

MARUZEN

HYDRAULIC HANDHELD EARTH DRILL

MODEL OH01

(FOR VERTICAL DRILLING)

OPERATING MANUAL



CAUTION

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



MARUZEN KOGYO CO., LTD.

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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.

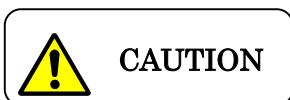
In this manual and on machines labels, the following safety alert symbols are used to express the potential level of hazard.



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!



WARNING

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

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



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.



DANGER

Do not drill the areas where electrical lines, gas lines are installed.

* 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.



DANGER

1. After excavating the ground for drilling pit, make sure all the preventions have made to avoid falling of bystanders.
2. Make sure all the preventions have made to avoid breaking and falling of earth in the pit.

Failure to observe this precaution can result serious injury of even death.

**WARNING**

Do not operate this earth drill when bystanders are close to jobsite

Do not operate this earth drill if any people are within the area where flying debris, rocks and etc may injure them.

Failure to observe this precaution can result personal injury.

**CAUTION**

Be cautious for the followings:

- 1. Be cautious for not being caught up by moving augers.**
- 2. Be cautious for your hands, legs and etc not being cut by the edge of moving augers.**
- 3. Be cautious for your fingers not to be caught up when attaching and detaching augers and extensions.**
- 4. Make sure there are no obstacles at jobsite and be cautious for not being tripped by obstacles.**
- 5. Be cautious for not to be caught up or intervened between wall and earth drill while operating.**

Failure to observe this precaution can result serious injury



WARNING

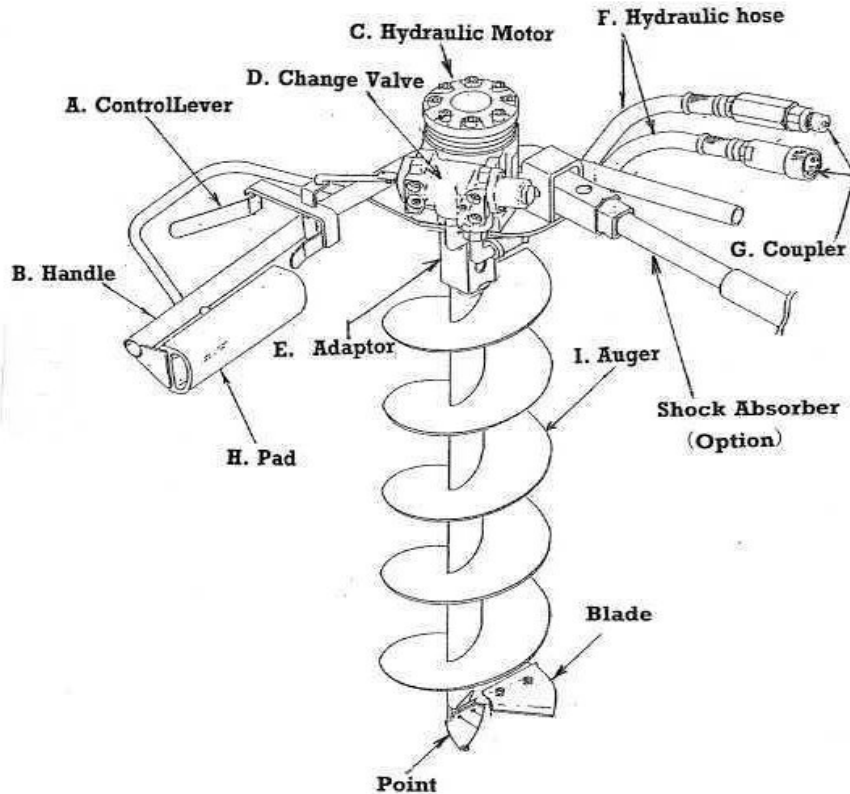
**Make sure the front edge of auger has been fixed into drilling position before starting the machine.
Fail to observe this precaution can result serious injury.**

1. This hydraulic handheld auger is designed for vertical drilling use.
2. **DO NOT** use under the following conditions:
 - (1) Pressure or oil flow exceeds its specifics
 - (2) The temperature of hydraulic oil is below 10°C or over 100°C.
 - (3) Attach to any other machinery.
 - (4) Attach with augers and extensions other than Maruzen original augers and extensions.
 - (5) Use worn or bent augers, extensions, blades, and bits.

SPECIFICATIONS

Overall Dimensions	385mm x 580mm
Weight	14kg
Max. Pressure	17.2 MPa (175kgf/cm ²)
Oil Flow	9.5 ~ 25 L/min
Drilling Torque	Max. 88N · m (0.9kgf · m)
Rotation	300rpm (Oil flow in 25L/min)
Coupling	3/8" couplers
Auger Diameters	∅ 38 ~ 300mm

3. Description of Each Part



A. Control Lever:

By grasping it with handle rotation starts and stops by releasing it.

B. Handle

Hold and control the machine.

C. Hydraulic Motor

Makes the rotation of shaft by hydraulic coil.

D. Change Valve

Change over the low of hydraulic oil.

E. Adaptor

Transfer the rotation of hydraulic moter to auger.

F. Hydraulic hose

Transfer the hydraulic oil between the machine and power source.

G. Coupler

Connect and disconnect the machine and power source.

H. Pad

The guard for operater against the reaction of machine.

I. Auger

Transfer the rotation energy and drill hole.

GUIDELINES

- (1) Make sure the pressure of power source is under 17.2MPa (175kgf/cm²), oil flow is in the range of 9.5~25L/min.
- (2) When connecting and disconnecting couplers, make sure dirt, dust and other foreign substance does not enter or attach to couplers and hoses.
- (3) In case of sudden detaching from the power source, STOP the power source immediately.
- (4) If the oil temperature is below 10°C, warm up the earth drill before start operating.
- (5) After disconnected from hydraulic power source, make sure to connect two couplers in OH-1 together.
- (6) 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 oil if necessary.
When hydraulic oil gets grimy, performance of the engine in earth drill will fall. It is advisory that you change new hydraulic oil regularly.
- (7) Replace new blade and bit if they are worn out. Using worn blade and bit will decrease drilling performance.
- (8) When earth drill forced to stop due to the obstacles (rock and etc), pull out the earth drill, or turn the rotation the other way round, when the earth drill has been pushed out, make it run in right direction again.
When the obstacles make the drilling impossible, remove the obstacles before drilling again.
- (9) For ease the reaction force while drilling, use shock absorber bar to support operation. Shock absorber bar should be connected with power unit.
- (10) STOP the power source while attaching and detaching hoses.
- (11) Before the operation, make sure there are no electrical lines, gas lines, water pipes, or dangerous objects embedded underground.
- (12) When hoses break and oil belch out accidentally, turn the power pack off immediately.
- (13) Do not use hoses which are worn or with leakage.
- (14) Do not use worn or bent augers, extensions, blades, and bits.

OPERATIONS

- (1) To absorb shocks from spinning, it is advisory to prepare an optional shock absorber for supporting operating.
- (2) Connect earth drill and power source with extension hoses.
- (3) Attach auger and extensions to the earth drill. For snap-in type attachment, make sure all the joints are locked firmly.
- (4) Connect a shock absorber with power pack
- (5) Start the power source.
- (6) Hold the handles on earth drill firmly. Stick the front of the auger in to determine the drilling position. Grip the control lever on the longer side of the handles, auger will start spinning in the normal direction. Slide the earth drill toward the body.



WARNING

DO NOT grip the control lever if auger has not been stuck in the ground.

- (7) Attach extensions to the auger one at each time while drilling. The number of extensions to be attached depends on the length which you intend to drill. When extensions or auger stuck because of the obstacles (rocks and etc), pull out the augers or make the auger spins in inverting direction to drag out the obstacles. When the obstacles are not possible to be dragged out, change the drilling positions or direction or remove the obstacles before start drilling again.
- (8) When auger reaches to the depth you need, relief the control lever and stop drilling. Pull out the auger and extensions, detach the extensions one at each time.
- (9) Stop the power source after drilling. Detach the extension hoses. Connect couplers (male and female) which on the earth drill together.
- (10) Clean dirt which stays on the earth drill, auger and extensions. Air dry and rust-proof spay before storing.

INSPECTIONS

Inspection Items	Countermeasures
Loosens of bolts, nuts and etc	Tighten bolts, nuts and etc
Bents or stiff of control lever	Repair or replace a new control lever
Oil leakage from motor	Ask for repairs
Oil leakage from control lever	Tighten bolts or ask for repairs
Oil leakage from hoses	Replace new hoses
Loosens of hose fittings	Tighten hose fittings
Bents of augers	When it is bend, ask for repairs
Cracks on welding parts on handles	Repairs

TROUBLE SHOOTINGS

Symptoms	Causes	Countermeasures
Stop suddenly while operating	<ol style="list-style-type: none"> 1. Detachment of quick couplers 2. Damage of hydraulic motor 	<ol style="list-style-type: none"> 1. Check each joints and attachment. 2. Repairs or replacement *
Stiff Switching Lever	<ol style="list-style-type: none"> 1. Damage of spring in the valve 2. Dirt, dust and etc 	<ol style="list-style-type: none"> 1. Repairs or replacement * 2. Disassembly and clean *
Oil leakage from switching lever	<ol style="list-style-type: none"> 1. Wear or harden of O ring 	<ol style="list-style-type: none"> 1. Replacement *
Oil leakage from the joint of hydraulic motor and switching lever	<ol style="list-style-type: none"> 1. Wear or harden of O ring 2. Loosen of blots 	<ol style="list-style-type: none"> 1. Replacement 2. Tighten the bolts
Oil leakage from hoses	<ol style="list-style-type: none"> 1. Loosen of hose fittings 2. Damage of hoses 	<ol style="list-style-type: none"> 1. Tighten hose fittings 2. Replace new hoses
Low rotation frequency, power source overload	<ol style="list-style-type: none"> 1. Overflow of oil(Active relief control valve) 	<ol style="list-style-type: none"> 1. Low the engine rotation rate in order to lower oil flow below 25L/min
Abnormally low rotation frequency	<ol style="list-style-type: none"> 1. Low rotation frequency 	<ol style="list-style-type: none"> 1. Adjust oil flow to the range of 9.5~25L/min *
Do not rotate	<ol style="list-style-type: none"> 1. Power unit is not active 2. Control lever is in START position 3. Motor malfunctions 	<ol style="list-style-type: none"> 1. Start Power Unit 2. Turn the control lever to "OPERATE" position 3. Repairs or replace *

Items with * ask Maruzen dealers for repairs and maintenance.

PARTS LIST MODEL OH-1

No.	CODE	DESCRIPTION	Q'ty	No.	CODE	DESCRIPTION	Q'ty
1	0310-001	Handle	1	15	BH-630	Bolt, hex socket M6x30	1
2	0310-002	Control Lever	1	17	BH-865	Bolt, hex socket M8x65	4
3	0310-003	Link	1	18	B-1025	Bolt, hex M10x25	2
4	0310-004	Stud bolt	2	19	AD100906	Connector,male1009-06	2
5	0310-005	Holder, hose	1	20	PS-212	Pin 2x12	1
6	0310-006	Adaptor	1	21	PS-315	Pin 3.2x15	2
7	0310-007	Pad	1	22	HH-0365<<<<AH01	High pressurehose,3/8",650L	2
8	WS-06	Spring washer(6)	2	23	OP-1513	O-ring W-1513 #112	2
9	WS-10	Spring washer(10)	4	24	QC-03M	Coupler male(3HP)	1
10	WP-08	Washer(8)	1	25	QC-03F	Coupler Female(3HS)	1
11	WP-10	Washer(10)	4	26	TFD3-03	Change valve	1
12	N6	Hex nut(M6)	1	27	ORB-S070	Motor, hydraulic	1
13	N-10	Hex nut(M10)	2	28	FC-03	Control valve, oil flow	1
14	BH-615	Bolt, hex socket M6x15	1				

EXPLODED VIEW MODEL OH-1

