

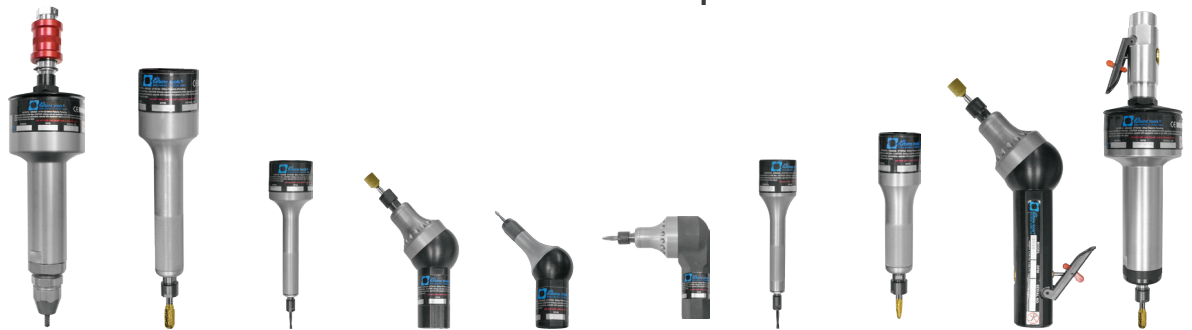


The tools of a new generation™

# USER NOTES AND SETUP GUIDE

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**Read Thoroughly Before Use**

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**WARNING**

Do not clamp Air Turbine Tool® hand tools into a fixture. This will cause distortion in the bearing race, damaging the tool and voiding the warranty.

## Key Points for Successful Operation

1. Eliminate flow restrictions in your airline. Check if the minimum internal diameter of your hose and fittings meets the requirements for your Air Turbine Tool® as specified on **figure 2 on page 2**.
2. Ensure a 0.3 micron air filter/regulator is installed. Set the regulator between 90 psi (6.2 bar) to 100 psi (6.9 bar). Air pressure exceeding 100 psi (7 bar) must not be used.
3. Check for and repair any air leaks and obstructions.
4. Use the air flow meter to check the CFM (L/s) air flow volume to your Air Turbine Tool® at the air inlet port to ensure the air flow volume and pressure meets the specifications as stated in **figure 3 on page 3**.
5. If your Air Turbine Tool® has underpowered performance, check the psi (bar) pressure using the air filter/regulator gauge to see if the pressure drops below 90 psi (6.2 bar). If the gauge dial indicates that there is less than 90 psi (6.2 bar) pressure:
  - › Check internal diameters of all couplings/connectors/hoses for restrictions on air flow.
  - › Review compressor operation to turn up minimum psi (bar). If your default compressor settings allow psi/bar to drop down to ~80 or 85 psi (5.5 or 5.9 bar), then it is necessary to build up pressure before you turn the compressor on. An extra holding tank may be required.



**WARNING**

Your Air Turbine Tool® must be run at least 10 minutes every 30 days from manufacture date to maintain optimal performance.



## Always Operate in Compliance With the Following

1. Safety code for portable air tools - ANSI 186.1, etc. Always use eye + face protection.
2. General industry safety & health regulations, part 1910 and 2206 OSHA, etc.
3. Federal, state and local regulations and laws in your country.
4. Cutting tool manufacturers operating instructions. Ensure your cutting tool is rated for the rotational speed you are using. Your tool must be balanced and truly concentric. Incorrect tool selection results in unbalanced rotation or overloading, which will result in stress on the bearings and premature failure. The stick-out extension length of the cutting tool from your collet should optimally be no more than 3 times the diameter of your cutting tool.



**WARNING**

Failure to comply with all safety regulations could result in serious injury.




For further assistance call our factory technicians for support at +1-561-994-0500 or email us at [ask@airturbinetools.com](mailto:ask@airturbinetools.com).

**Read all instructions thoroughly before installation and use.**

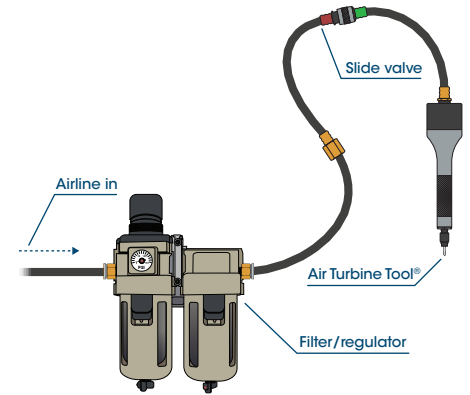
### Initial Installation

Install a new dedicated clean air line from a filter/regulator to your Air Turbine Tool® as shown in **figure 1**. A 0.3 micron filter/regulator/extractor combination is a **highly recommended** accessory to operate Air Turbine Tools to eliminate all impurities in your air supply. **Never clamp your Air Turbine Tool® hand tool into a fixture.**

Filter/regulator/extractors and replacement elements are available on our website, refer to **figure 4 on page 4** to determine which filter/regulator/extractor is compatible with your model.



**WARNING**  
For SV units, ensure that the slide valve is in the 'Off' position before connecting the air supply.



**Figure 1:** A clean airline from a filter/regulator to an Air Turbine hand tool with slide valve.

### Air Hoses and Fittings Requirements

Avoid fittings, couplings and hoses with a smaller internal diameter than the minimum required for your model. Any connections smaller than the minimum will restrict air flow and reduce power to your Air Turbine Tool®. You can find the minimum required internal diameter (ID) for fittings and hoses for your tool on the table shown in **figure 2**.

Air flow restrictions (such as air leaks and obstructions) will cause underpowered performance and drag your tool through the material, damaging the bearings. **Some fittings with nominal internal dimensions may have an ID passage that is smaller than stated and restrict air flow and power.** It only takes one fitting with an internal diameter that is too small to reduce air flow and power of your Air Turbine Tool®.

### General Air Fitting Dimensions

- › **1/4" male > ID** - Usually 0.210" but some variations occur.
- › **1/4" male (high flow, harbor) ID** - 0.277" with 1/4" NPT male thread.
- › **3/8" male hole** - 0.283" to 0.285" with thread of 3/8" - NPT (internal ID of female mating OD appears even smaller ID).
- › **1/2" male hole** - 0.375" (0.655" OD).

### General Hoses

Actual internal diameter on brass fittings (i.e. swaged on ends) of standard Goodyear, etc. brands of 1/2" & 3/8" hose have various internal dimensions. As an example, Goodyear 1/2" Red hose with 3/8" / 9.5 mm NPT fitting has an internal diameter hole of 0.282", which is sufficient for models that require a minimum ID of 6 mm, but not for models that require a minimum ID of 8 mm. Goodyear black 3/8" / 9.5 mm hose has internal diameter hole on swaged fittings of ~0.265" and is suitable for models requiring a 6 mm ID or smaller.

| Hose/Connector Minimum Required Internal Diameter |         |          |          |
|---|---------|----------|----------|
| Model   |         | Metric   | Imperial |
| › 200   | › 0140  | 4.763 mm | 3/16"    |
| › 201   |         |          |          |
| › 202   | › 2590  | 6 mm     | 15/64"   |
| › 206X  | › 2545  |          |          |
| › 525   |         |          |          |
| › 525X  | › 310R  | 8 mm     | 5/16"    |
| › 230DM   | › 303RX |          |          |
| › 310RX   |         | 10 mm    | 25/64"   |

**Figure 2:** Air Turbine Tools® hose /fitting /connector internal diameter specifications.





### Air Requirements

Do not oil or lubricate. Use dry, clean, oil free 90 psi (6.2 bar) air supply only.

Ensure there is sufficient volume of clean compressed air flow at **90 psi/6.2 bar** with the specified air flow volume CFM (L/s) for your model as shown in **figure 3** to maintain working air consumption. Our governor increases air flow volume on demand to keep rotation at the high speed when your tool starts to cut. **Air pressure and flow volume must therefore be available on demand and remain constant with no drop over time or when cutting.**

Avoid pressure below 90 psi (6.2 bar), which causes the tool to be dragged through the material, causing rapid bearing wear and underpowered performance. Do not use more than 100 psi (6.9 bar) pressure which will burst the turbine power producer.

Air pressure and flow must remain constant with no drops under cutting load. Insufficient flow will cause the rotation of your tool to slow or stop suddenly, damaging the bearings. If a drop in psi (bar) occurs below 90 psi (6.2 bar), your compressor may not have enough CFM (L/s) to power the Air Turbine Tool® or there is a flow restriction in the air line.



**WARNING**  
Always use proper eye protection while operating your Air Turbine Tool®.

### Idle CFM/L/s Rating vs. Working Air Consumption Ratings

Air Turbine Tools® consume more air as the cutting load or the amount of material removed increases. This is normal operation of our patented governor which maintains high speed on your tool path and makes Air Turbine Tools® efficient in air consumption.



| Air Turbine Tools® Idle and Working Air Consumption Ratings |            |                      |  |
|---|------------|----------------------|--|
| Model   | Speed      | Air Consumption Idle | Air Consumption Working Flow               |
| › 0145SSV   | 40,000 RPM | 3.2 CFM (1.51 L/s)   | 4.7 CFM - 7 CFM<br>(2.22 L/s - 3.3 L/s)    |
|   | 50,000 RPM |                      |  |
|   | 65,000 RPM | 4 CFM (1.89 L/s)     |  |
| › 200SV   | 50,000 RPM | 4 CFM (1.89 L/s)     | 6 CFM - 9 CFM<br>(2.22 L/s - 4.24 L/s)     |
| › 201   | 40,000 RPM | 3 CFM (1.41 L/s)     | 4.8 CFM - 7 CFM<br>(2.27 L/s - 4.24 L/s)   |
|   | 50,000 RPM | 4 CFM (1.89 L/s)     |  |
|   | 65,000 RPM | 5 CFM (2.36 L/s)     |  |
| › 202   | 30,000 RPM | 10 CFM (4.72 L/s)    | 11 CFM - 20 CFM<br>(5.19 L/s - 9.44 L/s)   |
|   | 40,000 RPM | 13 CFM (6.14 L/s)    |  |
|   | 65,000 RPM | 14 CFM (6.61 L/s)    |  |
| › 2545<br>› 2590  | 30,000 RPM | 10 CFM (4.72 L/s)    | 11 CFM - 20 CFM<br>(5.19 L/s - 9.44 L/s)   |
|   | 40,000 RPM | 13 CFM (6.14 L/s)    |  |
| › 206X  | 40,000 RPM | 6 CFM (2.83 L/s)     | 7 CFM - 10 CFM<br>(3.3 L/s - 4.27 L/s)     |
|   | 50,000 RPM |                      |  |
| › 525   | 30,000 RPM | 12 CFM (5.66 L/s)    | 12 CFM - 20 CFM<br>(5.66 L/s - 9.44 L/s)   |
|   | 40,000 RPM | 16 CFM (7.55 L/s)    |  |
| › 525X  | 30,000 RPM | 19 CFM (8.97 L/s)    | 22 CFM - 30 CFM<br>(10.38 L/s - 14.16 L/s) |
|   | 40,000 RPM | 20 CFM (9.44 L/s)    |  |
| › 230DM<br>› 310R   | 25,000 RPM | 13 CFM (6.14 L/s)    | 14 CFM - 35 CFM<br>(6.61 L/s - 16.52 L/s)  |
|   | 30,000 RPM | 18 CFM (8.49 L/s)    |  |
|   | 40,000 RPM |                      |  |
| › 310RX   | 25,000 RPM | 14 CFM (6.61 L/s)    | 19 CFM - 40 CFM<br>(8.97 L/s - 18.89 L/s)  |
|   | 30,000 RPM | 20 CFM (9.44 L/s)    |  |
|   | 40,000 RPM | 23 CFM (10.85 L/s)   |  |

Figure 3: Idle CFM (L/s) and working air consumption ratings.

## Maintenance

### Run The Tool Once A Month

Your Air Turbine Tool® must be run at least 10 minutes every 30 days from manufacture date to maintain optimal performance. Run at least 10 minutes before initial use. This will ensure the bearing lubrication does not solidify.

**WARNING**  
Do not oil or lubricate Air Turbine Tools®. Use dry, clean, oil free 90 psi (6.2 bar) air supply only.



### Maintaining Your Air Supply

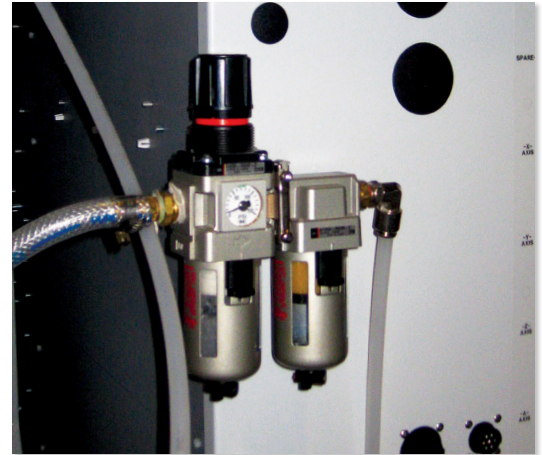
The airline must be impeccably clean with no coupling or hose smaller than the minimum internal diameter required for your model as described in figure 2 on page 2 so that air flow volume is unrestricted.

**Purge the airline of contamination before each use.**

A 0.3 micron filter/regulator/extractor combination is a **highly recommended** accessory to operate Air Turbine Tools® to eliminate all impurities in your air supply.

Contamination of your turbine components will damage your turbine and require repair. **Filter elements need to be changed periodically and the regulator and extractor must be drained in regular maintenance cycles.**

Filter/regulator/extractors and replacement elements are available on our website. Refer to figure 4 to learn compatible filter/regulator/extractors for your model.



| Recommended Filter/Regulator/Extractors            |             |                               |
|--|-------------|-------------------------------|
| Model  | Part Number | Compatible Models             |
| Low Flow Filter                                    | 30002       | › 0145 › 201<br>› 200SV       |
| Low Flow Filter/Regulator                          | 30001       |                               |
| High Flow Filter                                   | 30004       | › 202 › 525<br>› 525X › 230DM |
| High Flow Filter/Regulator                         | 30003       | › 206X › 2545<br>› 2590       |
| High Flow Filter/Regulator/Extractor               | 30008       |                               |
| High Flow Filter/Regulator/Extractor with 1/2" NPT | 30084       | › 310R › 310RX                |

Figure 4: Compatible filter/regulator/extractors for each model of Air Turbine Tools®.



### Operation

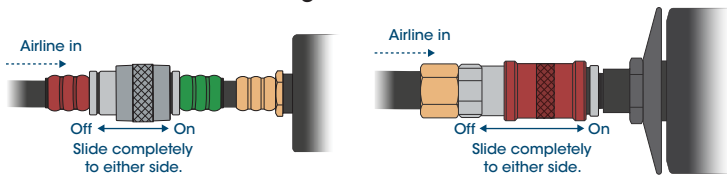
**Always monitor the air pressure gauge during operation** of your Air Turbine Tool®. All tools are tested and rated to be within 10% of the designated speed. Do not try to cut too aggressively. You will overload your turbine causing your cutting tool to stall or drag in the material. Dragging your tool on the work or a sudden stop will cause stress to the bearings and force the grease out, causing premature failure.

**WARNING**  
**Purge the line of contamination and run for at least 10 minutes before initial use to ensure the bearing lubrication does not solidify.**

#### Select The Correct Cutting Tool

Ensure your cutting tool is rated for the rotational speed you are using. **Your tool must be balanced and truly concentric to operate at the high speed of Air Turbine Tools®.** Incorrect tool selection results in unbalanced rotation or overloading, which will result in stress on the bearings and premature failure.

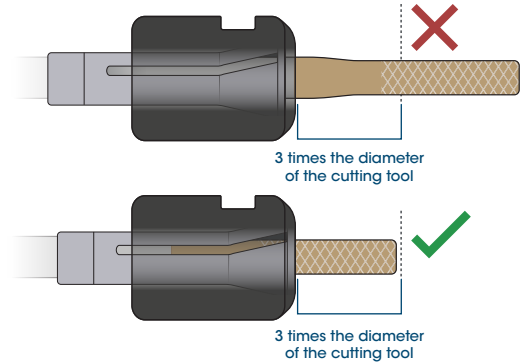
The stick-out extension length of the cutting tool from your collet should be no more than 3 times the diameter of the cutting tool from the collet as shown in **figure 5**.



**Figure 6:** Using the slide valve in SV models to turn the Air Turbine Tool® on or off.

| Air Turbine Tools® HAVS Exposure Limits and Vibration Statistics |  |  |                             |
|--|--|--|-----------------------------|
| Models   | Time to Reach EAV<br>2.5 m/s <sup>2</sup> A(8) | Time to Reach ELV<br>5 m/s <sup>2</sup> A(8) | Vibration Magnitude         |
| › 0145   | 30 hours,<br>44 minutes                        | 122 hours,<br>53 minutes                     | 1.28 m/s <sup>2</sup> r.m.s |
| › 201  | 128 hours,<br>15 minutes                       | 513 hours                                    | 0.62 m/s <sup>2</sup> r.m.s |
| › 202  | 34 hours,<br>44 minutes                        | 138 hours,<br>55 minutes                     | 1.20 m/s <sup>2</sup> r.m.s |
| › 200  | 17 hours,<br>58 minutes                        | 71 hours,<br>50 minutes                      | 1.67 m/s <sup>2</sup> r.m.s |
| › 206X   | 24 hours,<br>28 minutes                        | 97 hours,<br>51 minutes                      | 1.43 m/s <sup>2</sup> r.m.s |
| › 525<br>› 525X  | 23 hours,<br>32 minutes                        | 94 hours,<br>6 minutes                       | 1.46 m/s <sup>2</sup> r.m.s |
| › 2545<br>› 2590   | 64 hours,<br>11 minutes                        | 256 hours,<br>41 minutes                     | 0.88 m/s <sup>2</sup> r.m.s |
| › 230DM<br>› 310R<br>› 310RX                                     | 345 hours,<br>40 minutes                       | 1,382 hours,<br>37 minutes                   | 0.38 m/s <sup>2</sup> r.m.s |

**Figure 8:** HAVS exposure limits and vibration statistics for all models of Air Turbine Tools®. EAV represents the time to reach Exposure Action Value and ELV represents Exposure Limit Value.

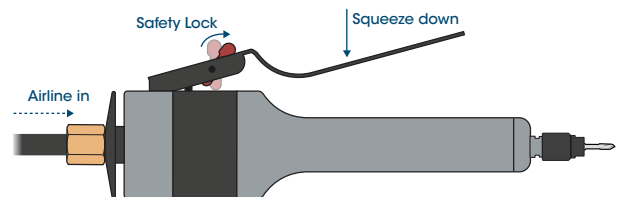


**Figure 5:** Do not extend the cutting tool past 3 times the diameter of the cutting tool from the collet.

#### Properly Turning Your Tool On and Off

For SV units, slide the Slide valve open and closed. The 'On' position is always the position closest to your Air Turbine Tool®, while the 'Off' position is always the switch position furthest away from the tool. Certain models have a color-coded switch with green indicating 'On' and red indicating 'Off'. **Ensure that the Slide valve is always fully opened or closed as shown in figure 6.**

For DM units, unlock the safety lock and squeeze the trigger switch to turn the tool on as shown in **figure 7**. The tool will only operate when the trigger switch is squeezed.



**Figure 7:** Using the trigger switch in DM models to turn the Air Turbine Tool® on.

#### Never Stall Your Tool

A sudden stop or stalling your hand tool will cause stress to the bearings and force the grease out of them.

#### Operate The Tool Safely

Comply with general industry safety & health regulations, part 1910 and 2206 OSHA, etc. Federal, state and local regulations and laws in your country. Ensure that you operate your Air Turbine Tool® in compliance with safety code for portable air tools - ANSI 186.1, etc. Refer to the table in **figure 8** for the HAVS exposure limits for all models.

**WARNING**  
**Do not clamp Air Turbine Tool® hand tools into a fixture. This will cause distortion in the bearing race, damaging the tool.**