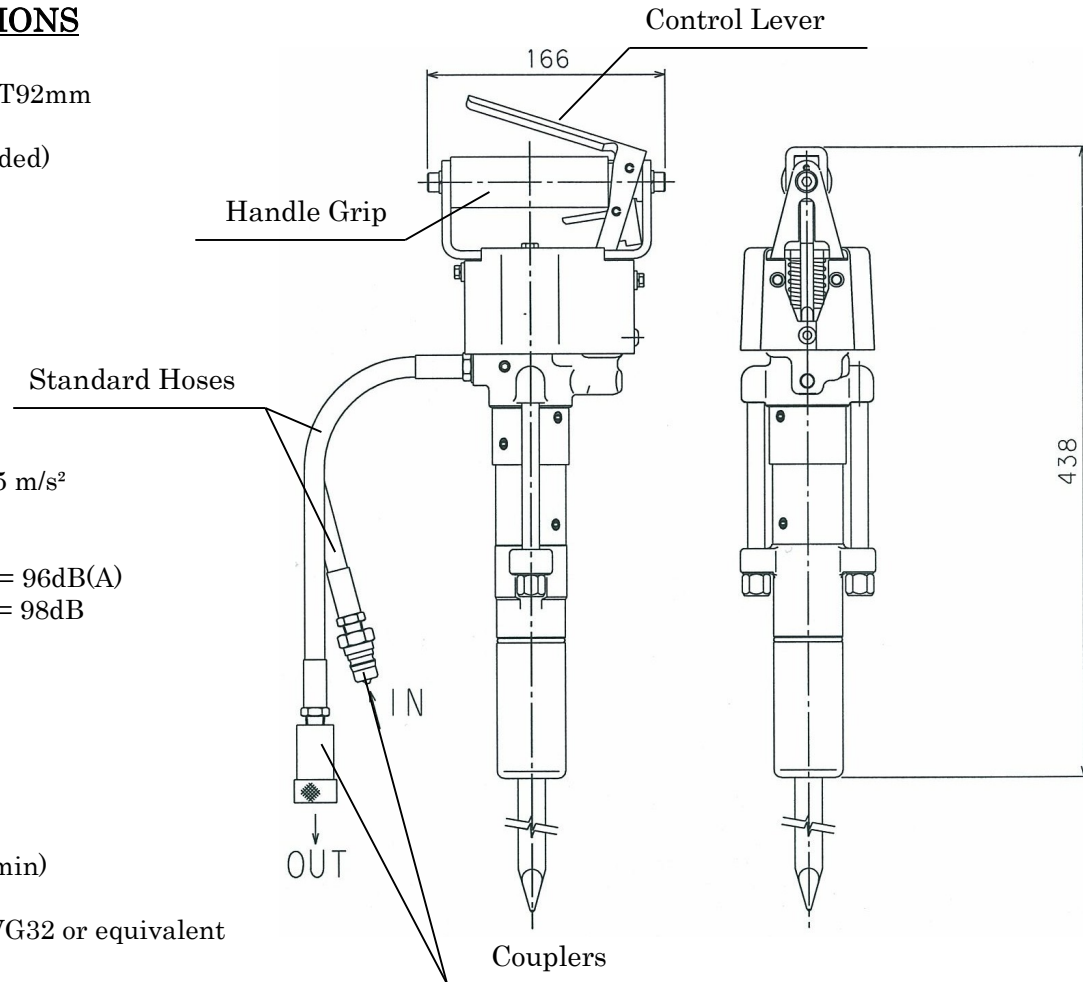
(6) Use the equipment for purposes other than stated in this manual.

(7) Use parts other than Maruzen genuine ones.

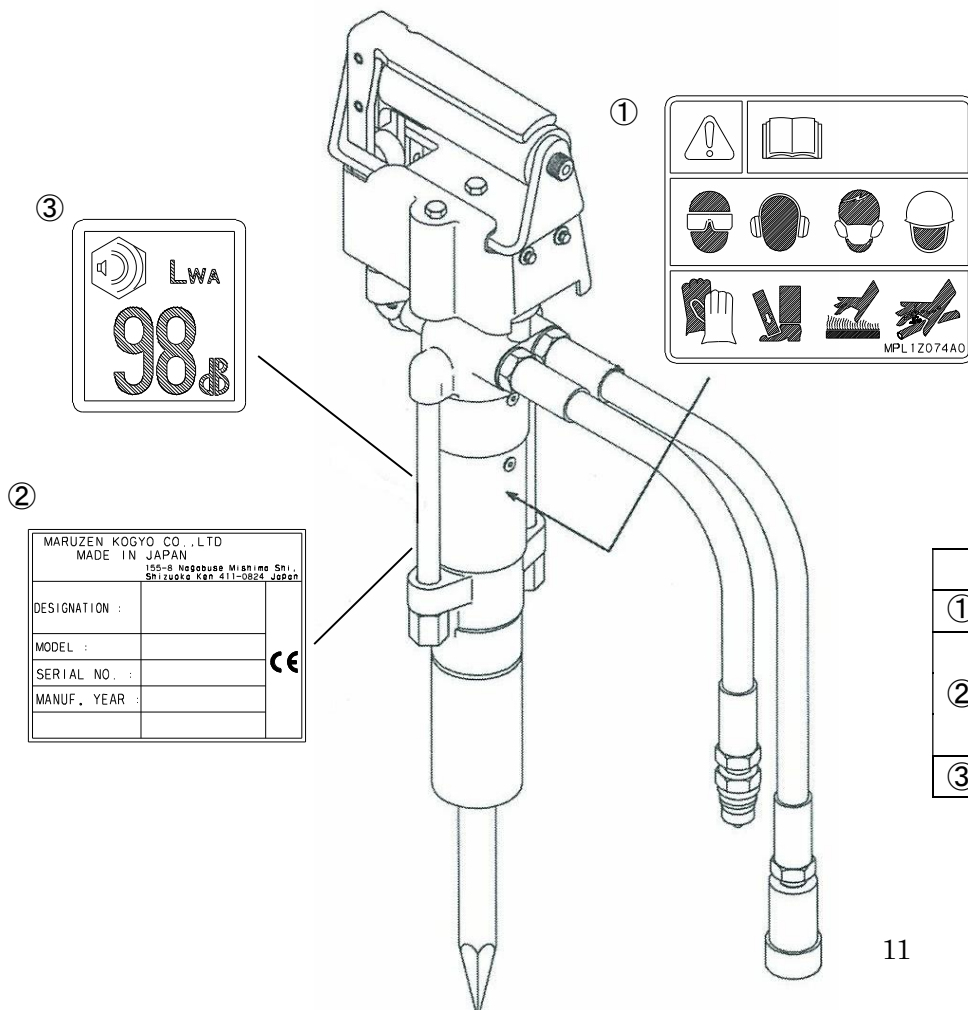
(8) Connect with extension hose its length exceeds 3/8 in x 10m.

## SPECIFICATIONS & DESCRIPTIONS

Overall Dimensions	L443 x W165 x T92mm
Overall Weight	6 Kg (Tool excluded)
Working Pressure	9.8~14.7MPa
Max. Pressure	20.6 MPa
Oil Flow	20.5L/min
Blow Per Minute	2700 bpm
Vibration Level(ISO08662-5)	Z= 6.5 m/s <sup>2</sup>
Sound Power (2000/14/EC)	
-Measured Sound Power Level	Lwa = 96dB(A)
-Guaranteed Sound Power Level	Lwa = 98dB
Shank Size	3/4 in HEX x 50mm
Coupling	3/8 in couplers
Allowable Back Pressure	2.5MPa
Extension Hose	3/8 in x 10m (at 20 L/min)
Recommended Hydraulic Oil	ISO VG32 or equivalent



## PRECAUTION LABELS AND POSITIONS



Precaution Labels are to remind you to be extra cautious for potential hazards. It is extremely important that all the safety precaution labels are legible in all time. Replace new once when they are illegible.

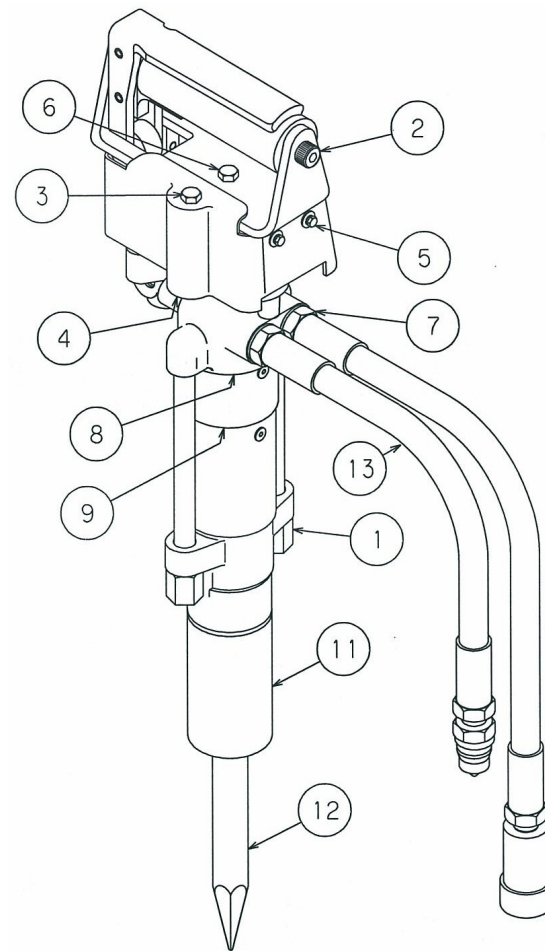
Order your precaution labels from your nearest Maruzen dealer.

	Code	Description
①	MPL1Z074A0	Label BY (WARNING)
②	MPL2Z001A1	CE Sticker (in French)
	MPL2Z002A1	CE Sticker (in English)
	MPL2Z003A1	CE Sticker (in Italian)
③	MPL2Z008A0	Sound Power Level Sticker (98)

## INSPECTIONS BEFORE EACH OPERATION

For the purpose of keeping the breaker 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. Loose nut ①	Tighten the loose nut
2. Loose bolts ②③④⑤⑥	Tighten the loose bolts
3. Loose hose attachment ⑦	Tighten hose attachment
4. Oil leakage ⑧⑨	Ask your dealer for repair and service
5. Loose, cracks, injuries on side handle ⑩	Tighten the handle firmly Replace a new one when cracks and injuries are found
6. Cracks on frond cap ⑪	Replace new one when cracks are found
7. Cracks and injuries on tools ⑫	Replace new one when cracks or injuries are found
8. Damage of hoses ⑬	Replace new one especially when the damage of wires found

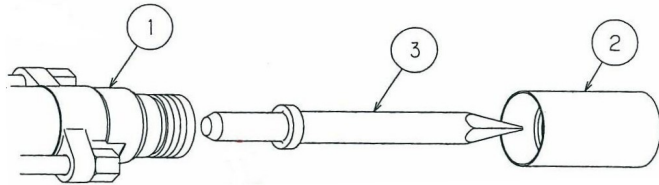


## OPERATION

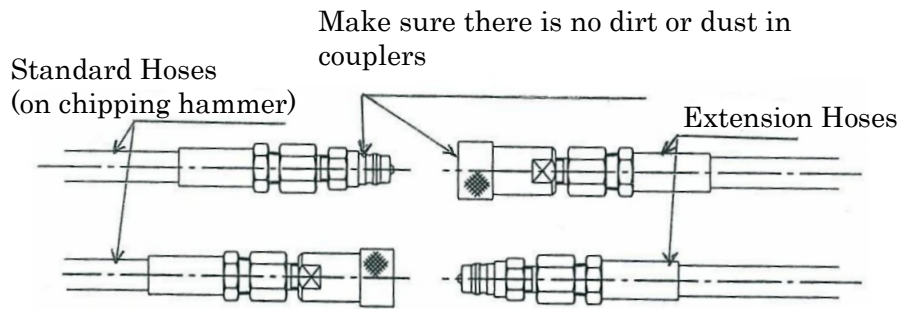
Always make sure the breaker is connected to a power source which is in the appropriate range as prescribed in page 10.

### 1. Preparations

- 1) Insert ③ Tool into ① Front End. Screw ② Front Cap on ① Front End.



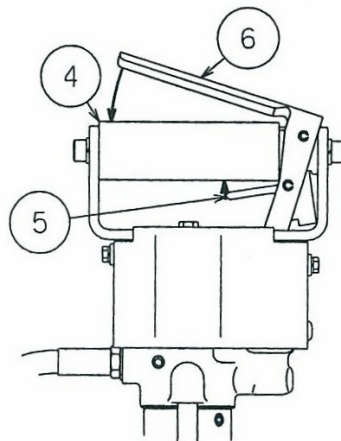
- 2) Make sure there is no dirt or dust on couplers. Use extension hoses to connect the chipping hammer and the power source.



- 3) Active the power source. (Start the engine on the power pack)

### 2. Operation

- 4) Grip the ④ Handle and side handle. Determine the breaking position.
- 5) Grip the ⑤ Safety Lock Lever and then ⑥ Control Lever to start breaking.



- 6) Do not hammer the same place for over 30 seconds. If the target object does not breaker within 30 seconds, change the hammering point.
  - 7) Do not blank hammering for over 10 seconds.
3. End of work
- 8) Stop the power pack completed.
  - 9) Push up the tools so that piston returns to its position.
  - 10) Detach the extension hoses.
  - 11) Attach both couplers on chipping hammer together. This is to prevent dust and dirt into couplers and hoses.
  - 12) Remove mud and dirt on chipping hammer thoroughly.

## GUIDELINES

Following these guidelines while using this breaker:

1. Maruzen genuine tools are highly recommended.
2. Consult your nearest Maruzen dealer if you intend to use power source other than Maruzen produced hydraulic power units.
3. Pay attention to the followings while operating the chipping hammer.
  - (1) Be cautious for not being injured by the front of the tool.
  - (2) Be cautious for not being tripped by the extension hoses.
  - (3) Make sure there are no obstacles at jobsite. (Be cautious not being tripped by obstacles while operating)
  - (4) While pulling out the chipping hammer from the broken objects, be cautious for not being fall over.
  - (5) Make sure the chipping hammer was placed in horizontally after the operation. Fail to place the chipping hammer horizontally after operating can cause injury by sudden falling of the chipping hammer.
4. Piston has to be pushed up to the end for storage after each operation.
5. After disconnecting the hoses between power unit and chipping hammer. Connect both couplers on chipping hammer together for preventing dirt and dust enter from couplers.
6. If the chipping hammer does not stop after releasing the control lever, **STOP** the power source **IMMEDIATELY**. Ask your nearest Maruzen dealer for repair and service before the next operation.
7. In case of sudden hydraulic hose breakage and hydraulic oil belch out. **STOP** the power source **IMMEDIATELY**.
8. When detach couplers, a small amount of oil may slip out. Make sure that surrounding area does not get dirty by oil. When frequently attach and detach to the power source, hydraulic oil will decrease accordingly. Always make sure the hydraulic oil level before operating and refill if necessary.
9. Always **STOP** the power source while install or uninstall tool.
10. Always **STOP** the power source while connecting or disconnecting the chipping hammer to the power source.
11. When connecting and disconnecting couplers, make sure dirt, dust and other foreign substance does not enter or attach to couplers and hoses.

12. If the oil temperature is below 10°C, warm up the machinery before start operating.
13. Intend to store the breaker for a longer period of time
  - (1) Connect the breaker with a power source, use D 15~20mm x L150mm wood bar to push up the piston.
  - (2) Apply anti-rust on piston.
  - (3) Apply oil on the body of the chipping hammer and clean it with a wet cloth.  
Cover the breaker with a cover and store it in a low humidity place.



## INSPECTIONS

### 1. Daily Inspections

- (1) Check oil leakage from breaker, hoses, etc.
- (2) Check if there are any cracks on tools.

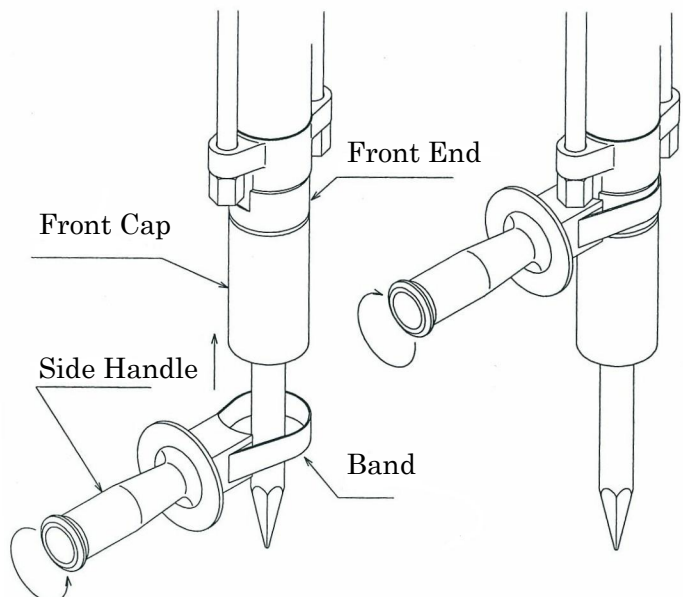
### 2. Periodical Inspections

Ask your Maruzen dealer for the periodical inspections.

Inspection Items	Operating Hours
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

## Installation of Side Handle (OPTIONAL)

- (1) Turn the side handle counter – clockwise to loose the band. Attach band onto front cap. (Refer to the drawing below)
- (2) Fix the band on front end and turn the side handle clockwise till the band is firmly attached on the front end.
- (3) It is very dangerous for the operation if the side handle is not firmly attached. Always make sure the side handle is firmly attached after the installation and before the operation.



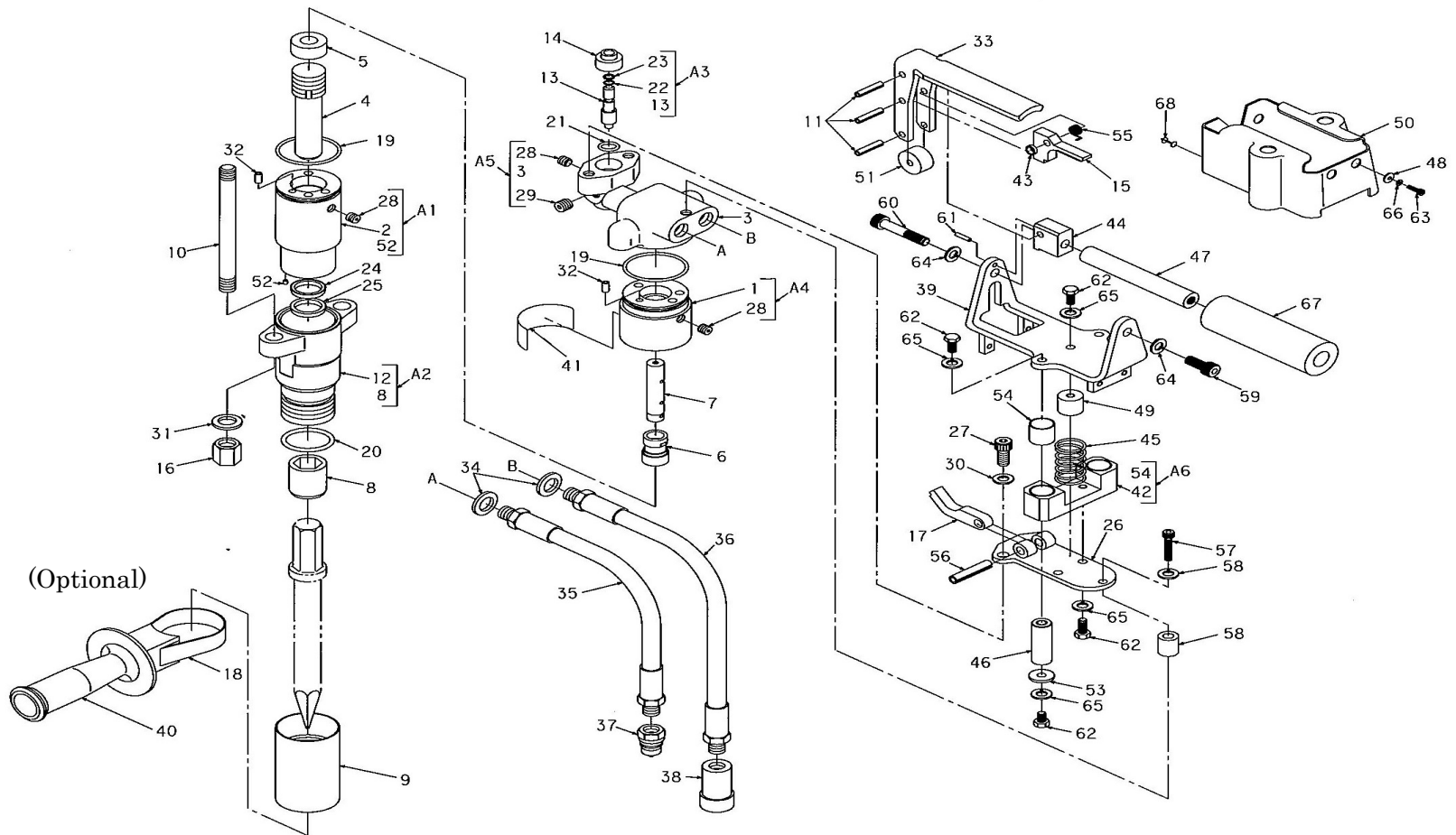
## TROUBLE SHOOTING

Symptoms	Causes	Countermeasures
Grip the control lever but does not start	1. Power source is off	1. Active the power source
	2. Switch Lever on Power unit is still in "OFF" position	2. Turn the switch lever on power unit to "ON" position
	3. Couplers are not connected	3. Connect all the couplers
	4. Couplers are not properly connected	4. Check if there are couplers which are not properly connected
	5. Relief valve pressure is set too low	5. Adjust pressure to 11.7~20.6MPa) *
	6. Damage of control lever	6. Replace a new control lever*
	7. Control Lever does not function	7. Disassemble breaker, clean and remove dirt and dust between control lever and valve body*
	8. Inlet and outlet port have been connected inversely to the wrong hoses.	8. Connect high pressure hose to the port with "P" on it.
	9. Draw Bolt is not firmly tightened.	9. Draw Bolt should be tightened according to "Maruzen Standard Torque" *
	10. Hydraulic oil does not flow smoothly due to the damage of couplers	10. Replace new couplers * (Install according to Maruzen Standard Torque and with seal tape)
Weak hammering or low hammering speed	1. Low rate of oil flow from power source	1. Turn the engine rotation rate up and increase the rate of oil flow (Adjust oil flow to the necessary rate) - Check the discharge volume of hydraulic pump

	2. Pressure in relief valve on power unit was set too low	2. Adjust the pressure to 11.7 ~ 20.6MPa*
	3. Control valve does not function properly	3. Remove and clean the joint of control lever and valve body *
	4. Back pressure is too high	4. Use bigger Diameter and shorter hose for return side to make the back pressure to be lower than 2.5MPa.
	5. Low rate of hydraulic oil	5. Refill hydraulic oil
	6. Movable bush gets stuck	6. Disassemble and clean the breaker thoroughly*
Hammering in normal speed but weak	1. Low accumulator gas pressure	1. Refill Nitrogen gas for the pressure of 25kg
	2. Damage of accumulator diaphragm	2. Replace diaphragm *
	3. Oil temperature goes higher than usual	3. Check the power source. Clean the radiator and fan on the power source.
Strong hammering and in high speed	1. High rate of oil flow	1. Turn the engine rotation rate down to decrease the rate of oil flow (Adjust oil flow to the right range)
An abrupt stop during operation	1. Couplers get disconnected	1. Check each connected parts
	2. Damage of control valve	2. Replace a control valve *
Oil leakage from control lever	1. Damage, wear or harden of O rings	1. Replace O rings *
Profuse Oil leakage from front end	1. Damage of U cup packing	1. Replace U cup packing *
	2. Damage of U cup packing due to the scratch of piston rod.	2. Replace U cup packing, remove the scratch on piston rod *
High pressure hose shakes intensely	1. Damage of accumulator diaphragm	1. Replace diaphragm *
Release the control valve but the breaker does not stop	1. Foreign substance is caught in the valve rod	1. Disassemble, clean and adjust *

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

# EXPLODED VIEW MODEL BH051V



## PARTS LIST      MODEL BH051V

No.	Code	Descriptions	Q'ty	No.	Code	Descriptions	Q'ty
1	MB17Y201A	Valve Body	1	29	BPH – PT 1/8	Plug	1
2	MB11Y202A	Cylinder	1	30	WF – 8 2L	Spring Washer	2
3	MB27X015A	Head Cover V	1	31	WF – 12 2L JIS B 1252	Spring Washer	2
4	MB11Z204A	Piston	1	32	PR – 5 x 10	Spring Pin	2
5	MB11Z205A	Piston Guide	1	33	MB27Y013A	Control Lever	1
6	MB11Z207A	Control Valve	1	34	W18S1	Seal Washer	2
7	MB11Z207A	Piston Rod	1	35	21091 · 3--30--	High Pressure Hose	1
8	MB11Z208A	Chisel Busing	1	36	21091 · 3--45--	Low Pressure Hose	1
9	MB11Z010A	Front Cap	1	37	QC-03M	Coupler (Male)	1
10	MB11Z210A	Draw Bolt	2	38	QC-03F	Coupler (Female)	1
11	PR – 6 x 28	Pin	3	39	MB27Y009A	Handle Stay	1
12	MB11Y008A	Front End	1	40	001762	Side Handle Set	1
13	MB27Z002A	Valve Rod	1	41	M1XTE117A	Maruzen Sticker	1
14	MB11Z013A	Valve Guide	1	42	MB27Z027A		1
15	MB27Z008A	Lever	1	43	AWSC-E-D12-V6.5-T3	Washer	1
16	1034 – 703	Draw Bolt Nut	2	44	MB27Z001A	Block	1
17	MB27Z003A	Cam	1	45	MB27Z006A	Spring	1
18	MB11Z016A	Band	1	46	MB27Z005A	Shaft	2
19	OS – 48	O Ring	2	47	1120 – 422	Grip Shaft	1
20	OP – 40	O Ring	1	48	MB27Z007A	Collar	4
21	OP – 16	O Ring	1	49	MB27Z004A	Spring Guide	1
22	OP – 5	O Ring	1	50	MB27Y012A	Collar	1
23	OBP – 5	Back Up Ring	1	51	FNCLCH – V6.5 – D15 – L16	Metal Collar	1
24	IUIS 20, 28, 5	U Cup Packing	1	52	MB850 – 040	Expander	2
25	LBI 20, 28, 4.5, 6	Dust Seal	1	53	WSSB20 – 6 – 2	Metal Washer	2
26	MB27Y026A	Base	1	54	DUB15 x 25	DU Bush	2
27	BH – 8 x 15	Bolt	2	55	SAMINI7132	Spring	1
28	BPH – PT 1/16	Plug	7	56	PR – 8 x 30	Spring Pin	1



No.	Code	Descriptions	Q'ty	
A1	MB11Z211A	Cylinder Assy	1	2,28, 52
A2	MB11Z216A	Front End Assy	1	8,12
A3	MB27Z019A	Valve Rod Assy	1	13,22,23
A4	MB11Z215A	Valve Body Assy	1	1,28
A5	MB27Z021A	Head Cover Assy	1	3,28,29
A6	MB27Z029A		1	42,54
A7	MB11Z214A	Seal Kit	1	19(2), 20, 21, 22, 23, 24, 25

EC DECLARATION OF CONFORMITY  
DECLARATION DE CONFORMITE EC  
EC-KONFORMITÄTSEKLRUNG  
EC-VERKLARING VAN OVEREENSTEMMING



**MARUZEN KOGYO CO., LTD**  
155-8 NAGABUSE MISHIMA-SHI  
SHIZUOKA KEN 411-0824 JAPAN

Declare that the machine described below  
Déclare que la machine décrite ci-dessous  
Eklärt, da  $\beta$  die unten beschriebene Maschine  
Verklaart dat onderstaande beschreven machine

Hydraulic Breaker/ Marteau Hydraulique / Martello Idraulico / Hydraulik Hämmer  
BH051V

Serial number/Numéro de série/Serien nummer/Reeksnummer/ : 7B001~

Complies to the provision of the “machinery directive” 98/37/EC  
est conforme aux dispositions de la directive “machines” 98/37/EC  
mit den Anforderungen der Richtline 98/37/EC übereinstimmt  
overeenstemt met de voorschriften inzake “machine richtlijnen” 98/37/EC

Also complies with the provisions of the “noise emission by equipment for use outdoors” 2000/14/EC  
est également conforme aux dispositions de la directive “emission sonore des equipments utilisés à l’extérieur des bâtiments” 2000/14/EC  
Und auch die Richtline “Geräuschemissionen von zur Verwendung im Freien vorgesehen Geräten und Maschinen” 2000/14/EC  
Stemt eveneens overeen met de voorschriften inzake “geluidsproductie door het materieel veroorzaakt buiten de gebouwen” 2000/14/EC

Service Weight: 7.8 kg  
Measured Sound Power Level:  $L_{wa} = 96\text{dBA}$   
Guaranteed Sound Power Level:  $L_{wa} = 98\text{dBA}$

**Notified Body:**

LNE (No.0071)  
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75724 Paris Cedex 15 France

Manager/le directeur/Direktor/Direttore

Yukio Suwabe