

# ***INSTRUCTION MANUAL***

## **AIR LAPPING TOOL**

Please read this manual carefully before you attempt to use your tool so that you may use it properly and safely.

## **MICRO AIR HAND**

**Model MAH-05, MAH-16**

## **PROFESSIONAL TOOL**



### **Specifications**

<b>Model</b>	<b>MAH-05</b>	<b>MAH-16</b>
Maximum Operating Pressure	0.6 MPa	
Air Consumption (No Load)	0.07 m <sup>3</sup> /min	
Stroke Speed (No Load)	22,000 min <sup>-1</sup>	11,000 min <sup>-1</sup>
Stroke Length	0.5 mm	2.2 mm
Shank O.D.	3 mm	
Mass (Weight) (Include Inlet and Exhaust Hose)	0.4 kg	
Sound Pressure Level	75 dB (A)	80 dB (A)
Sound Power Level	86 dB (A)	91 dB (A)
Vibration Level	1.0 m/s <sup>2</sup>	1.8 m/s <sup>2</sup>
Thread Size of Air Inlet	Rc 1/4	

Due to continuous product development/improvement the specifications and configurations in this document are subject to change without prior notice.



Manufactured by :

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**Keep the manual handy – so you can use it whenever necessary.**

Original Instructions

Thank you very much for your purchase of this **Nitto Kohki product**.

Before using your tool, please read this manual carefully so that you may use it properly to get the most out of it.

**Please keep the manual handy - so you can use it whenever necessary.**

- **English** : Please ask your dealer or distributor for instruction manual in local language(s).
- **German** : Bitte fragen Sie Ihren Händler nach eine Betriebsanleitung in Landessprache.
- **French** : S'il vous plait, veuillez demandez à votre fournisseur de manuel instruction en langue locale.
- **Spanish** : Por favor, contacte con su distribuidor para el manual de instrucciones en español.
- **Portuguese** : Por favor pessa ao seu agente ou distribuidor o manual de instruções em linguagem local.
- **Italian** : Per Manuale Istruzioni in lingua locale Vi preghiamo di rivolgerci al rivenditore o distributore.
- **Dutch** : Vraag uw handelaar om een nederladstalige gebruiksaanwijzing.
- **Swedish** : Be er lokala Åtreförsäljare eller distributör om manualer på svenska.
- **Danish** : Venligst henvend Dem til den danske distributør for instructions manualer.
- **Polish** : Proszę pytać swojego dealera lub dystrybutora o instrukcje obsługi w języku lokalnym.
- **中文** : 請向當地供應商或經銷商詢問中文使用說明書

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## PICTOGRAM



Warning: It might be dangerous to operate the tool if the instructions supplied are not followed.



Using this tool improperly could result in serious injury. Read the instruction manual before using.



Always wear suitable eye protection.



Always wear suitable hearing protection.



Always wear respiratory protective equipment (PPE).

The following Safety notations are used throughout the manual to highlight safety precautions for the user and for the tool.



### **WARNING:**

Indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in death or serious injury.



### **CAUTION:**

Indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in injury or material damage.

Please note, however, that failure to observe safety precautions under the “**Caution**” category could result in a serious occurrence depending on the situation: please observe all safety precautions in the manual.

**Caution:** Important precautions for machine or tool setup, operation and maintenance.

# IMPORTANT SAFETY INSTRUCTIONS

When using the tool, please take the basic safety precautions as described below to prevent possible injury.

## GENERAL: TOOLS

### Warning

#### To Operators

- **Wear proper clothing for the type of work being done.**  
No loose clothing nor adornments when at work: you will be pulled into the tool if you're unlucky. Wear nonskid footwear. If you have long hair, wear a safety hat that can cover up your hair completely.
- **Always wear safety glasses.**  
Remember, regular glasses are no safety glasses. The lenses are only shock resistant, which will not give you sufficient eye protection you may need in your working environment.
- **Wear respiratory protective equipment (PPE).**  
Wear respiratory protective equipment (PPE) when working in an environment where dust particles are generated in operation.
- **Avoid working posture that is too stressful.**  
Secure good footing, work in a well-balanced posture.
- **Do not operate the machine if you are too tired.**
- **Never touch any moving member on the tip of machine when running.**

#### About Work Area

- **Keep the work area clean.**  
Cluttered work areas (e.g. workbench) invite accidents.
- **Carefully select the work area.**  
Do not expose tool to rain. Do not use tool in a wet or soaked area.  
See that the work area is adequately illuminated.
- **Never work near inflammable liquid or in a potentially explosive atmosphere.**
- **Keep children off the work area.**  
Keep children and unauthorized persons off the work area.

#### Before Operation

- **Inspect tool before use.**  
Before using, check that screws are securely tightened, that a protective cover and other parts are free from damage, and that the tool runs as it should.  
Check that moving members are properly adjusted for positioning and tightened, that parts are free from damage and properly mounted, and that all other parts are in good condition for normal operation.  
Should you find any damage to the protective cover or other part, replace it in accordance with the Operation Manual. If there are no instructions in the Manual, please contact sales agent through which you have purchased your tool or an authorized dealer near you for repair.  
Likewise, if a switch failure occurs, contact sales agent through which you have purchased your tool or an authorized dealer near you for repair.  
Do not use the tool -- if it does not start or stop with the start/stop switch.

- **Securely mount File**  
Improperly mounted File may fly out, causing possible damage to the machine or injury to the operator, etc.
- **Always remove spanner, wrench, etc., once adjustment is made with them.**
- **Use a tool appropriate for the application.**

- **Do not abuse tool.**  
Use tool in accordance with the specifications: you'll get the most out of it while ensuring safely.

- **Securely fasten workpiece in place.**  
Use a vice or clamp to securely fasten the workpiece in place. It is much safer this way than holding it in your hand, allowing you to operate the tool with both hands.

#### About Handling

- **How to store tool.**  
When the tool is not used, store it in a dry area and out of reach of children.
- **How to carry tool.**  
Do not touch the start switch while the tool is being carried.
- **Do not leave the tool unattended while it is running.**  
Turn off the start switch and disconnect the tool from power source. Do not leave the work area until the tool comes to a complete stop.

## Maintenance/service

- **Do not take apart or modify tool.**

Disassembling or modification carried out without the supervision by a qualified or authorized service engineer might cause accident.

- **Inspect cutting tool and accessories, etc.**

Always check to see that Lapping tool and accessories, etc. are in good operating condition without damage or deterioration -- before you mount them on the power tool. Should you find any damage to an accessory or part, please contact sales agent through which you have purchased your tool or an authorized dealer near you for repair.

- **Check parts for damage.**

When you have found damage to accessory or other part, carefully check the damaged part to determine the extent of influence it has upon the functions of the power tool – that is, determine whether it can still perform its normal functions. Check to see that the linkage of the moving members is OK, that all parts are OK without damage, that they are properly mounted, and that the power tool functions normally. Should you find any damage to an accessory or part that may hamper proper functioning of the tool, please contact sales agent through which you have purchased your tool or an authorized dealer near you for repair.

- **Have your tool repaired at Nitto service station**

For repair or parts replacement please contact sales agent through which you have purchased your tool or an authorized dealer near you.

- **Use Nitto genuine parts.**

Use of improper parts may result in serious occurrence.

To obtain a Nitto genuine part, consult this Manual or contact sales agent from which you have purchased your tool directly.

- **Do not detach label or nameplate from tool.**

When a label or nameplate gets scratched or peeled off, contact sales agent through which you have purchased your tool or Nitto Koki Co., Ltd. directly for a replacement.

## GENERAL: PNEUMATIC TOOLS

### Warning

- **Use appropriate air pressure.**

Excessively high air pressure will increase the number of revolutions or strokes, causing not only premature failure or breakage but also unexpected accident.

- **Connect only pneumatic air supply lines.**

Never attempt to connect the Air Lapping Tool to any supply line other than a pneumatic air supply line. There are other kinds of supply lines and pipes, such as oxygen supply lines, nitrogen supply lines or gas pipes.

Never attempt to connect the Air Lapping Tool to any of these other types of supply lines.

Attempting to connect the Air Lapping Tool to any supply line other than a pneumatic air supply line can result in accidents and/or severe injury.

- **Start tool properly.**

Turn the start switch OFF before connecting the tool to the hose leading to air supply line.

- **Always disconnect the tool from the connecting hose leading to air supply line before putting on or taking off accessories or before getting down to maintenance work.**

- **Avoid exposure to exhaust air.**

Exhaust air contains from pneumatic tool contains oil and contaminated moisture. Make sure that exhaust air will not be directed to your face or anyone else who may be around.

- **Keep tool off electricity.**

The pneumatic tool is not insulated against electricity. You may get electric shock if your pneumatic tool comes into contact with running electricity: keep it off electricity.

### Caution

- **Handle tool carefully.**

Abusive use of tool would invite failure or accident. Do not throw or drop; don't give tool a shock.

- **Handle connecting hose carefully.**

Don't hold the tool by the connecting hose when carrying it; don't pull the connecting hose to disconnect.

# INSTRUCTIONS FOR THIS TOOL

## Warning

- **Wear protective glasses and a dustproof mask**  
Operation generates chips and dust particles, etc. which may cause eye and/or respiratory injury: Always use PPE (Personal Protective Equipment) for eye and respiratory protection.

## Caution

- **Insert tip tool shaft of tip tool into the holder as deep as possible before using the tool.**  
Imperfect insertion of the file shaft of tip tool not only damages the main body but also causes tip tool to jump out and may cause accidents.
- **Do not use tip tool with tip tool shaft other than 3 mm.**  
The use of tip tool with a file shaft other than 3 mm may damage the main body, cause tip tool to jump out, and result in accidents.
- **When you replace or adjust tip tool or any component, be sure to detach the tool from the air hose.**
- **Never touch tip mobile portion while in operation.**

## 1. APPLICATION

This tool is a pneumatic lapping tool to carry out grinding operations using an Electro-Plated Diamond File, and grinding and polishing operations using Oil Stone and Fiber Grindstone, etc.

## 2. RECEIVING INSPECTION

Upon unpacking, check to see that the shipment is complete without damage or oil leakage in transport. Should you find any damage or short-shipment, please contact sales agent through which you have purchased your machine or an authorized dealer near you for corrective actions.

### MAH-05

Package Contents	Q'ty
MICRO AIR HAND MAH-05	1set
Flat Electro-Plated File #140	1
Rat-Tail Electro-Plated File #140	1
Hex. Socket Screw Key 2	1
Bushing R1/4xNPT1/4	1
Instruction Manual	1
Attention for Start-up MAH-05/MAH-16	1
Caution for Use	1
Declaration of Conformity	1

### MAH-16

Package Contents	Q'ty
MICRO AIR HAND MAH-16	1set
Flat Electro-Plated File #140	1
Rat-Tail Electro-Plated File #140	1
Hex. Socket Screw Key 2	1
Bushing R1/4xNPT1/4	1
Instruction Manual	1
Attention for Start-up MAH-05/MAH-16	1
Caution for Use	1
Declaration of Conformity	1

## 3. AIR SUPPLY

### 3-1. Air Pressure

Adjust air pressure with the air regulator to the appropriate level for the pneumatic tool used. Air pressure that is too low will stop the tool from operating at full capacity. Air pressure that is too high may cause damage to the tool.

### 3-2. Air Line (Fig.1)

Use a 9.5 mm (3/8") I.D. connecting hose between the compressor and the tool. Drained water, etc., if flown into the tool, could cause tool failure. Install an air filter between the compressor and the tool.

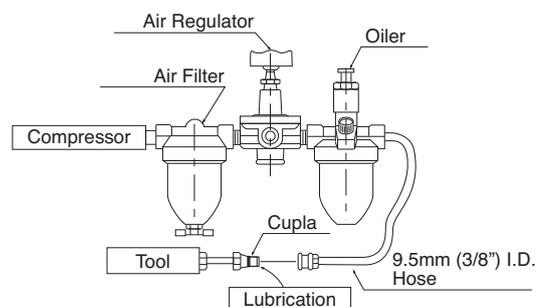


Fig. 1

### 3-3. Lubrication

Install an oiler between the compressor and the tool. Use the machine oil ISO VG-10. Failure to lubricate as required may result in damage to the tool. Use of oil that is too thick will reduce the performance of the tool.

## 4. OPERATION

### 4-1. How to replace tip tool (Fig. 2)

#### Warning

- Turn off the Valve and disconnect the air hose before replacing tip tool.

Insert the file shaft into the holder and tighten a Hexagon Socket Head Locking Screw with a Hex. Wrench Key 2 attached. To remove tip tool shaft, loosen the Hexagon Socket Head Locking Screw with the Hex. Wrench Key 2 and remove tip tool.

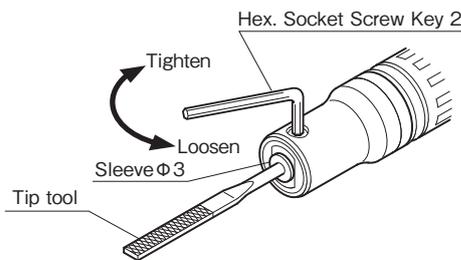


Fig. 2

### 4-2. Start and Stop

Make sure the Valve is turned off before inserting the air hose into the Cupla of the this tool.

Start: Sliding the Valve to the Housing side starts the tool. (Valve ON)

Stop: Sliding the Valve from the housing side to the Exhaust Hose side stops the tool. (Valve OFF)

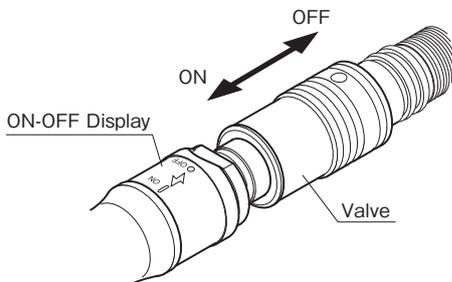


Fig. 3

### 4-3. Grinding and polishing operations

#### Warning

- Be sure to wear protective glasses and a dustproof mask during operation.

Start the tool, lightly press the File against the work, and carry out the operation. Applying unnecessarily strong force to the File does not improve the work efficiency.

In addition, unnecessary force applied to tip tool may cause breakage of the electro-plated tip tools.

### 4-4. Storing Tool

#### Warning

- When tool is not used, store it out of reach of children.

When the tool is not used, store it in a dry area.

If the tool is left alone as it has been used without preparation for storage, ambient moisture will remain inside the tool, which will leave it susceptible to rusting. After finishing your work, add the machine oil #10 through the Air Hose and run the tool for a while before storage.

## 5. OPTIONAL PARTS

In addition to standard accessory parts, the following parts are available for your applications and needs.

Part No.	Part name	Q'ty
TB07502	Flat Electro-Plated File #140	1set (5 pcs.)
TB07503	Rat-Tail Electro-Plated File #140	1set (5 pcs.)
TB07504	Triangular Electro-Plated File #140	1set (5 pcs.)
TB07505	Half-Round Electro-Plated File #140	1set (5 pcs.)
TB07506	Vise Holder 3	1set

## 6. ORDERING PARTS

When ordering parts from our agency, please be sure to give them part number, part name and quantities.

## 7. EXPLODED DIAGRAM: MAH-05 and MAH-16 PARTS LIST

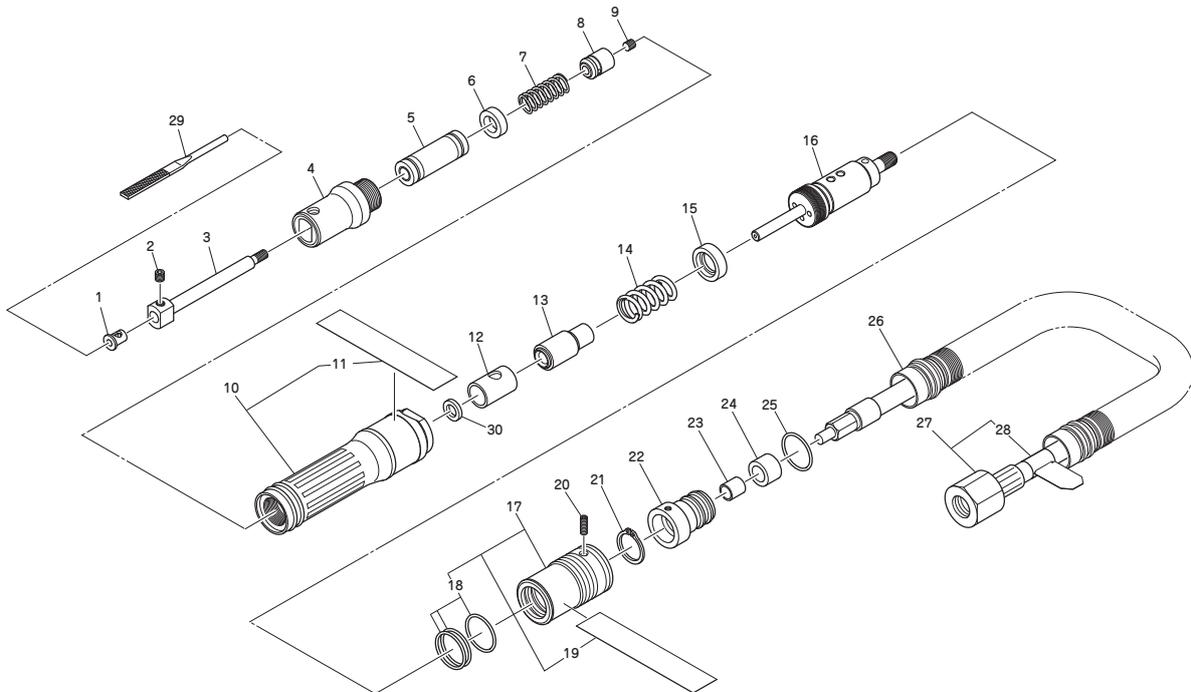
### Warning

This diagram is for reference only. Do not attempt to service or repair the Tool. Do not take the Tool apart. Contact an authorized Nitto dealer for all service and repair of the Tool.

Improper service and repair can cause accidents and severe injuries.

Never attempt to modify the Tool.

Never attempt to service or repair the Tool yourself.



The parts numbers with ( ) are included in the Ass'y parts written above them.

Numbers attached with ⊙ are components of MAH-16.

No.	Part No.	Part Name	Q'ty	Price
1	TQ11133	Sleeve φ3	1	
2	TP04123	Hex. Socket Set Screw with Cup Point 4x4	1	
3	TQ11121	Guide Shaft	1	
4	TB07444	Guide Holder Sub Ass'y MAH-05	1set	
⊙ 4	TB07512	Guide Holder Sub Ass'y MAH-16	1set	
5	TQ11134	Slide Bearing	1	
6	TQ11129	Spring Set Collar F	1	
7	TQ11130	Spring 1x8x26	1	
8	TQ11122	Piston	1	
9	TP00639	Hex. Socket Set Screw with Flat Point 4x3	1	
10	TB08818	Housing Ass'y MAH-05	1set	
11	(TQ12931)	Label Warning MAH-05	1	
⊙ 10	TB08819	Housing Ass'y MAH-16	1set	
⊙ 11	(TQ13211)	Label Warning MAH-16	1	
12	TB07450	Cylinder Ass'y MAH-05	1set	
30	TQ11120	Bushing T3.3 MAH-05	1	
⊙ 12	TB07480	Cylinder Ass'y MAH-16	1set	
⊙ 30	TQ12601	Bushing MAH-16	1	
13	TB07500	Counter Weight Sub Ass'y	1set	
14	TQ11131	Spring 1x11.3x27	1	
15	TQ11132	Spring Set Collar R	1	
16	TB07454	Valve Body Ass'y	1set	

No.	Part No.	Part Name	Q'ty	Price
17	TB08817	Valve Sub Ass'y	1set	
18	(CP25836)	O-ring JASO-1016	3	
19	(TQ12930)	Label Warning	1	
20	TQ11158	Hex. Socket Set Screw with Cup Point 3x6	1	
21	TP17226	External Retaining Ring ISTW-14	1	
22	TQ11126	Hose Holder	1	
23	TQ11127	Silencer Bushing	1	
24	TQ11128	Silencer	1	
25	CP28152	O-ring JASO-1012	1	
26	TQ04367	Exhaust Hose	1	
27	TB08131	Air Hose K Ass'y	1set	
28	(TQ11519)	Label Lubrication	1	

#### Accessories

No.	Part No.	Part Name	Q'ty	Price
	TP13892	Hex. Socket Screw Key 2	1	
29		Flat Electro-Plated File #140	1	
		Rat-Tail Electro-Plated File #140	1	
	TQ13212	Instruction Manual	1	
	TQ10966	Caution for Use	1	
	TP02236	Bushing R1/4xNPT1/4	1	
	TQ12934	Declaration of Conformity	1	
	TQ11487	Attention for Start-up MAH-05/MAH-16	1	

Guide holder sub-Ass'y [MAH-16] has two grooves on its exterior. Component numbers in parentheses indicate a component of the above Ass'y.



## Overseas Affiliates / Offices

### NITTO KOHKI U.S.A., Inc.

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<http://www.nitto.co.uk/>

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<http://www.nitto-kohki.de/>

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[http://www.nittobkk.com/eng\\_index.htm](http://www.nittobkk.com/eng_index.htm)

## EC DECLARATION OF CONFORMITY

We hereby declare that the following our product conforms with the essential health and safety requirements of  
EEC Directives.

Product: AIR LAPPING TOOL  
Model: MICRO AIR HAND:MAH-05, MAH-16  
Serial No: XXXXXX  
└───┬───▶ Consecutive numbers (00001~99999)  
└───┴───▶ Christian era's last digit (0~9)

Manufacturer: NITTO KOHKI Co., Ltd.  
2-9-4, Nakaikegami, Ohta-ku, Tokyo, 146-8555, Japan

Authorised Compiler in the Community:  
Masatoshi Ogue  
President  
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Directive: 98/37/EC and 2006/42/EC Machinery Directive

The above product has been evaluated for conformity with above directives using the following European standards.

The technical construction file (TCF) for this product is retained at the above manufacturer's location.

Machinery Directive: EN ISO12100-1:2003, EN ISO12100-2:2003,  
EN ISO14121-1:2007, EN792-9:2001+A1:2008, others

Sound Pressure/Power Level: EN ISO15744:2008, EN ISO4871:1996

Vibration Level: EN28662-1:1992, EN ISO8662-12:1997

Name: K.Kishi

Title: GENERAL MANAGER MACHINE TOOLS DIV.

Being the responsible person appointed and employed the manufacturer.