

Airtact™

& Accessories

OPERATION AND MAINTENANCE MANUAL

WELCOME TO THE WORLD OF AIRTACT!

This is the most versatile control system ever developed with an expandable range of actuation. The heart of the Airtact system is the air control unit where the throttle command is processed. This simple and robust system requires dry, clean, oil-free air, and a GraverMate, GraverMax, GraverMax SC, or GraverMach as engraving system. Hook up is easy; just follow these step-by-step instructions and the instructions provided with the connection kit if required for your machine.

TERMS USED IN THESE INSTRUCTIONS

Control box or air control unit: Airtact and Touch Elements

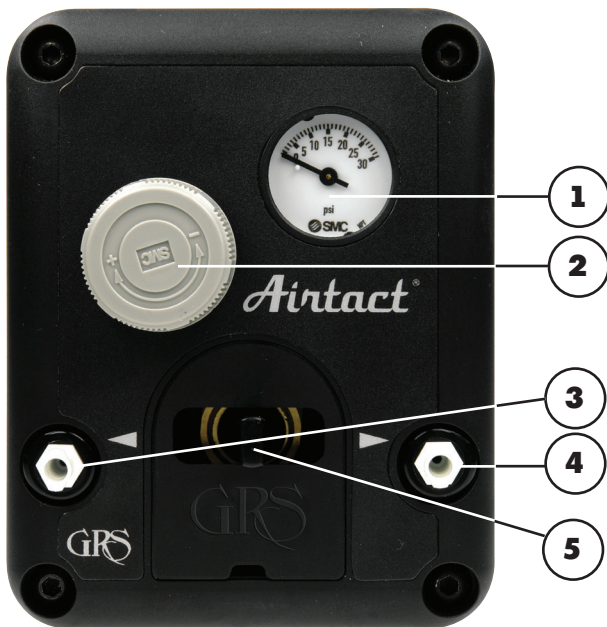
GETTING STARTED

Decide on a location for the control box. This needs to be a place where you can easily access the front of the unit for hose connections and air adjustments. If you are connecting your Airtact to a GraverMax® or GraverMate®, an additional kit will be required.

- #004-971 GraverMax® A/T Filter Hook Up Kit
- #004-972 GraverMate® A/T Filter Hook Up Kit

NOTE: The black hose (#044-136) is for connecting the HIGH pressure air coming from your compressor. The clear hose (#044-135) is for connecting LOWER pressure air from the "THROTTLE CONNECTION" port to the Airtact.

Turn off the air supply to your engraving system and bleed off any remaining air in the line. Depending on the engraving system that will be used, install the hoses as shown in Fig. 1 or Fig. 2. Make sure to press them into the quick connect fittings



- 1 Airtact pressure gauge
- 2 Airtact pressure regulator
- 3 Twist-lock control port #1
- 4 Twist-lock control port #2
- 5 Control port switch

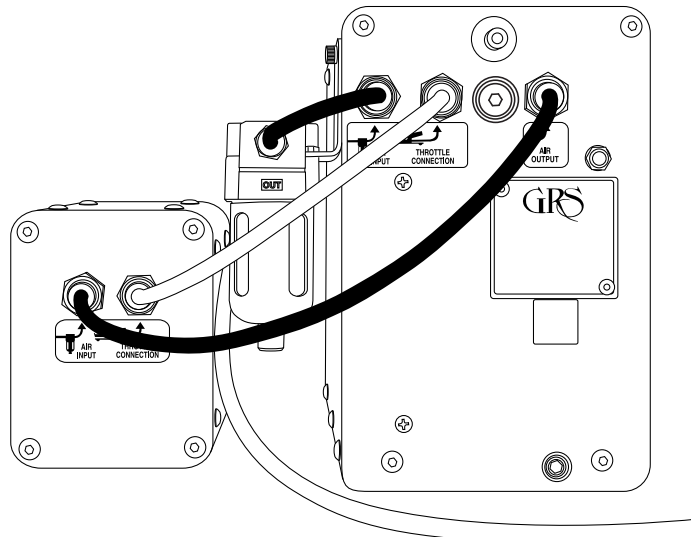


Fig. 1: GraverMach to Airtact Hook-up

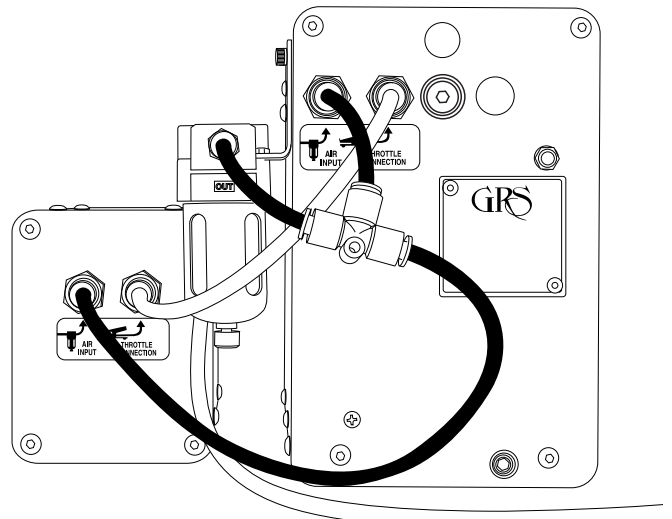


Fig. 2: GraverMax® SC & older GraverMach® to Airtact Hook-up

all the way. *NOTE: When installing hoses, trim excess length.*
NOTE: It is not possible to use the existing foot throttle with the Airtact system. The original foot throttle must be completely disconnected from the Airtact to work properly. If foot control is desired, use the FootPod Touch Element.

#004-956 **FootPod Touch Element Kit F1**

You are now ready to hook up the touch element of your choice.

- #004-952 **Palm Touch Element Kit Monarch MI**
- #004-952-SS **Palm Touch Element Kit Monarch MI Stainless Steel**
- #004-953 **Palm Touch Element Kit 901 N1**
- #004-953-SS **Palm Touch Element Kit 901 N1 Stainless Steel**
- #004-954 **Thumb/Finger Touch Element Kit Monarch TM1**
- #004-955 **Thumb/Finger Touch Element Kit 901 TN1**

Connect the larger handpiece hose to the normal handpiece air supply port on the GraverMach/MaxSC/Max/Mate. Take the smaller hose and gently twist the hose end connector knob 1/2 turn clockwise until it stops to the left or right port on the front of the Airtact. Turn the air supply pressure back on and check carefully for leaks.

AIR PRESSURE ADJUSTMENTS

Begin by turning the power switch on to the engraving system and adjust the strokes per minute (SPM) knob to 2300 or 2400 SPM. On the GraverMax/SC/Mach, switch the handpiece selector knob to the handpiece you wish to use.

The Airtact control unit has a regulator and gauge on the face located above the paddle switch. This controls how much power you want for the handpiece to have. The lower the pressure the lighter the handpiece will stroke, and the more air pressure, up to 12psi (0.8 bar), the harder it strokes.

1. On the Airtact unit, move the paddle switch in the direction of the handpiece connection you wish to use and increase the Airtact air pressure to 12 psi (0.8 bar).
2. On the GraverMach/MaxSC/Max/Mate back the air pressure off at the regulator knob by turning it counter-clockwise until the gauge shows 5 psi (0.4 bar). Hold the handpiece vertically next to your ear and slowly begin to increase the air pressure by turning the regulator knob clockwise. You will feel the handpiece begin to buzz, then vibrate, and knock lightly. When the knocking stops on a GraverMach or SC, your handpiece is considered "tuned."

NOTE: If you are using a Generation 1 GraverMax or GraverMate, add 2 psi (0.1bar) to the gauge reading where the handpiece stops knocking.

Check for proper handpiece operation by placing the paddle switch in the center position. This should immediately give full handpiece power if your connections are correct, if not, find the problem and correct. *NOTE: The center paddle switch position will also give you an automatic stroking feature that is designed for stippling or other operations where multiple hits are desired without the need for control inputs.*

SUGGESTIONS

Airtact Touch Element:

- At approximately 12 psi, the Airtact will give full power range for any handpiece. Less than 12 psi, you will have reduced power. This can be very useful for shading because you can lessen the pressure (try 4 or 5 psi) to limit the power for really fine control. **ALWAYS BE AWARE THAT AT LESS THAN 12 PSI you will NOT have full power.**

FIG. 3: Palm Pad Modifications

GRS[®] PALM PAD FINE ADJUSTMENT

Type-E Palm Pads

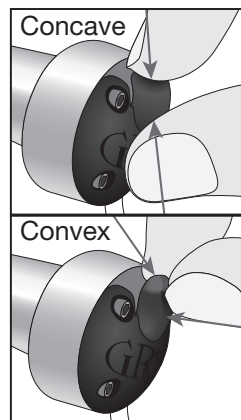
The latest palm pad design for Airtact[®] hand control is Type-E, available in four sensitivity levels: 4, 6, 8, and 10. The handpiece is more responsive (less force required to activate) with a lower number palm pad installed.

Initially, palm pads can be stiff. This affects the feel and control. Stiffness may be reduced naturally with a few hours of use. To reduce stiffness quickly, bend and twist the control flap to soften. When the preferred softness is nearly reached, stop and test frequently to adjust until desired responsiveness is attained. The rubber control flap can be formed for a custom feel as well.

Forming the Rubber Control Flap

The flexible rubber control flap on the Palm Pad transforms hand force into handpiece power by progressively covering a small air vent hole in the upper rear of the Airtact[®] handpiece knob.

Forming or bending the control flap one way (concave) increases the required hand force; bending it the other way (convex) decreases hand force.

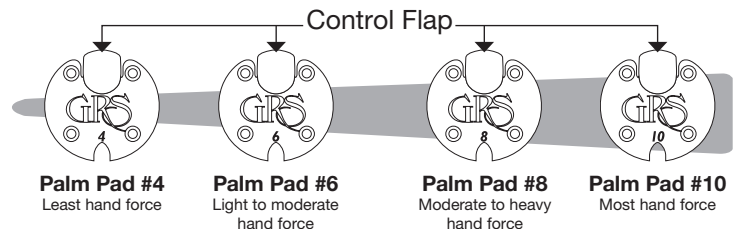


To increase required hand force:

Bend the control flap into a more concave shape. Bending the flap this direction keeps the flap from sealing off the Airtact[®] knob hole until more hand force is applied.

To decrease required hand force:

Bend the flap into a more convex shape to decrease the hand force required. This shape seals the Airtact[®] Knob hole with less force applied.



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- Switching the GraverMach/MaxSC/Max/Mate handpiece selector does NOT switch the handpieces connected to the Airtact. If this happens, your Touch Element will not work properly (selector switches should both be positioned to same handpiece).

Airtact Palm Element:

- Properly positioned in the hand, the Airtact Palm Elements respond not only to forward push, but also downward push and hand squeeze. This blend of force is what gives Airtact a full range of control. If the Palm Element seems a little too responsive at first, loosen your grip and pressure on the handpiece.
- When using the Airtact, the position of the Palm Element knob is important and affects the response. Make sure both hoses are not obstructed the flap is placed against your palm. **IMPORTANT:** there are two different aspects to positioning the Palm Element. One is the location of the control flap in the palm, the other is the rotational orientation of the knob itself on the handpiece which changes the control flap position in rotation. Different people will likely have different preferences. Agree on what is best at first.
- Airtact Palm Pads can be quickly tuned for harder or easier actuation using a razor knife or by grinding (with flex-shaft, Dremel, NSK E-Max, etc.). We suggest using the stock touch elements for a while to get a feel for the Airtact system. Remember, this system is very user friendly and can be customized to suit your needs or preferences. See fig. 3.

Airtact FootPod:

- The FootPod element connects to either 1 or 2 twist-lock ports on the Airtact face. To switch to the FootPod simply move the Airtact paddle switch to the port for the FootPod and you will have foot control.

AIRTACT TROUBLESHOOTING

Your Airtact control system is a simple, virtually maintenance-free tool that was designed to give you years of trouble-free service. One item is required to insure this reliability, your compressed air supply.

Your air supply **MUST** provide clean, dry, and oil-free air. We suggest using an oil-free compressor with all GRS equipment. If you are using an oil-type compressor you **MUST** have an oil removal filter (coalescing type) in the line to your machine. If you are unsure of this requirement, please call 800-835-3519 or 620-343-1084 and ask for Technical Services. Failure to provide a properly prepared air supply will eventually lead to erratic performance and can damage your equipment. ***OIL CONTAMINATION IS NOT COVERED BY WARRANTY.***

The touch elements are mechanically simple and their sole purpose is to provide a variable restriction to the air control circuit. When installing a new or existing touch element, take time to clean the hand piece first as this will ensure everything is fresh to start. Install the touch element of your choice and make sure all the hose connections are secure.

TOUCH ELEMENT TROUBLESHOOTING

If you suspect the handpiece is not responding properly, you can easily test the touch element and handpiece for proper

function. Unhook the twist lock connector holding the small hose from the Airtact unit. Place your finger over the now open port on the Airtact face. You can also check handpiece operation by moving the selector switch to the center position. This overrides the Touch Element and will allow continuous handpiece operation. Your handpiece should now run consistently as long as your finger is covering this port or the selector switch is in the center position. If it does not, there is something amiss with your handpiece. This may require cleaning the piston, spring, and bore to re-establish consistent operation. If the handpiece is working correctly, the next step is to check the Touch Element for blockage. Carefully inspect the touch element for any debris or abnormal wear on the palm element, gently lift the flap and check for obstructions.

Airtact is purposely designed for the low cost evolution of touch elements and even the ability for the end user to make their own. Expect new and exciting developments in the Airtact product line as the touch element designs are constantly evolving. Be sure to check with www.airtact.com for what is new and additional instructions and tips.

TIPS & TRICKS

1. To begin, set Airtact pressure at 12psi. This gives a full power range for most handpieces.
2. Remember: With a foot control it doesn't matter how tightly you squeeze the handpiece. With Airtact hand controls, it does and that's an advantage once you are familiar with it. Expect a learning period ... and relax!
3. Try less Airtact pressure (4-6psi) for fine shading as this limits the maximum power. Put the Control Port Switch in the middle to start the handpiece and adjust the Airtact pressure to the suggested 4-6 psi (.3-.4 bar) then move the Control Port Switch to the handpiece you are using.

WARRANTY

Each Airtact unit, including the handpiece Touch Element knobs (excluding rubber Touch Pads) and Foot Pod control carries a full 2-year warranty covering parts and labor. If warranty repair is needed, the customer should contact the selling dealer for more information before returning item for repair.

These units are designed for reliable operation using most sources of compressed air. However, some air supplies contain excessive water, oil, dirt, rust, or other contaminant's. The unit's built-in filter is a final filter to protect against normal dirt and water. If your compressed air has excessive contaminant's, you should install the necessary filter(s) and water trap(s) ahead of your unit.

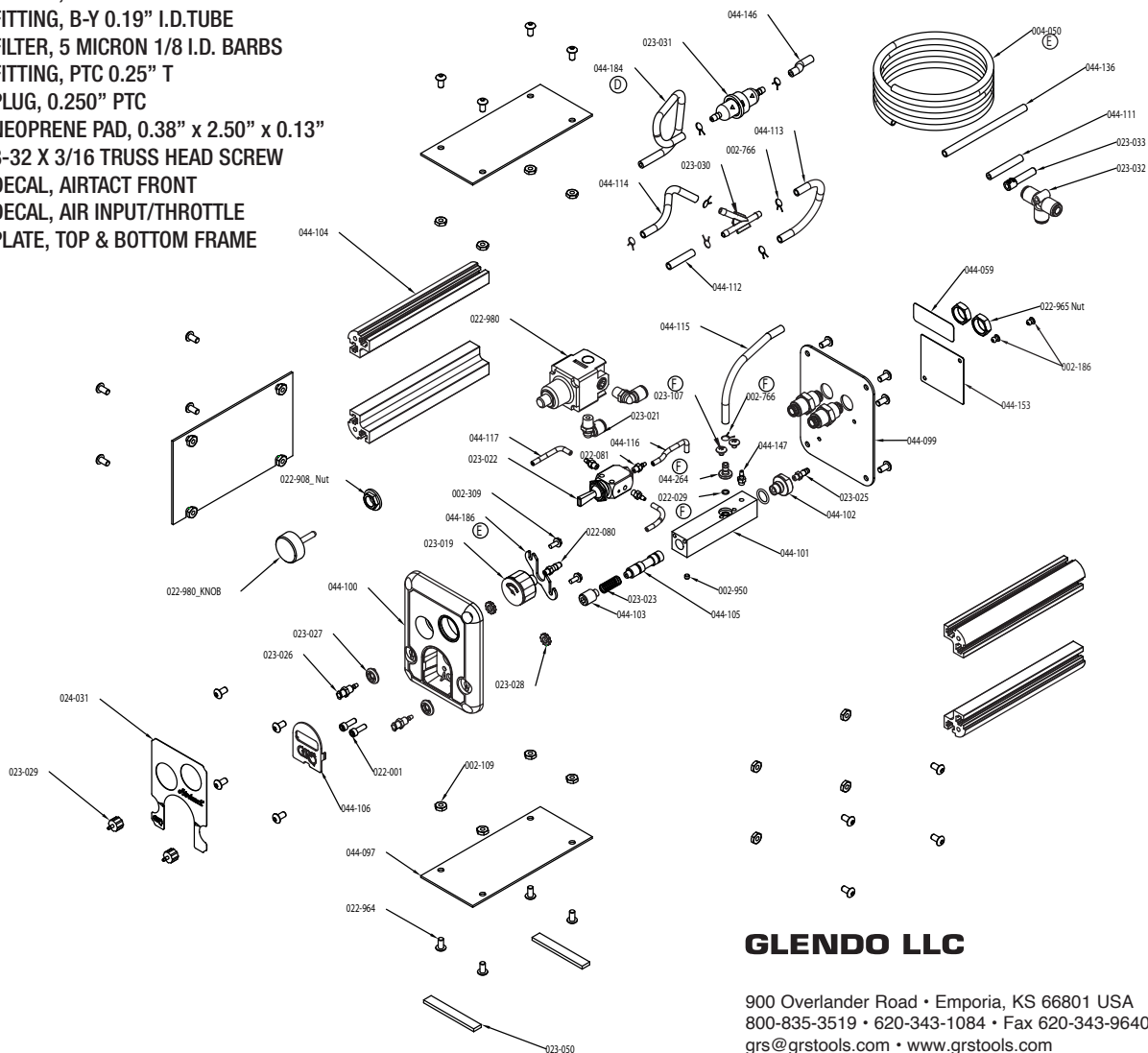
Oil contamination can be gradual and subtle. If you notice an oil residue (usually a yellow to brown colored sticky or liquid residue) in the unit's filter bowl or handpiece / throttle hose, you probably have an oil problem in your compressed air. Older oil-lubricated and "silent" compressors that use internal oil are more likely to cause oil contamination. If this occurs, install a Coalescing Oil Filter (GRS #004-579 or equivalent).

DAMAGE CAUSED BY CONTAMINATED COMPRESSED AIR IS NOT COVERED BY THE WARRANTY.

GRS® Airtact™ PARTS LIST

PART #004-935

PART NO.	QTY.	DESCRIPTION			
002-109	16	NUT, #10-32 HEX Z/P	044-098	2	PLATE, SIDE FRAME
002-186	2	RIVIT, 0.125" DIA x 0.125" POP	044-099	1	PLATE, REAR FRAME
002-309	2	HHSMS, #6 x 0.38" Z/P	044-100	1	PLATE, FRONT FRAME
002-590	1	O-RING, 0.563" O.D. 0.438" I.D.	044-101	1	VALVE BODY, SPOOL
002-766	8	CLAMP, WIRE, 0.25" O.D. TUBE	044-102	1	VALVE END CAP, SPOOL
002-950	1	SHSS, #8-32 x 0.13" BLK	044-103	1	VALVE ADJ SCREW, SPOOL
004-050	1	TUBING, PU CLR 0.250" O.D. 0.170" I.D.	044-104	4	BOX CORNER
022-001	2	SHCS, #8-32 x 0.50" BLK	044-105	1	VALVE SPOOL
022-029	1	O-RING, 6.5MM O.D. 4.5 MM I.D.	044-106	1	COVER, AIRTACT SWITCH
022-080	1	FITTING, B-0.17" I.D. TUBE M#10-32	044-111	1	TUBING, PU BLK 0.250" O.D. 0.130" I.D.
022-081	3	FITTING, B-0.125" I.D. TUBE M#10-32	044-112	1	TUBING, PU CLR 0.250" O.D. 0.170" I.D.
022-964	24	BHSCS, #10-32 x 0.38" BLK	044-113	1	TUBING, PU CLR 0.250" O.D. 0.170" I.D.
022-965	2	FITTING, PTC 0.25" BULKHEAD	044-114	1	TUBING, PU CLR 0.250" O.D. 0.170" I.D.
022-980	1	REGULATOR, PRECISION AIR	044-115	1	TUBING, PU CLR 0.250" O.D. 0.170" I.D.
023-019	1	GUAGE, 1.10" O.D. 0-30PSI AIR	044-116	1	TUBING, PU CLR 0.156" O.D. 0.078" I.D.
023-021	2	FITTING, PTC 0.25" 90DEG M1/8" NPT	044-117	2	TUBING, PU CLR 0.156" O.D. 0.078" I.D.
023-022	1	SWITCH, AIR VALVE 3-POS 4-WAY	044-136	1	TUBING, PU BLK 0.250" O.D. 0.130" I.D.
023-023	1	SPRING, COMP 0.320" O.D. 0.890" FL	044-146	1	TUBING, PU BLK 0.250" O.D. 0.130" I.D.
023-025	1	FITTING, 0.010-22081-BLUE	044-147	1	FITTING, B-0.125" I.D. TUBE M#10-32
023-026	2	FITTING, M-0.094" I.D. TUBE M-LUER	044-153	1	SERIAL PLATE, AIRTACT
023-027	2	FITTING, BLK CODE RING LUER	044-184	1	TUBING, PU BLK 0.250" O.D. 0.130" I.D.
023-028	2	FITTING, LOCKNUT LUER	044-186	1	BRACKET, 1.10" AIR GAUGE
023-029	2	FITTING, M-0.063" I.D. TUBE F-LUER	044-264	1	FULL FLOW EXHAUST INLET
023-030	1	FITTING, B-Y 0.19" I.D. TUBE			
023-031	1	FILTER, 5 MICRON 1/8 I.D. BARBS			
023-032	1	FITTING, PTC 0.25" T			
023-033	1	PLUG, 0.250" PTC			
023-050	2	NEOPRENE PAD, 0.38" x 2.50" x 0.13"			
023-107	2	8-32 X 3/16 TRUSS HEAD SCREW			
024-031	1	DECAL, AIRTACT FRONT			
044-059	1	DECAL, AIR INPUT/THROTTLE			
044-097	2	PLATE, TOP & BOTTOM FRAME			



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