

Air Motor

AM-2526 • AM-H2526

OPERATION MANUAL



OM-K0428E 001

Thank you for purchasing the Air Motor AM-2526 • AM-H2526. The Spindle and Air Line Kit are required to drive these motor.

Read this Motor, Spindle and Air Line Kit Operation Manuals carefully before use.

1. CAUTIONS FOR HANDLING AND OPERATION

- Read these warnings and cautions carefully and only use in the manner intended.
- These warnings and cautions are intended to avoid potential hazards that could result in personal injury or damage to the device. These are classified as follows in accordance with the seriousness of the risk.

Class	Degree of Risk
 WARNING	A safety hazard could result in bodily injury or damage to the device if the safety instructions are not properly followed.
 CAUTION	A hazard that could result in light or moderate bodily injury or damage to the device if the safety instructions are not followed.

WARNING

- ① The motor is not a hand tool. It is designed to be used on CNC machines or special purpose machines.
- ② Do not touch the cutting tool while it is running. It is very dangerous.
- ③ Wear safety glasses, dust mask, and use a protective cover around the motor whenever the motor is rotating.
- ④ Never operate or handle the motor until you have thoroughly read the owner's manual and safe operation has been confirmed.
 - (1) To prevent injuries / damages, check the motor for proper installation, before operating the motor.
 - (2) Before disconnecting the motor, always turn the control power off and turn the compressed air off. Then it is safe to remove the motor.

CAUTION

- ① Do not drop or hit the motor, as shock can damage to the internal components.
- ② When cleaning a motor, stop the motor and remove debris with a soft brush or a cloth. Do not blow air into the motor with compressed air as foreign particles or cutting debris may get into the ball bearing.
- ③ Stop working immediately when abnormal rotation or unusual vibrations are observed. If vibrations occur, please check the content of section 7 "TROUBLESHOOTING".
- ④ After installation, repair, initial operation, or long periods of non operation, please carry out break-in as follow. Start rotating slowly and over a short period of time, increase speed gradually until allowable maximum speed.
- ⑤ Do not disassemble, modify or attempt to repair the motor. Additional damage will occur to the internal components. Service must be performed by NSK NAKANISHI or an authorized service center.

⚠ CAUTION

- ⑥ When using the motor for mass production, please purchase another motor as a spare in case of emergency.
- ⑦ Drain and clean the air filter regularly. Water and dirt in the air filter may cause damage to the motor.
- ⑧ A lubricator is regulated to avoid drops in motor speed or decreasing motor life.
- ⑨ When the oil volume in the lubricator is low, this may cause damage to the motor life.

2. FEATURES

- ① With the air system, the AM-2526/AM-H2526 has very low heat generation allowing for long term continuous operation.
- ② Silencer with the air motor keeps noise to a minimum.
- ③ The air motor housing is made from precision ground, hardened, stainless steel (SUS) with an outside diameter of ϕ 25mm (AM-2526) / ϕ 25.4mm (AM-H2526).

3. SPECIFICATIONS AND DIMENSIONS

3 - 1 Specifications

Model	AM-2526 (R/L)	AM-H2526 (R/L)	AM-2526 (RA/LA)	AM-H2526 (RA/LA)
Appropriate Air Pressure	0.3 ~ 0.5MPa			
Motor speed (At 0.5MPa air pressure)	24,000min ⁻¹		22,000min ⁻¹	
Air Consumption	205Nℓ/min		170Nℓ/min	
Hose Diameter	Inlet I.D. ϕ 4.5mm × ϕ O.D. ϕ 6.7mm 2m Outlet I.D. ϕ 5.5mm × ϕ O.D. ϕ 7.5mm 1m		Inlet I.D. ϕ 4.0mm × ϕ O.D. ϕ 6.0mm 2m Outlet I.D. ϕ 5.5mm × ϕ O.D. ϕ 8.0mm 1m	

⚠ CAUTION

The standard length of air inlet hose is 2m, and outlet air hose is 1m. When the hose is longer than the standard length, the rotating speed is decreased.

Standard Accessories	
AM-2526 (R/L) • AM-H2526 (R/L)	AM-2526 (RA/LA) • AM-H2526 (RA/LA)
<ul style="list-style-type: none"> • Silencer (K-208) • • 1pc. • Hose (K-204 : Air Inlet 2 m, Air Outlet 1 m) • • 1pc. • Filter Joint (FJ-02) • • 1pc. 	<ul style="list-style-type: none"> • Silencer (K-209) • • 1pc. • Hose (K-215 : Air Inlet 2 m) • • 1pc. • Hose (K-216 : Air Outlet 1 m) • • 1pc. • Filter Joint (FJ-01) • • 1pc.
<ul style="list-style-type: none"> • Wrench (22 × 27) • • 1pc. 	<ul style="list-style-type: none"> • Operation Manual • • 1set.

※ The Silencer and Filter Joint are attached to the Hose.

3 - 2 Outside View

① AM-2526 (R/L)

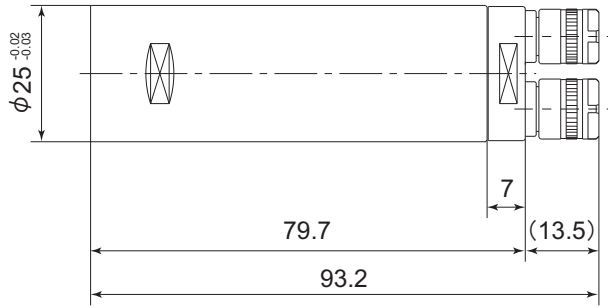


Fig. 1

② AM-H2526 (R/L)

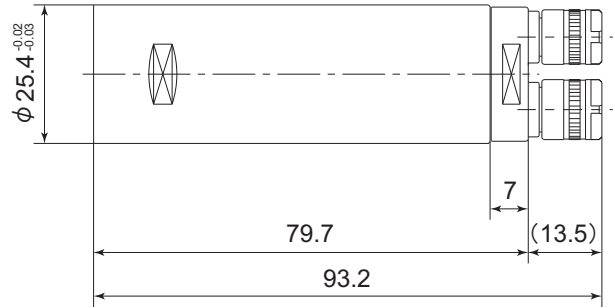


Fig. 2

③ AM-2526 (RA/LA)

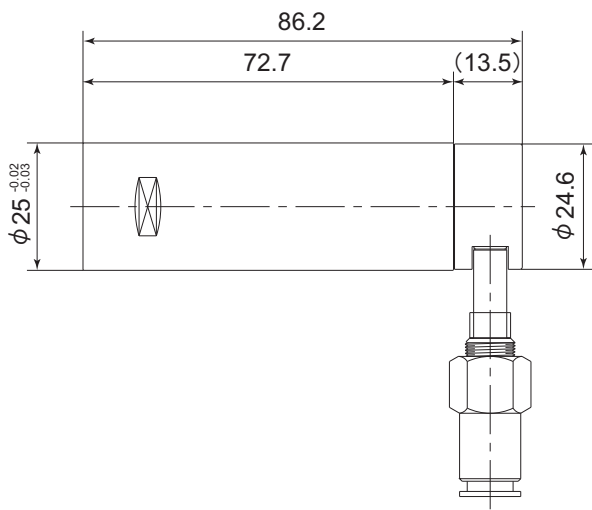


Fig. 3

④ AM-H2526 (RA/LA)

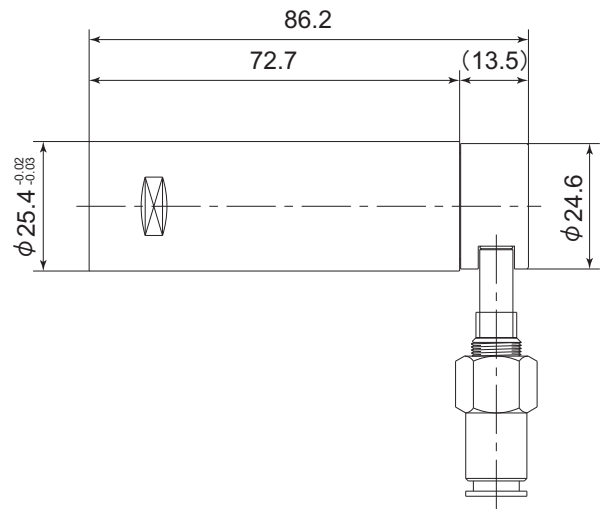


Fig. 4

4. CONNECTION TO THE SPINDLE

⚠ CAUTION

- Make sure your hands and all interlocking parts of the motor and spindle are clean before connecting the spindle to the motor. This is critical to prevent contaminants from entering the motor or spindle.
- The new drive clutch is (+) configuration. The (+) drive motors were designed to be used with (+) drive spindles and speed reducers.

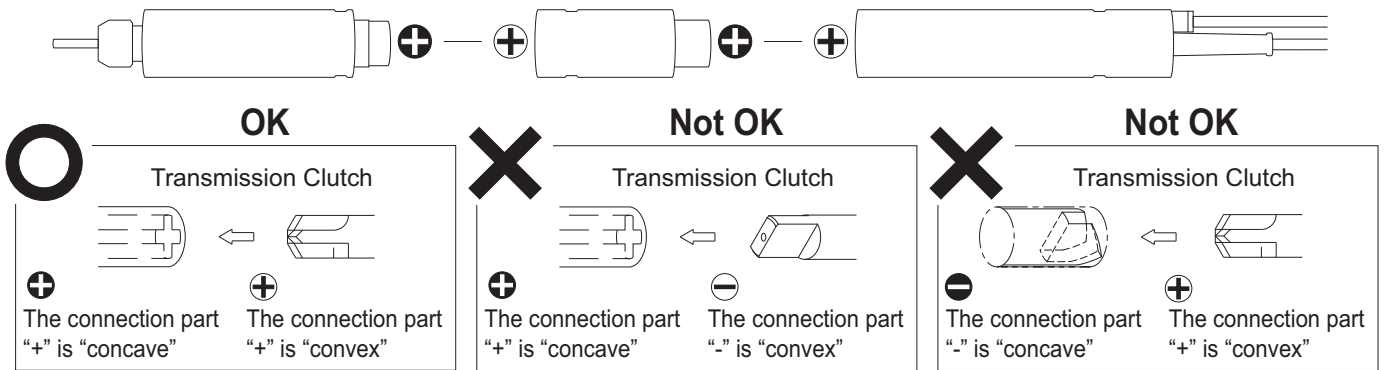


Fig. 5

Align the threads on the front end of the motor and the rear end of the spindle, and turn the spindle clockwise. If the drive shaft of the motor does not engage the drive dog on the spindle, the spindle could not be turned. **DO NOT FORCE.** Turn the spindle back a few threads, rotate the cutting tool by hand to engage the drive shaft and the drive dog, and make the final turns with provided 22mm wrench.

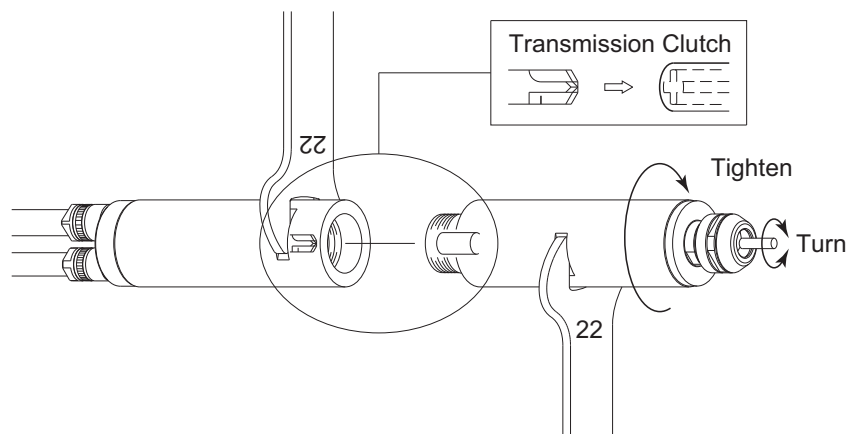


Fig. 6

5. CONNECTION OF AIR LINE KIT

⚠ CAUTION

NAKANISHI's lubricators deliver approximately 3% of the visible drip rate into the air line, but air flow and oil viscosity could affect this rate. Please adjust the oil drip rate so that a full oil bowl depletes from the upper gauge to the downer gauge (Approximately 40cc) in 40 - 50 hours.

- ① Connect the Filter Joint at the end of the Air Intake Hose of the air motor to the easy connection joint.
- ② Fill oil reservoir through the Oil Filler Cap with recommended NAKANISHI oil (liquid paraffin ISO VG15) to upper limit on the Reservoir. Disconnect from air supply prior to opening Oil Filler Cap. Do not over or under fill.
- ③ Put the hose for air piping to the connector for air hose.
- ④ Attach the reversed side of the hose for air piping to the air compressor.
- ⑤ Supply air from the air compressor and turn regulator knob clockwise (clockwise=high) to set air pressure between 0.3 - 0.5MPa.
- ⑥ Run the motor at the proper pressure. Close the Oil Drip Rate Adjusting Screw by turning counterclockwise and then turn Oil Drip Rate Adjusting Screw clockwise to adjust drip rate to 30-40 drops/min. (If you're not using an NAKANISHI lubricator, adjust between 1-3 drops/min.)

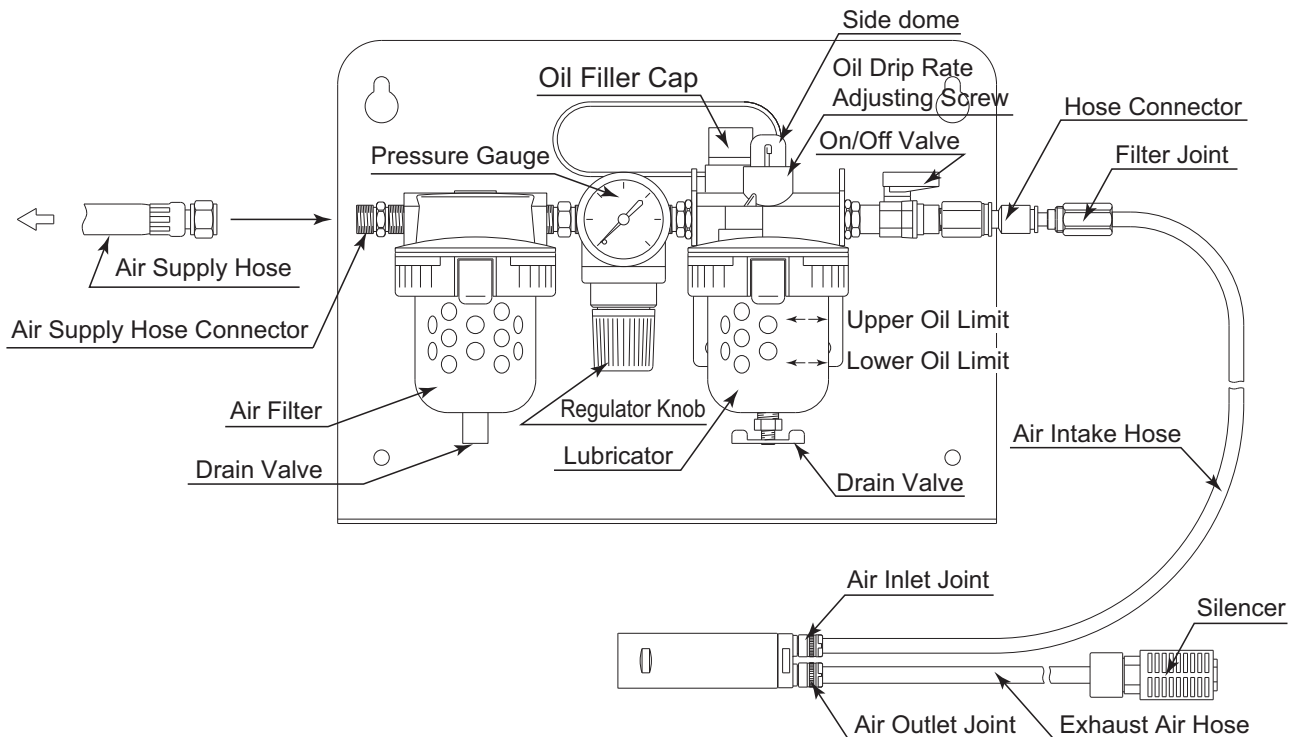


Fig. 7

⚠ CAUTION

- ① These motors require a clean, dry air supply to the air line kit for proper operation. Please connect an air filter and / or dryer between the compressor and NAKANISHI's air line kit to ensure a clean, dry air supply. Mount the air line kit as close as possible to the spindle to ensure a constant oil supply. In high humidity areas please use a large capacity filter and / or dryer to ensure years of trouble free operation.
- ② Check that all hose connections are secure and strong to avoid accidental disconnection during operation. Do not exceed 1.0MPa for incoming air pressure to the air line kit. In coming air pressure from the compressor in excess of 1.0MPa may cause the air hose to burst.
- ③ About connection, operation and cautions of air line kit, refer to "air line kit Operation Manual".

6. AIR LINE KIT INSTALLATION AND OPERATION

⚠ CAUTION

When adding or removing oil, be sure to disconnect the incoming air supply from the Compressor, prior to opening the Oil Filler Cap.

① Oil Volume

Check the oil volume at least once a week. If the oil level is low, fill to the upper limit. If the oil level is above the upper limit, remove the excess oil. Take care not to over or under fill the oil reservoir as this can cause the oil delivery rate to vary (Fig. 8).

② Moisture in the Air Filter

Drain moisture from the Air Filter by pushing the Drain Valve sideways (Fig. 9).

③ Adjusting the Oil Drip Rate

Run the motor/spindle at the specified air pressure and adjust the oil drip rate to the recommended rate by turning the Oil Drip Rate Adjusting Screw. (About 30 to 40 drops/min) Turn the screw counterclockwise to increase the rate and clockwise to decrease. (Fig. 10)

When using non-NAKANISHI lubricator, adjust the oil drip rate to about 1-3 drops/min.

④ Remove Oil and Moisture Regularly

Remove and replace the oil in the Reservoir once a month, to ensure a pure oil source for the motor. Moisture may collect and mix with the oil in the Reservoir and damage the motor. Open the Drain Valve at the bottom of the reservoir by turning it counterclockwise (Fig.11).

⑤ Oil

Liquid paraffin ISO VG15 is recommended.

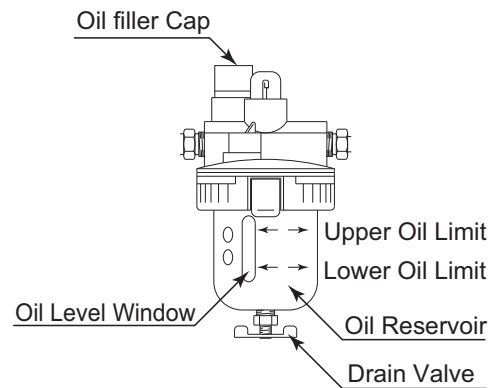


Fig. 8

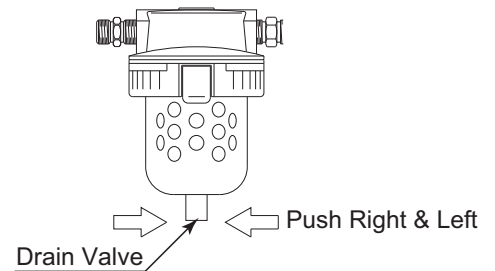


Fig. 9

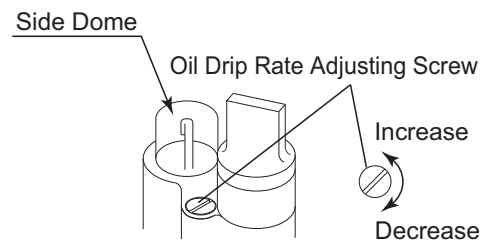


Fig. 10

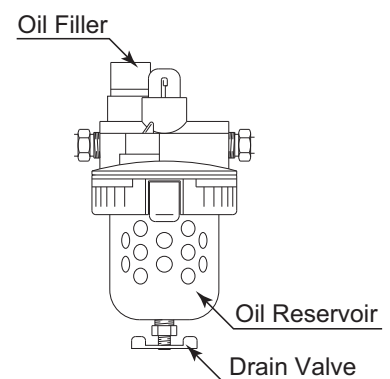




Fig. 11

7. TROUBLESHOOTING

If a problem or concern occurs, please check the following prior to consulting your dealer.

Trouble	Cause	Inspection/Corrective Action
Motor does not run.	Air flow does not reach the spindle.	Check air hoses for cracks, kinks, or disconnection.
		Check connection of air hoses.
		Check source of compressed air.
		Air pressure regulator turned to low pressure. Set proper air pressure.
	Damage to the ball bearing.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
Damage to the motor.	Replace the motor. (Return to NAKANISHI dealer service.)	
Motor speed decrease.	Damage to air hose.	Replace air hose.
	Bad connection of air hose.	Check the connection part and retighten the thread.
	Poor air flow and air pressure.	Check if the air circuit is damaged.
	Low lubricant.	Check lubricator for proper lubricant level. Set lubricant drip rate from 30 to 40 drops/min. If using a non-NAKANISHI lubricator, adjust lubricant drip rate from 1 to 3 drops/min.
	No lubricant.	Clean inside of the motor with oil. Remove filter joint from air line kit, and lubricate inside of joint directly. Afterwards, supply air and rotate. Flush dirt in the motor. Repeatedly do this work about three times. When the improvement is not seen, return to NAKANISHI dealer service.
	Water in air filter.	Drain water from air filter.
Water in lubricant reservoir	Drain water from lubricant reservoir, and replace with clean lubricant.	
Unequal motor speed.	Lubricator inclined or upside down. 	Inclined or upside down lubricator will flood spindle with lubricant.
	Over filled lubricator. 	Drain lubricant from reservoir to within indicated levels. Excess lubricant will flood spindle.

NAKANISHI INC.  www.nakanishi-inc.com

700 Shimohinata, Kanuma, Tochigi 322-8666, Japan

Contents are subject to change without notice.

NSK America Corp www.nskamericacorp.com

1800 Global Parkway, Hoffman Estates, IL 60192, USA