

# PNEUMATIC TAPPING MACHINE – AT/I SERIES

## OPERATING MANUAL



## 1. DESCRIPTION

- Pneumatic tapping machine is suitable for different size taps (from M2 to M30).
- The arm is equipped with lubricated for life bearings at all swivel points, provides weightless operation through the use of gas counter balance springs and permits the operator to bring the tap to the hole with ease.

## 2. UNPACKING

Please check for completeness. Refer to Figure 2-1.

ITEM DESCRIPTION	MODEL	
	AT-08/I, AT-12/I	AT-16/I ~ AT-30/I
A. Stretch arm	•	
B. Stretch arm		•
C. Table mounting column	•	•
D. Air unit	•	•
E. Air tapping spindle	•	
F. Air tapping spindle		•
G. Exhaust hose with clamps		•
H. Air hose	•	•

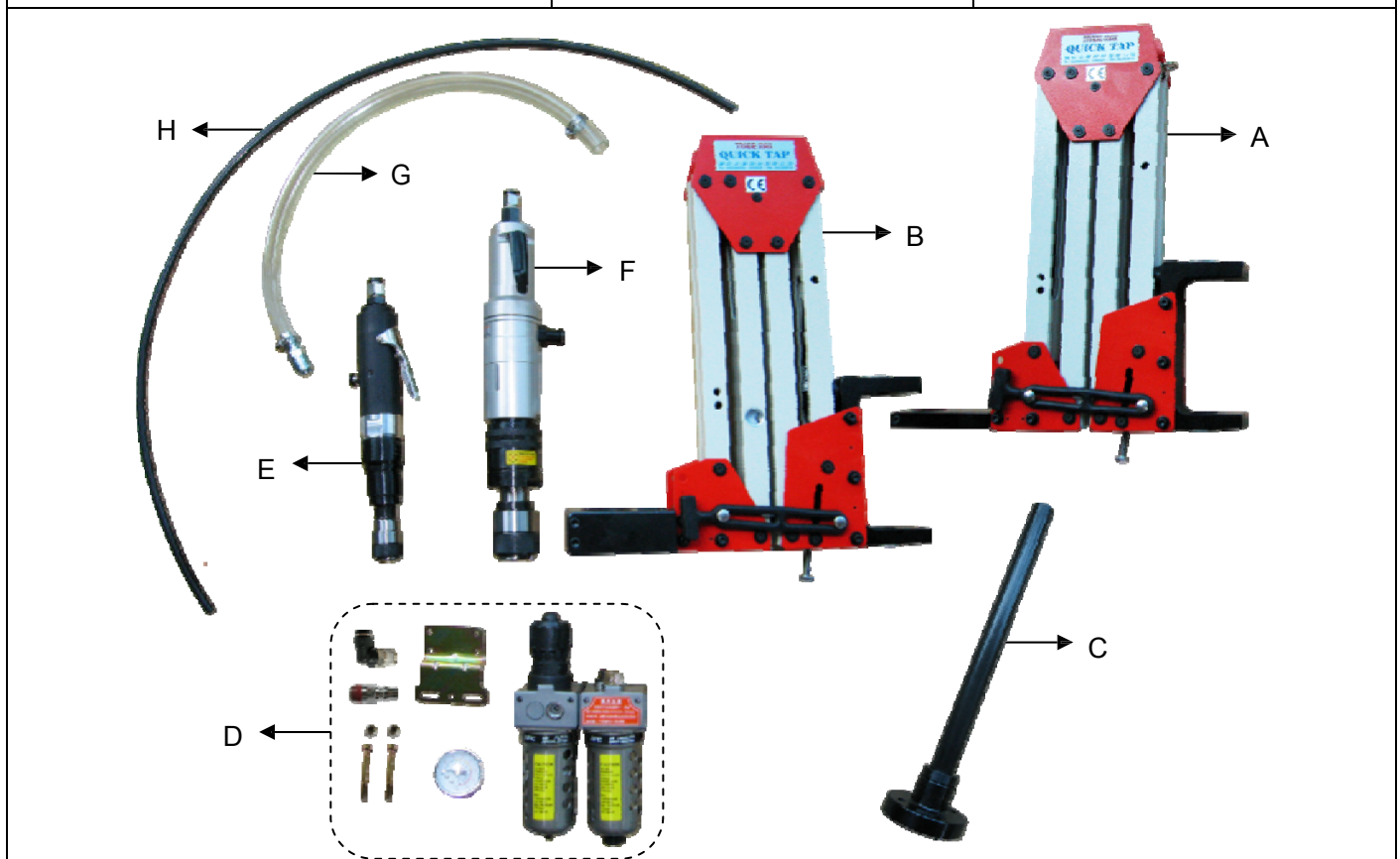


Figure 2-1

### 3. SPECIFICATIONS

MODEL	AT-08/I	AT-12/I	AT-16/I	AT-20/I
Speed	700 rpm	400rpm	300 rpm	150/400 rpm
Air consumption required	5 HP	5 HP	5 HP	5 HP
For Tap	M2~M8	M3~M12	M3~M16	M3~M20
Tap holder size	TCS1B	TCS1B	TCS2B	TCS2B
Work range	Rmax 1600mm Rmin 500 mm			

MODEL	AT-22/I	AT-24/I	AT-27/I	AT-30/I
Speed	120/300 rpm	100/300 rpm	70/220 rpm	40/200 rpm
Air consumption required	5 HP	5 HP	5 HP	5 HP
For Tap	M3~M22	M3~M24	M3~M27	M3~M30
Tap holder size	TCS2B	TCS2B	TCS2B	TCS2B
Work range	Rmax 1600mm Rmin 500 mm			

### 4. SAFETY RULES

- Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm.
- Always follow this operation manual – even if you are familiar with use this tools. Remember the being careless can result in severe personal injury.
- Be alert and think clearly. Never operate power tools when tired, intoxicated or when taking medications that cause drowsiness.

### 5. BE PREPARED FOR JOB

- Wear proper apparel. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts of machine.
- Wear protective hair covering to contain long hair.
- Wear safety glasses (not everyday glasses) and shoes with non-slip soles.
- Wear dust mask and dustless clothes if operation is dusty.
- Wear ear protection if the work area may include exposure to excessive noise levels.
- Keep work area ventilation and clean. It should be properly lighted. Cluttered work areas invite accidents.
- Do not use the tools in dangerous environments or wet locations. Do not expose it to rain.

## 6. ASSEMBLY

### **STEP 1 : MOUNT TABLE MOUNTING COLUMN**

Please assembly the table mounting column to a solid horizontal surface using 10mm bolts (see Figure 7-1).

《Reminder : the machine do not provide 10mm bolts.》



Figure 7-1

### **STEP 2 : ATTACH PARALLEL ARM AND SLANTED ARM** (see Figure 7-2)

- (1) Position mounting ring on the table mounting column.
- (2) Insert stretch arm rod into table mounting column.

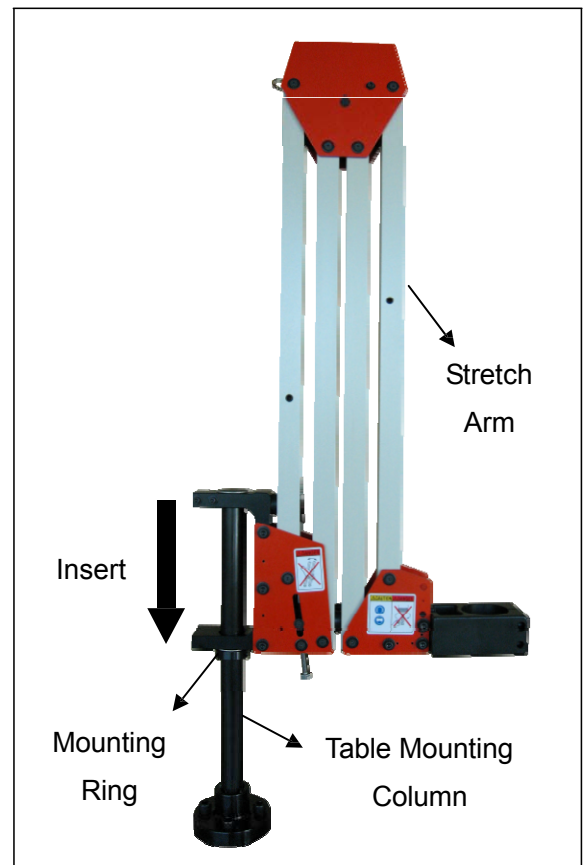


Figure 7-2

### **STEP 3 : ATTACH SPINDLE**

- **AT-08/I & AT-12/I**

- (1) Loosen the socket head bolt (see Figure 7-3).

- (2) Insert spindle into bracket of tapping arm, make sure spindle is completely into the bracket (see Figure 7-4).
- (3) Fasten the socket head bolt to avoid damages which may be caused by loosened parts.



Figure 7-3

Figure 7-4

- **AT-16/I ~ AT-30/I** (see Figure 7-5)

- (1) Loosen the socket head bolts.
- (2) Insert spindle into bracket of tapping arm, make sure spindle is completely into the bracket and correct position.
- (3) Make sure that exhaust hose fittings of spindle motor and tapping arm are on the same side.
- (4) Fasten the socket head bolt to avoid damages which may be caused by loosened parts.

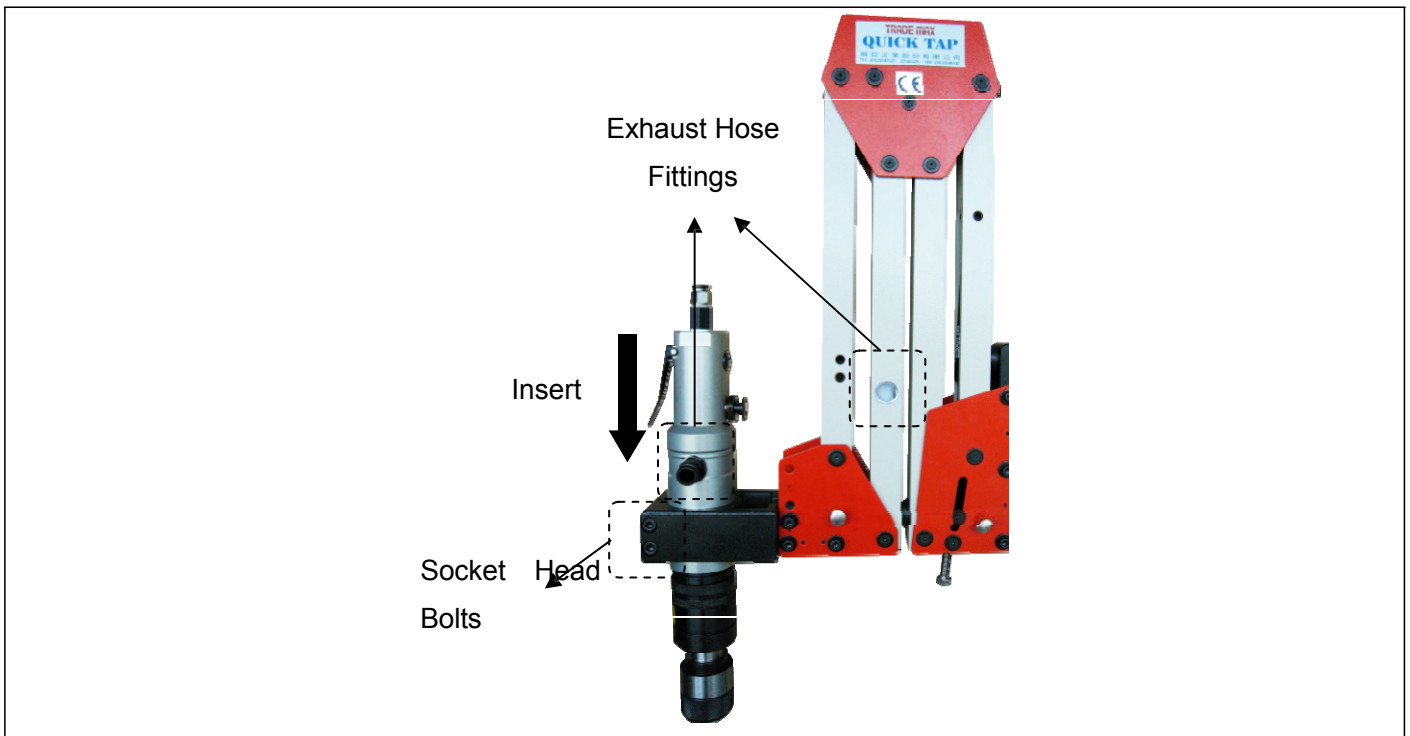


Figure 7-5

## **STEP 4 : MOUNT AIR UNIT**

- (1) Attach pressure gauge, 3/8" quick connect and air hose fitting (see Figure 7-6).
- (2) Remove front cover of air unit body by lifting tab at top of cover and insert the two mounting bolts as Figure 7-6
- (3) Attach mounting bracket to the back of air unit body with two nuts, and replace front cover (see Figure 7-7).
- (4) Secure air unit to the slanted arm using socket head bolts provided on slanted arm. Attach bracket using center hole and right slot of bracket (see Figure 7-7).

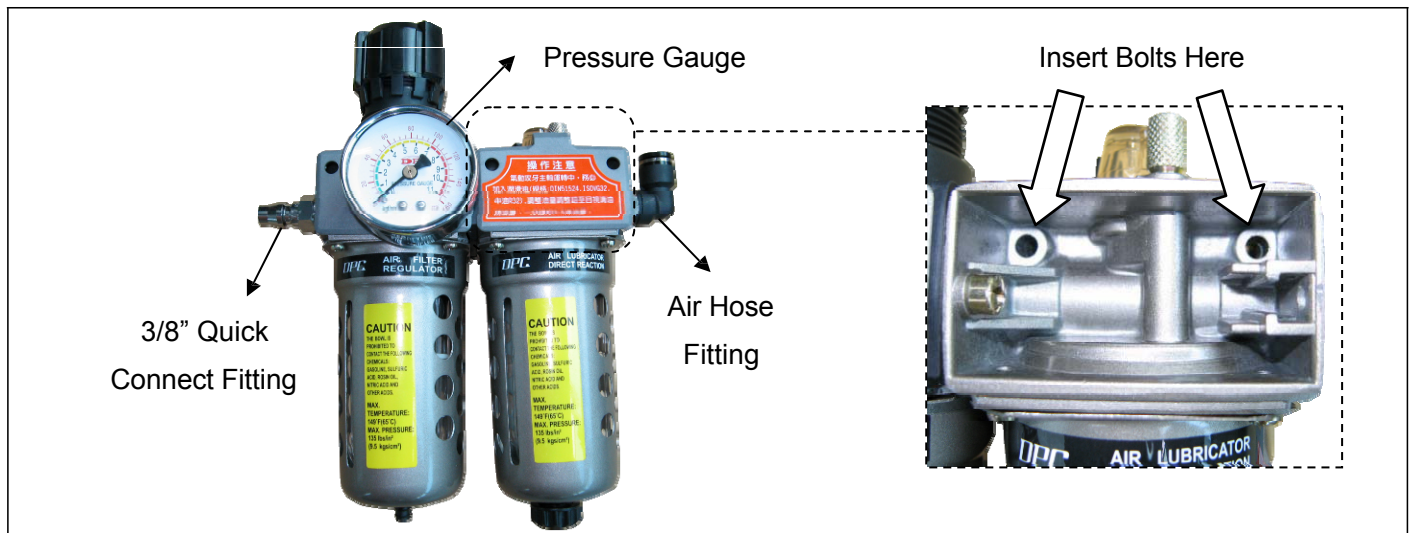


Figure 7-6

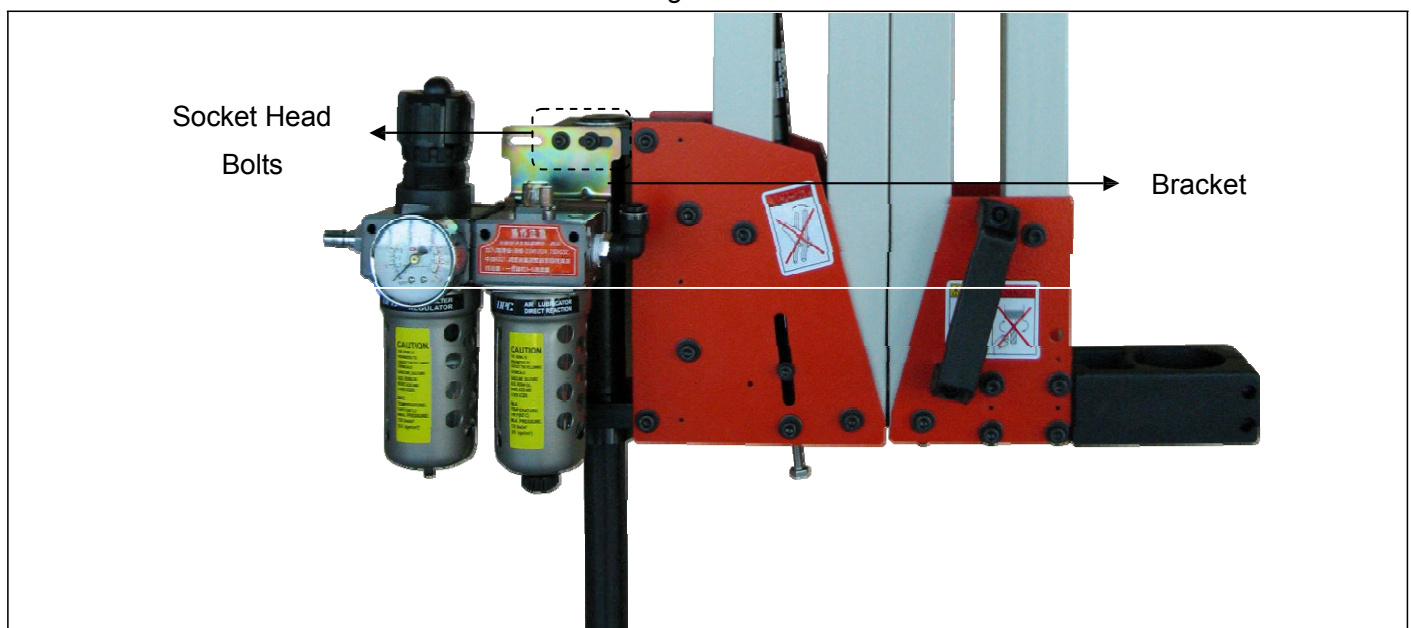


Figure 7-7

## **STEP 5 : ATTACH AIR HOSE AND EXHAUST HOSE**

### ◆ AIR HOSE

- (1) Attach air hose into outlet fitting of air unit and inlet fitting of spindle (see Figure 7-8).



- (2) Press hose firmly into fittings. Fitting are spring loaded. Hose can be removed by depressing lip of fitting.

◆ **EXHAUST HOSE** ( Be suitable for the spindle of AT16/I~AT30/I ) (see Figure 7-9)

- (1) Attach exhaust hose into exhaust fitting of spindle and tapping arm.
- (2) Secure in position with clamps.

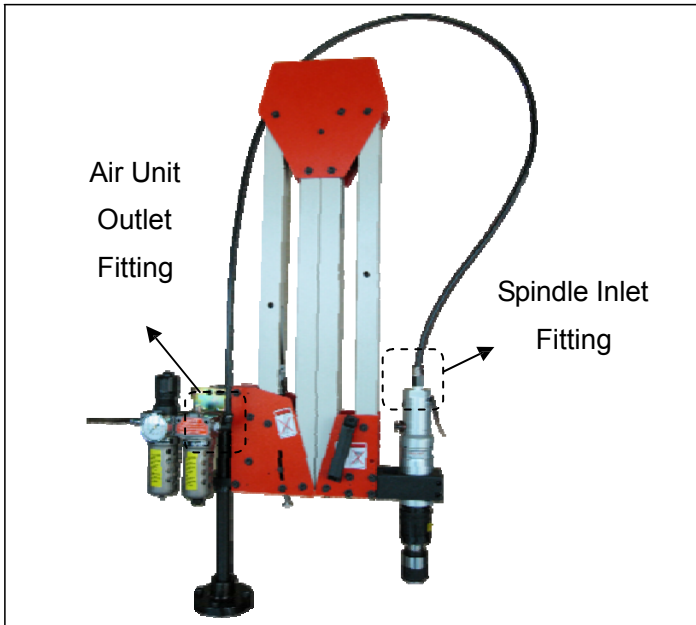


Figure 7-8

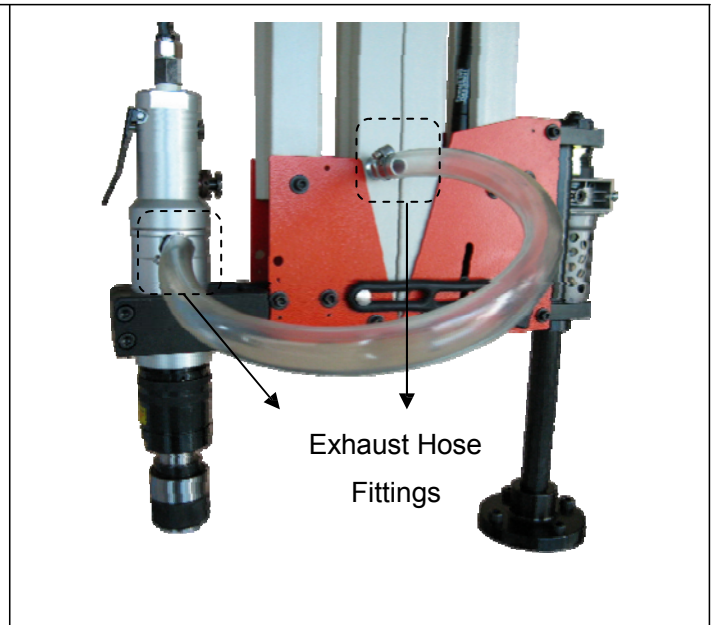


Figure 7-9

## 7. PREPARATION BEFORE OPERATION

### A. ADJUSTMENT OF AIR UNIT

ⓘ Lacking of oil will cause the parts of spindle get damaging easily in a short time. ⓘ

- (1) Add lubricant to the air unit body. Unscrew the oil filling plug and add approximately 8-10 ounces of oil. Replace plug and tighten securely. The oil filling plug has to be closed to original situation (see Figure 8-1).
- (2) Recommended lubricant : ISO VG22, CPC Circulation Oil R32
- (3) Pull the adjustment knob up and adjust air pressure to 7~9 kgf/cm<sup>2</sup>. Turn the adjustment knob clockwise to increase the pressure and counter clockwise to reduce the pressure. After adjusting the pressure, press the knob down into its locked position to prevent accidental setting change (see Figure 8-1).
- (4) Depress and hold the operation lever of the spindle. While the spindle is operating, check the oil flow rate through the sight glass on top of the air unit body. The air unit should operate 3-5 drops/minute. Rotate the oil adjusting screw clockwise to decrease the oil flow rate; counterclockwise to increase the oil flow rate (see Figure 8-1 and 8-2).

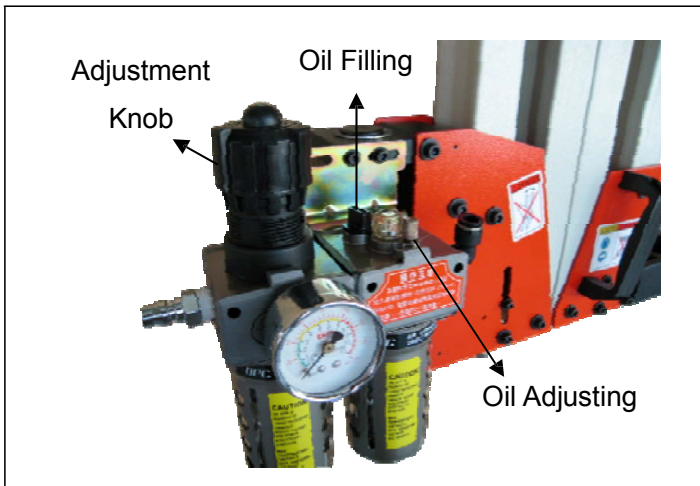


Figure 8-1

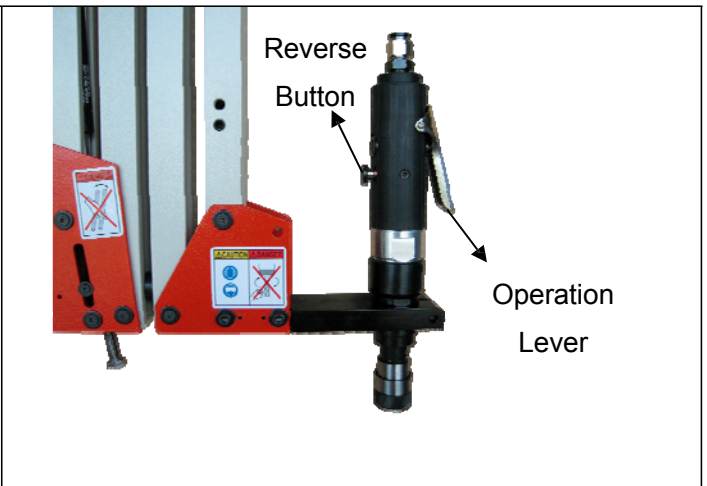


Figure 8-2

**Caution :**

- Do not exceed 9.5 kgf/cm<sup>2</sup>. It will cause bursting of the filter and lubricator bowls.
- Keep the pressure over 5 kgf/cm<sup>2</sup> when operation.
- The valve opens automatically and discharges water or dist when air pressure is under 0.7 kgf/cm<sup>2</sup>. It will automatically close when it is over 1.2 kgf/cm<sup>2</sup>, and also can be also operated manually (see Figure 8-3).

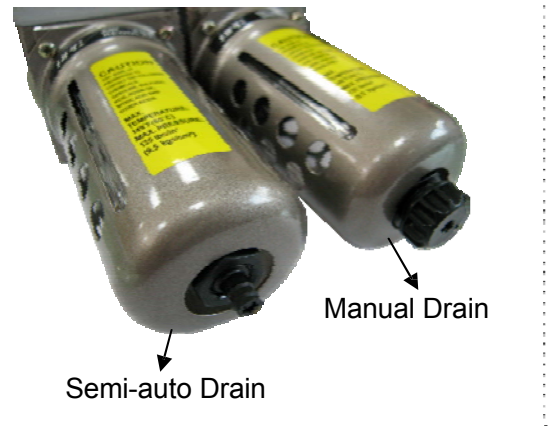


Figure 8-3

**B. ATTACH THE TAP AND TAP HOLDER**

- (1) Slide tap into tap holder until tap locks in place. Tap can be removed by simultaneously depressing flange and pulling out tap (see Figure 8-4).
- (2) Insert tap holder with tap into spindle. Pull up tap holder sleeve, insert tap holder with tabs aligned to slots in tap holder sleeve, and then release sleeve (see Figure 8-5).

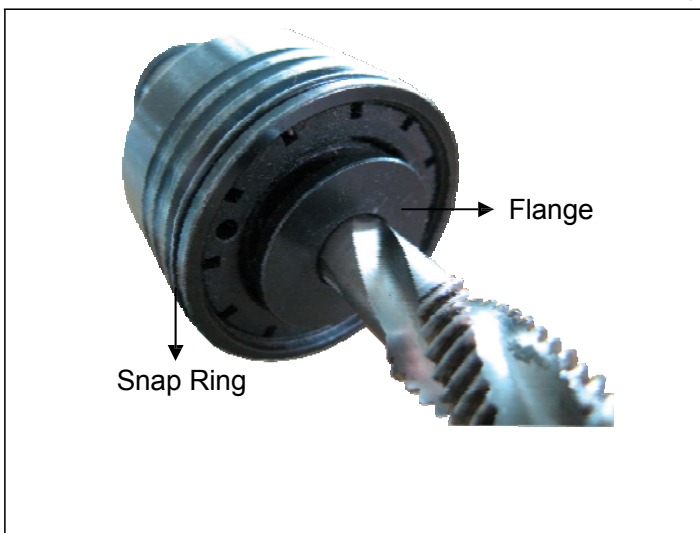


Figure 8-4

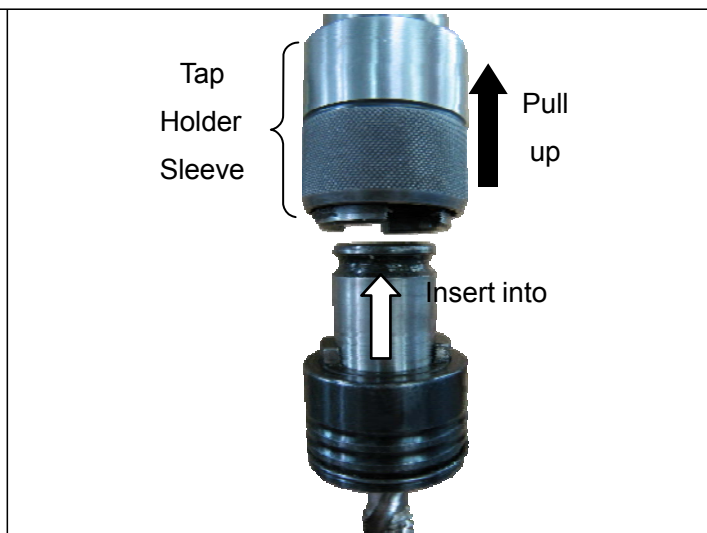


Figure 8-5



## C. ADJUST SPEED OF SPINDLE

- **AT-08/I & AT-12/I**

Spindle speed can be changed by using flathead screwdriver (see Figure 8-6).

- **AT-16/I** (This model cannot be changed speed.)

- **AT-20/I ~ AT-30/I** (Refer to Figure 8-7)

ⓘ Caution: Never change speed while spindle is in operation. ⓘ

- (1) These models have two speeds. It can be changed by grasping sleeve, pulling downward so that pin is out of the notch in the body, rotating sleeve to the other notch and then releasing the sleeve so that pin seats in the notch.
- (2) Rotate sleeve to seat the pin in the notch. Turn the sleeve clockwise to increase the speed and counter clockwise to reduce the speed.

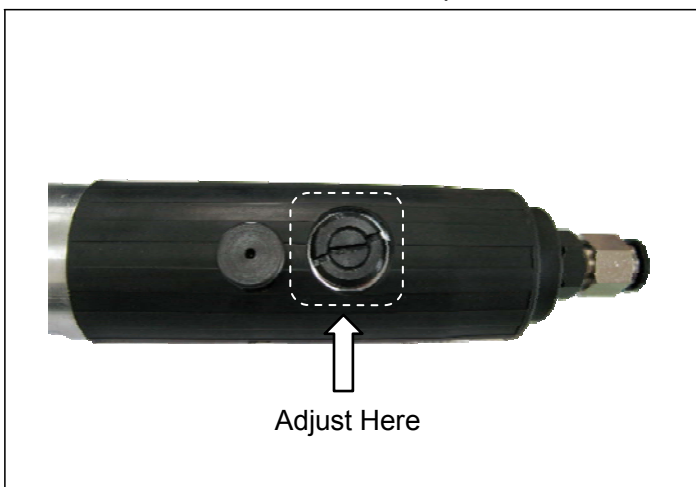


Figure 8-6

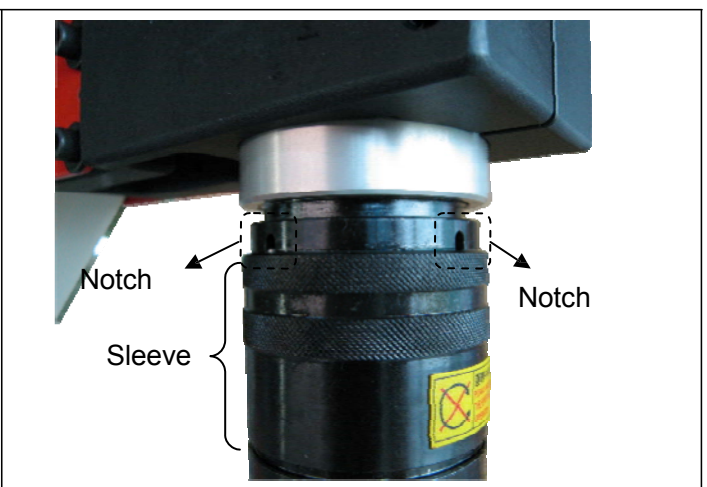


Figure 8-7

## 8. OPERATION

- Take the spindle with tap to the hole to be tapped and place the tip of the tap on the hole.
- Press the operation lever. The tap will self-center and begin tapping. Let the tap arm guide the tap into the hole.
- After tapping to the required depth, press the reverse button while also depressing the operating lever. The tap will reverse out from the hole (see Figure 8-2).

**Caution:**

**If the tap holder “clicks” or “ratchets”, the tap holder clutch torsion needs to be adjusted.**

- (1) Remove the spring clip from the groove of the tap holder (see Figure 8-4).
- (2) Use the tools to adjust the torsion as Figure 9-1.
- (3) Rotate notched nut clockwise to increase torsion, counterclockwise to decrease torsion (see Figure 9-2).
- (4) Replace spring clip into groove of the tap holder.

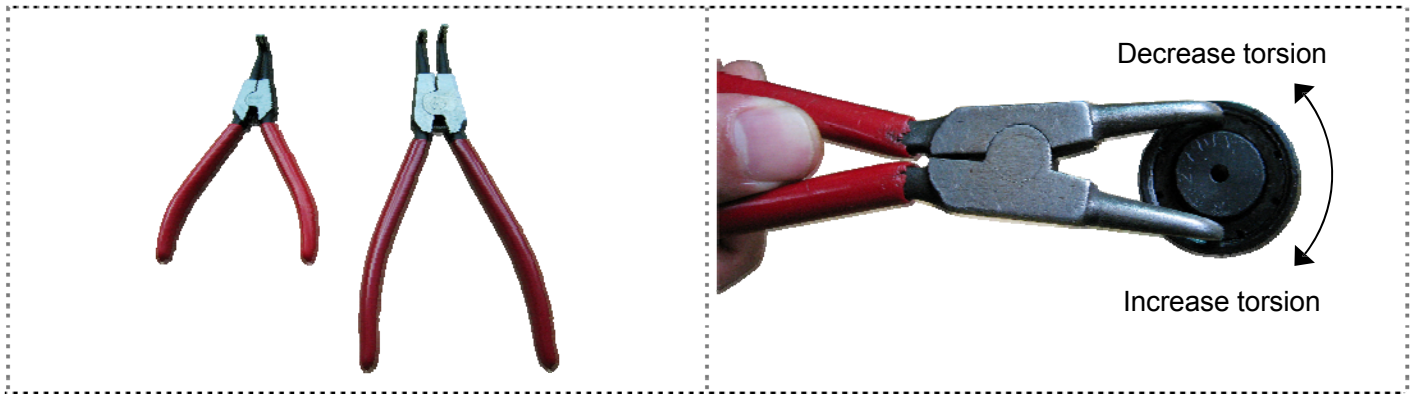


Figure 9-1

Figure 9-2

## 9. MAINTENANCE

- A. Always unplug tool prior to inspection.
- B. Do not adjust, remove or maintain tool in operation.
- C. Consult manual for specific maintaining and adjusting procedures.
- D. Keep tool lubricated and clean for safest operation.
- E. Remove adjusting tools. Form habit of checking to see that adjusting tools are removed before switching machine on.
- F. Check for damaged parts. It may affect a tool's operation.
- G. Damaged parts should be properly repaired or replaced. Do not perform makeshift repairs.
- H. Never brush away chips while the machine is in operation. All clean up should be done when the machine is stopped.
- I. Never modify machine without consulting manufacturer.
- J. Use sharp cutters and keep the tool clean for safest operation.

## 10. NOTICE FOR USING TOOLS

- A. Keep visitors at a safe distance from work area.
- B. Keep children out of workplace.
- C. All workpieces must be clamped to work table when using tapping machine. It is unsafe to use your hands to hold any workpiece.
- D. Avoid accidental start-up. Make sure that tool switch is in OFF position before connection to air supply.
- E. Do not force tool. It will work most efficiently at the rate for which it was designed.
- F. Keep hands away from moving parts. Protect hands from possible injury.
- G. Never leave a tool running unattended. Turn the power off and do not leave tool until comes o a complete stop.
- H. Do not use tool for a long time. Please take a rest for 5-10 minutes after using one hour.

## 11. TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Clutch slips and tap will not turn	Tap holder clutch torsion needs to be adjusted.	Adjust tap holder torsion (see Figure 9-1 and 9-2)
	Not tap lubrication	Apply lubrication to tap
	Dull tap	Replace tap
	Hole and tap misaligned	Reposition tap arm
	Hole diameter too small	Enlarge hole
	Wrong tap for workpiece materials	Replace tap
Spindle does not turn or stops	Check air supply pressure	Adjust pressure between 7~9 kgf/cm
	Excessive pressure drop	Keep air supply compressor over 5 HP
	Insufficient lubrication	Make sure oil flow rate from air unit is 3-5 drops per minute
	Clogged spindle exhaust filter	Clean or replace filter
	Clogged air unit	Clean or replace air unit
	Worn rotor blade	Replace rotor blade
	Spindle inner parts too dry	Add lubricant into spindle
Stretch arm drops or is difficult to move	Workpiece material with hardness	According to the hardness, upgrade bigger capacity spindle
	Worn air spring	Replace air spring (Air spring is a consumable product.)
Spindle body is hot	1. massive tapping 2. Use spindle for a long time	1. Prepare another spindle to exchange 2. Let your spindle rest for 5-10 minutes  <b>Caution:</b> Keep using a hot spindle will cause the spindle gear lubricant evaporating and break easily.

