

MARUZEN

HYDRAULIC HANDHELD BREAKER

MODEL BH161V-2

(Anti-Vibration Model)

OPERATING MANUAL



CAUTION

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



MARUZEN KOGYO CO., LTD.

(Revised Dec. 08, 2016)

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.

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

CONTENTS

Safety Information.....	4 ~ 8
Safety Alert Classifications.....	4
Safety Alerts	5 ~ 8
Introductions	9
Specifications & Descriptions.....	10
Precaution Labels and Positions	11
Inspection before Each Operation.....	12
Operation.....	13 ~ 14
Guidelines	15 ~ 16
Installation of 5kg Weight	16
Inspections	17
Tools & Applications	17
Troubleshooting.....	18 ~ 20
Exploded View	21
Parts List.....	22 ~ 24
EC Declaration of Conformity	25

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.



DANGER

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



WARNING

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



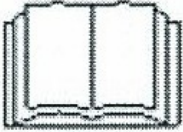

CAUTION



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!

	 WARNING
	Read and understand operating manual before operating.

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

	 WARNING
	Be Cautious About High Pressure Gas <ol style="list-style-type: none">1. High pressure nitrogen gas was installed inside accumulator.2. DO NOT untighten the cap from the top of the breaker. * Failure to observe this precaution can result personal injuries.



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

Operating the equipment horizontally may cause the chisel's sudden flying out.

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.

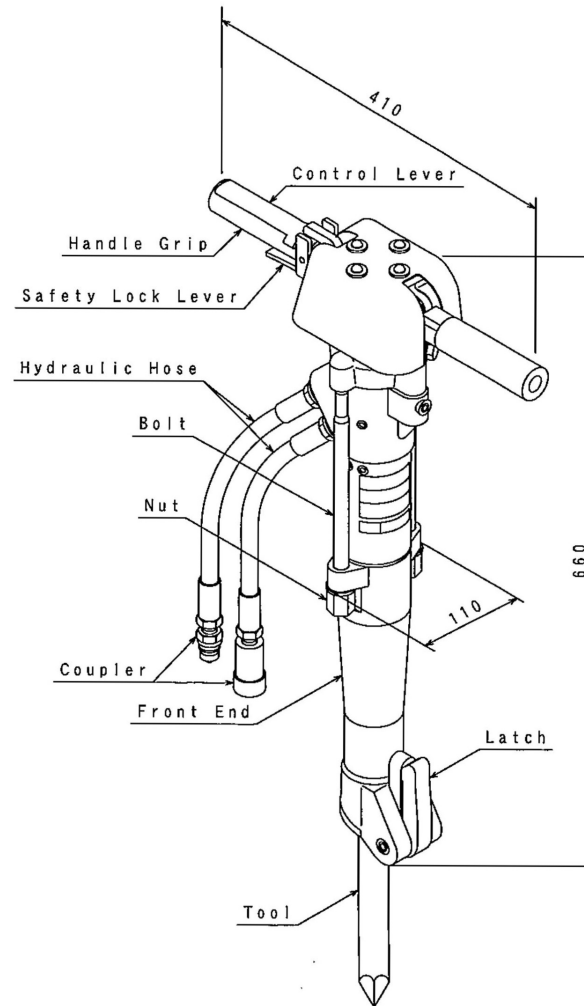
INTRODUCTION

1. This hydraulic breaker is designed to be used for the following purposes.
 - (1) Breaking concrete and asphalt
 - (2) Anchoring and pile driving
 - (3) Digging or breaking hard soil
 - (4) Compacting soil
 - (5) Cutting asphalt

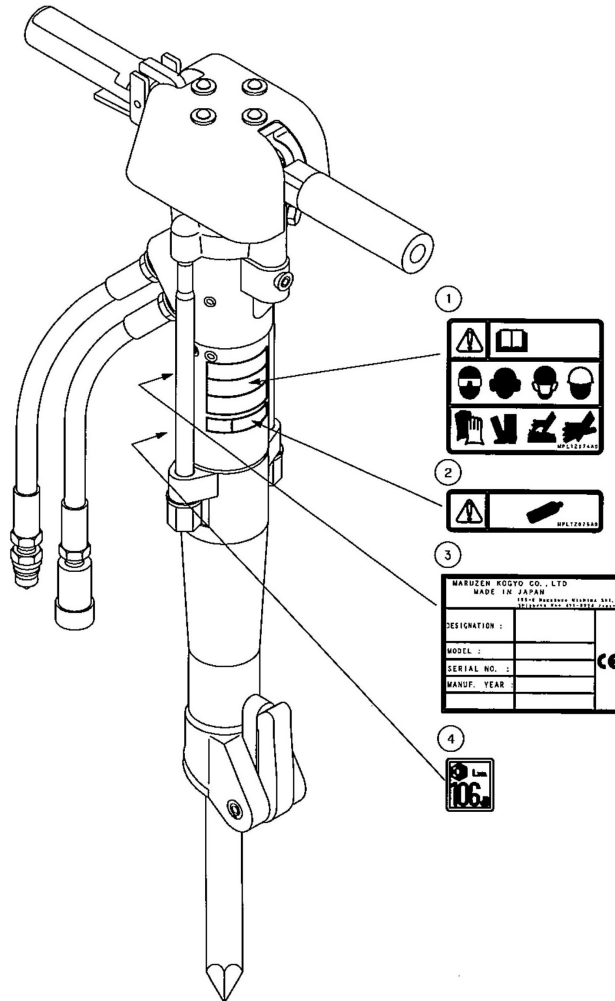
2. **DO NOT** operate this breaker under the following situations:
 - (1) Drench part of the breaker or whole breaker into water or seawater.
 - (2) Connect with power source which its oil flow and pressure exceeds the breaker's allowable range.
 - (3) Operating with oil temperature below 10°C or over 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 1/2 in x 10m.

SPECIFICATIONS & DESCRIPTIONS

Overall Dimensions	L660x W410 x T110
Overall Weight	17.3 Kg (Tool excluded)
Working Pressure	7.8~11.8MPa
Max. Pressure	20.6 MPa
Oil Flow	18~22L/min
Blow Per Minute	1650 bpm (at 22L/min)
Vibration Level(ISO08662-5)	Z= 4.6 m/s ²
(With 5kg Counter Weight added)	Z = 3.7 m/s ²
Sound Power (200/14/EC)	
-Measured Sound Power Level	Lwa = 104dB(A)
-Guaranteed Sound Power Level	Lwa =105dB
Shank Size	1 in HEX x 1 1/4 in
Coupling	3/8 in couplers
Extension Hose	1/2 in x 10m
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.

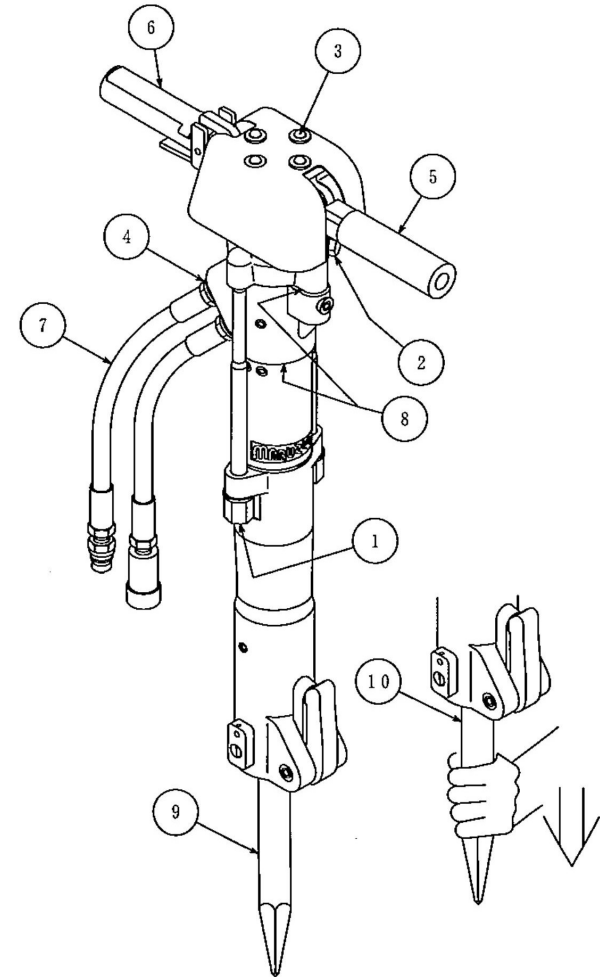
Order your precaution labels from your nearest Maruzen dealer.

	Code	Description
①	MPL1Z074A0	Label BY (WARNING)
②	MPL1E075A1	Label BZ (WARNING)
③	MPL2Z001A1	CE Sticker (in French)
	MPL2Z002A1	CE Sticker (in English)
	MPL2Z003A1	CE Sticker (in Italian)
④	MPL2Z004A0	Sound Power Level Sticker (105)

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	Tighten the loosen nut
2. Loose plug	Tighten the loosen plug
3. Loose cover attachment	Tighten cover attachment
4. Loose hose attachment	Tighten hose attachment
5. Cracks on handle grips	Replace new one when cracks are found
6. Cracks on control lever	Ask your dealer for repair and service
7. Damage of hoses	Replace new one especially when the damage of wires found
8. Oil leakage	Ask your dealer for repair and service
9. Damage and cracks on tool	Replace new one
10. Drop out of tool	Fix the tool with latch firmly

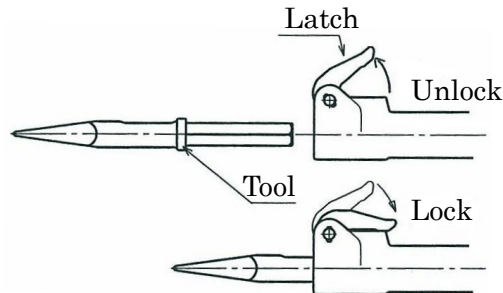


OPERATION

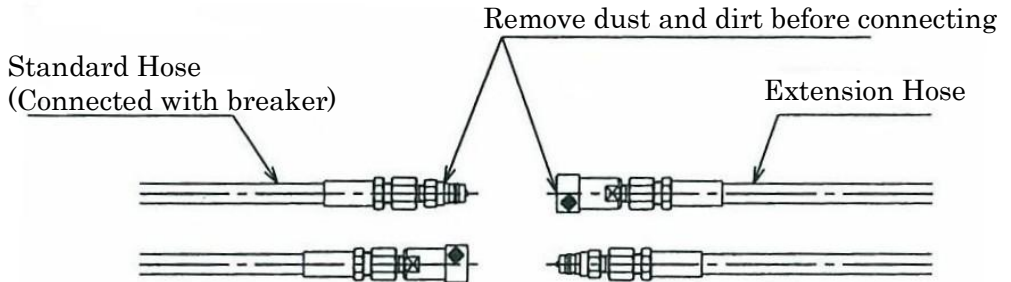
Always make sure the breaker is connected to a power source which is in the appropriate range as prescribed in page 10.

1. Preparations

- 1) Unlock the latch on the breaker and insert tool (moil point, etc)
Turn around the tool (if the tool is hexagon) if it stuck on the half way of the inserting.
- 2) Lock the latch. Make sure the tool is firmly fastened.



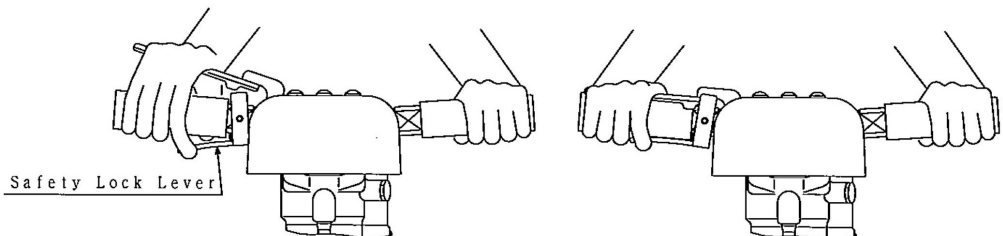
- 3) Make sure there is no dust or dirt inside couplers before connecting breaker to hydraulic power pack.



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

2. Operation

- 5) The breaker and the breaking target should be on a right angle. Press down the breaker with your weight. Grip the safety lock lever and then control lever. The machine will start function.



- 6) Do not hammer the same place for over 30 seconds. If the target object does not break 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 after the job is completed
 - 9) Push up the tool so that piston returns to its position.
 - 10) Detach the extension hoses.
 - 11) Attach both couplers on the breakers together. This is to prevent dust and dirt into couplers and hoses.
 - 12) Unlock latch, remove tool from the main body.
 - 13) Remove mud and dirt on breaker thoroughly.

GUIDELINES

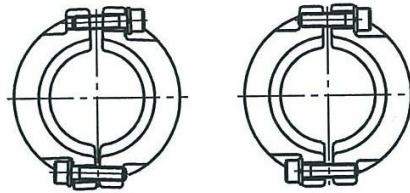
Following these guidelines while using this breaker:

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 breaker.
 - (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 breaker from the broken objects, be cautious for not being fall over.
 - (5) Make sure the breaker was placed in horizontally after the operation. Fail to place the breaker horizontally after operating can cause injury by sudden falling of the breaker.
 - (6) Be cautious not to injure your back while lifting the breaker.
4. Piston has to be pushed up to the end for storage after each operation.
5. After disconnecting the hoses between power unit and breaker. Connect both couplers on breaker together for preventing dirt and dust enter from couplers.
6. If the breaker 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 breaker 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 15°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 20~25mm x L300mm wood bar to push up the piston.
 - (2) Apply anti-rust on piston.
 - (3) Apply oil on the body of the breaker and clean it with a wet cloth.
- Cover the breaker with a cover and store it in a low humidity place.

INSTALLATION OF 5KG WEIGHT (OPTIONAL)

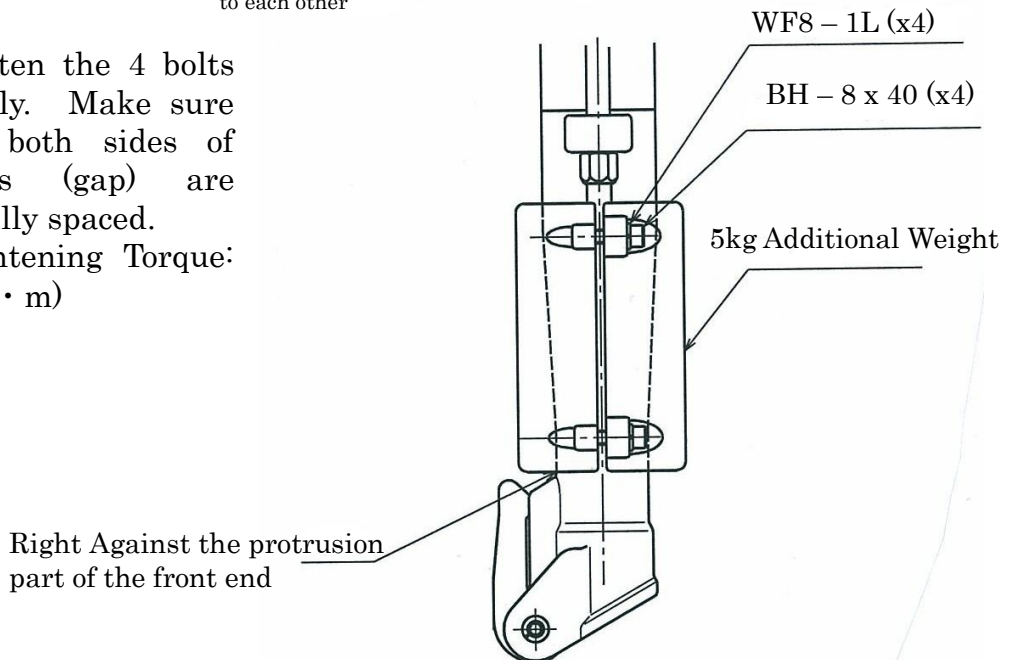
- (1) 5kg additional weight is an optional part designed for better work performing and easier handling.
- (2) Combine two sides of the 5kg weight just like the drawing on the right. Screw them together with 4 bolts which with spring washers on them.



NOT properly attached to each other

Properly Attached

- (3) Tighten the 4 bolts evenly. Make sure the both sides of joints (gap) are equally spaced.
(Tightening Torque: 25N · m)



INSPECTIONS

1. Daily Inspections

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





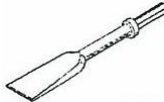

2. Periodical Inspections

Ask your Maruzen dealer for the periodical inspections.

Inspection Items	Operating Hours
Nitrogen gas charge in accumulator	250 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

* The charging pressure of nitrogen gas in accumulator is 3.9MPa.

TOOLS AND APPLICATIONS

Tools	Images	Applications
Moil Point		Breaking
Concrete Chisel		Breaking
Frost Chisel		Cutting and Breaking
Asphalt Cutter		Cutting and digging out asphalt
Shovel		Digging out hard soil
Tamping Rammer		Compacting soil or sand

TROUBLE SHOOTING

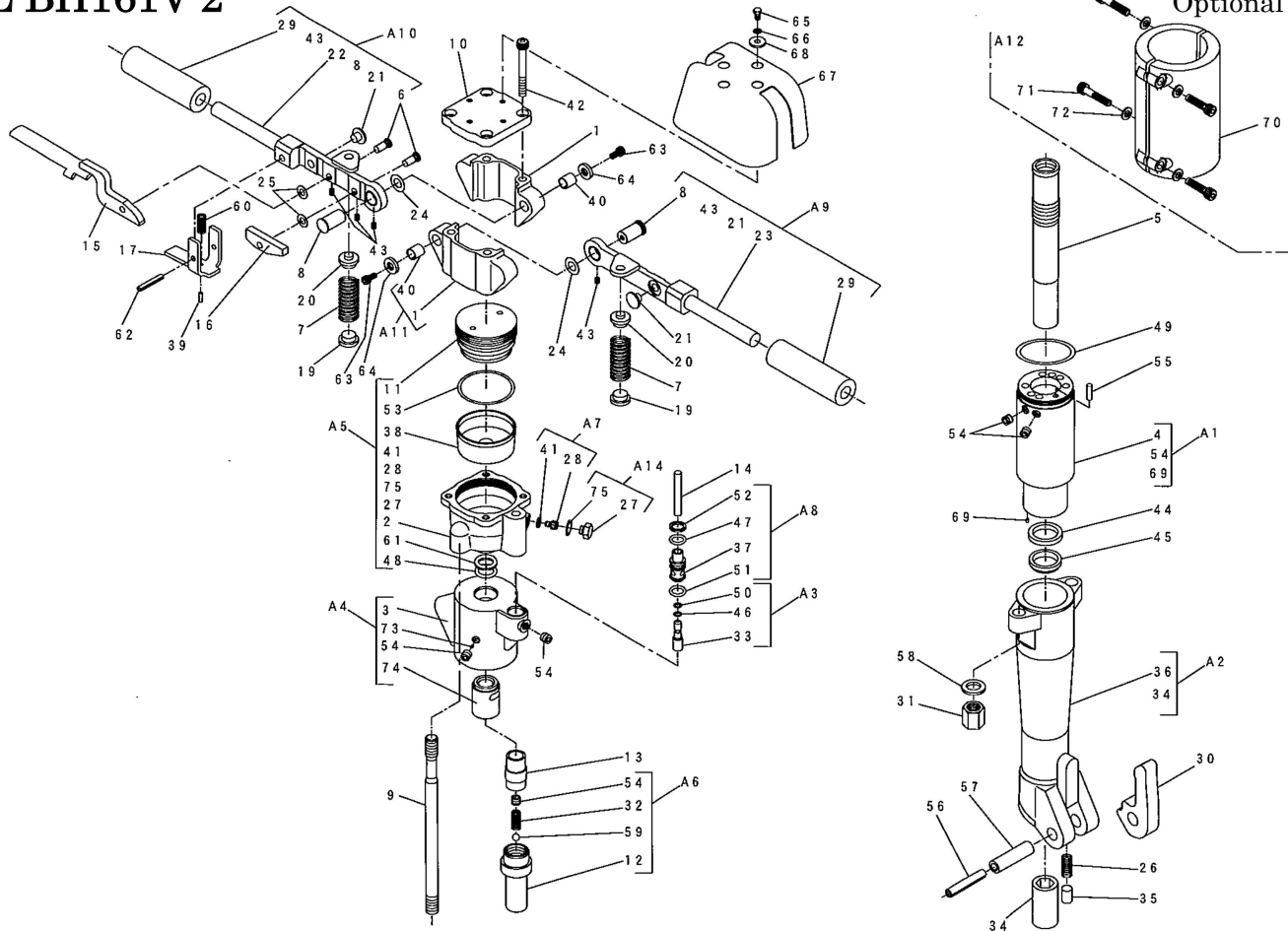
Symptoms	Causes	Countermeasures
Grip the control lever but does not start	1. Power source is off	1. Active the power source
	2. Switch Lever on Power unit is still in "OFF" position	2. Turn the switch lever on power unit to "ON" position
	3. Couplers are not connected	3. Connect all the couplers
	4. 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. High pressure hose is to connect to the upper side and low pressure hose is to connect to the lower side.
	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 *
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 3.9MPa
	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 *
Latch is nearly coming off	1. Damage of lock spring	1. Replace lock spring *
	2. Ware of latch	2. Replace latch *

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 BH161V-2



PARTS LIST MODEL BH161V-2

No.	Code	Descriptions	Q'ty	No.	Code	Descriptions	Q'ty
1	MB19Y001B	Cover	2	29	1120 – 414	Handle Grip	2
2	MB19Y002A	Shell	1	30	1120 – 419	Latch (1")	1
3	MB32X002A	Valve Body	1	31	1120 – 423	Nut	2
4	MB19Y004A	Cylinder (V)	1	32	M1HTE107A	Spring (P)	1
5	MB19Y005A	Piston (V)	1	33	M1KTE111A	Valve Rod	1
6	MB19Z006A	Pin	2	34	M1XTE116A	Chisel Bushing	1
7	MB19Z007A	Spring	2	35	M1KTE173A	Lock Pin	1
8	MB19Z008B	Pin	2	36	M1XTE102A	Front End	1
9	MB19Z009A	Stud Bolt	2	37	M2LTE108A	Valve Guide	1
10	MB19Z010A	Cover	1	38	MB02E006A	Diaphragm	1
11	MB19Z011A	Lid	1	39	PR – 3x8	Spring Pin	1
12	MB32Z004A	Inner Tube (V)	1	40	K5B1620	DU Bush	2
13	MB19Z013A	Control Valve (V)	1	41	W6S1	Seal Washer W6S1	1
14	MB19Z014A	Push Rod	1	42	BH – 8 x 70	Bolt	4
15	MB35Z010A	Control Lever	1	43	SH – 5 x 8	Screw	4
16	MB19Z016A	Lever	1	44	IUIS30, 40, 6	U Cup Packing	1
17	MB35Z011A	Lock Lever	1	45	LBI30, 38,5 6.5	Dust Seal	1
18	MB19Z032A	Pin (A)	1	46	OP – 5	O – Ring	1
19	MB19Z019A	Spring Washer	2	47	OP – 14	O – Ring	1
20	MB19Z020A	Spring washer	2	48	OP – 22	O – Ring	1
21	MB19Z021A	Pad	2	49	OG – 60	O – Ring	1
22	MB35Z009A	Handle (L)	1	50	OBP – 5	O – Ring	1
23	MB19Z023B	Handle (R)	1	51	OP – 12.5 1B	O – Ring	1
24	MB19Z024B	Washer	2	52	OBP – 14	O – Ring	1
25	MB19Z035A	Washer	2	53	CO – 0644	O – Ring	1
26	1110 – 410	Lock Spring	1	54	BPH1 – PT 1/8	Plug	9
27	MB35Z017A	Plug	1	55	PR – 6 x 20	Pin	1
28	1120 – 413	Cap Bolt	1	56	PR – 10 x 60	Pin	1

No.	Code	Descriptions	Q'ty
57	PR – 16 x 60	Pin	1
58	WF – 14 2L	Spring Washer	2
59	QB – 5/16	Steel Ball	1
60	WF8-30	Spring	1
61	OBP – 22	O Ring	1
62	PR – 6 x 40	Spring Pin	1
63	BH – 6 x 12	Bolt	2
64	MAB19Z030A	Guide Bush	2
65	SBH – 6 x 12	Bolt	4
66	WS – 6	Washer	4
67	MB19Y046A	Cover (A)	1
68	MB19Z047A	Collar	4
69	MB850 – 040	Expander	2
70	MB08Y025A	5kg Weight	2
71	BH 8x40	Bolt	4
72	WF 8 – 1L	Spring	4
73	M2LTE120A	M6 Orifice (dia.2.6)	1
74	MB32Z003A	Valve Bush	1
75	OS – 15	O Ring	1

No.	Code	Descriptions	Q'ty	
A1	MB19Z052A	Cylinder Assy	1	4, 54 (4), 69 (2)
A2	M1XTZ504A	Front End Assy	1	34,36
A3	M1XTZ505A	Valve Rod Assy	1	33,46,50
A4	MB32Z500A	Valve Body Assy	1	3, 54(3), 73, 74
A5	MB19Z051A	Accumulator Assy	1	2, 11, 27, 28, 38,41, 48, 53, 76
A6	MB32Z501A	Inner Tube Assy	1	12,32,54,59
A7	MB24Z509A	Cap Bolt Assy	1	28,41
A8	M2LTZ506A	Valve Guide Assy	1	37,47,51,52
A9	MB19Z040A	Handle(R) Assy	1	23,29,21,8,43
A10	MB35Z501A	Handle (L) Assy	1	22,29,21,6,8,43(3)
A11	MB19Z044A	Cover Assy	1	1, 40
A12	MB08Y025A	5kg Weight Assy	1	70(2), 71(4), 72(4)
A13	MB19Z039A	Seal Kit	1	47, 41, 44, 45, 53, 49, 48, 46, 50, 51, 52, 75
A14	MB35Z018A	Plug Assy	1	27, 75

-

EC DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE EC
EC-KONFORMITÄTSERKLÄRUNG
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 β die unten beschriebene Maschine
Verklaart dat onderstaande beschreven machine

Hydraulic Breaker/ Marteau Hydraulique / Martello Idraulico / Hydraulik Hämmer
BH161V

Serial number/Numéro de série/Serien nummer/Reeksnummer/ : **74273~**

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 Richtlinie 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 “émission sonore des équipements utilisés à l’extérieur des bâtiments” 2000/14/EC
Und auch die Richtlinie “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: 17.3 kg
Measured Sound Power Level: $L_{wa} = 104\text{dBA}$
Guaranteed Sound Power Level: $L_{wa} = 105\text{dBA}$

Notified Body:

LNE (No. 0071)
1, rue Gaston Boissler
75724 Paris Cedex 15 France

Manager/le directeur/Direktor/Direttore

Yukio Suwabe