



# Monarch QC & Monarch Airtact Handpiece INSTRUCTIONS

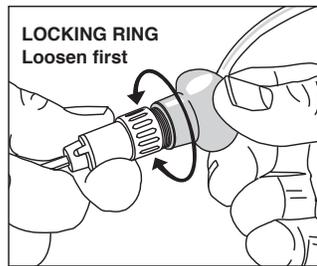
#004-921 & #004-926: Compatible GRS systems include the GraverMach AT, GraverMax G8, GraverMach, GraverMax SC, GraverSmith, and Classic GraverMax / GraverMate machines.

#004-921-AT, #004-921-ATSS, #004-952, & #004-952SS: Compatible GRS systems include GraverMach AT, or an Airtact Control System (#004-935) connected to a GraverMax G8, GraverMach, GraverMax SC, GraverSmith, or Classic GraverMax / GraverMate (with Airtact Filter Hook Up Kit) machines.

<p><b>NORMAL OPERATING RANGE</b> 11-14 psi (0.7-0.9 bar) / 2400 - 4000 strokes per min.</p>
<p><b>RECOMMENDED INITIAL SETTING</b> 12 psi (0.8 bar) / 3600 strokes per min.</p>

## ADJUSTING THE HANDPIECE

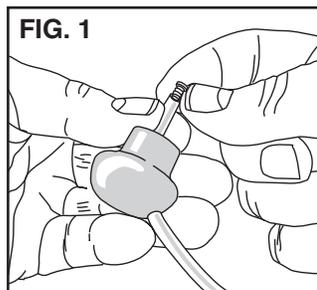
The handpiece knob and the body (barrel) are threaded together, allowing the hose to be rotated to the position the user prefers. The length of the handpiece can be extended by unscrewing the knob and body even more. *NOTE: Extending the length may cause a slight loss of power depending on the type of work being done.*



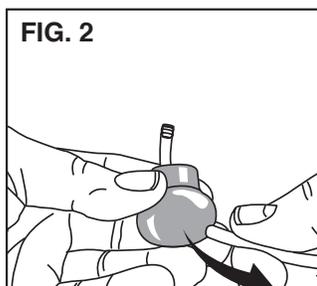
With the locking ring slightly loose, the handpiece body and knob can be turned independently. Position the Quick Change holder with the graver "point" down and rotate the knob until the hose position is the most comfortable. Once the hose and graver are both positioned comfortably, tighten the locking ring.

## HOW TO ATTACH NEW HOSE

Loosen the locking ring and remove the knob from the handpiece. Remove the old hose simply by cutting it off close to the knob. With a small punch, push the hose/brass fitting back into the knob body. Remove the brass fitting (#004-422 Air Hose Retainer) from the old hose. Feed the new air hose through the hole in the knob



**(FIG. 1).** Insert the brass fitting into the end of the hose making sure it is fully seated. Moistening the fitting first may help it slip into the hose easier. Then apply a small amount of moisture or oil around the outside end of the hose next to the brass fitting and pull the hose back



**(FIG. 2)** into the knob until you see the tip of the brass fitting protrude through the side of the knob. This must be an air tight fit, so you will have to pull somewhat hard (a few pounds, at least).

## PUTTING A FLAT ON THE BOTTOM OF HANDPIECE KNOB

*(If Desired)* If you choose to put a flat on the knob you should use the handpiece first to be sure where the hose "exit" is most comfortable for you. Note critical dimensions below and warnings below.

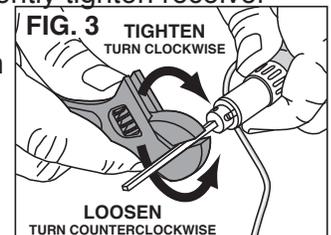
**IMPORTANT: IF TOO MUCH MATERIAL IS REMOVED, KNOB WILL BE RUINED. (PART #004-415) NOTE: Any damage from adding a flat to the knob is NOT covered by the warranty.**

## MAINTENANCE

The only basic maintenance for the GRS Monarch

	<b>METAL REMOVAL PAST MINIMUM DIMENSION WILL DAMAGE KNOB</b>	
	<p>1.201" ±.010 (30.5 mm)</p> <p>SIDE CUTAWAY VIEW</p>	<p>minimum 1.010" (25.6 mm)</p> <p>END VIEW HOSE LEFT OR RIGHT</p>

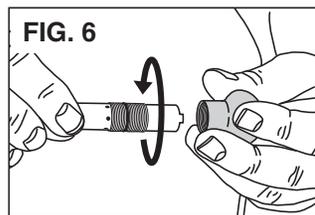
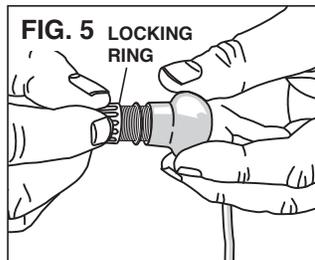
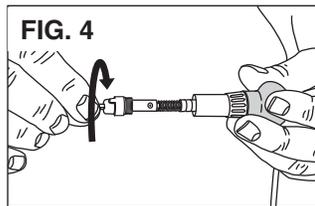
Handpiece is keeping it clean on the inside. Problems will occur if oil or moisture gets into the handpiece, especially on the piston. If you notice a loss of power or erratic performance, the **FIRST THING** to check is to make sure the **RECEIVER (chuck) IS TIGHT IN THE HANDPIECE BODY.** Using a crescent wrench or pliers with a graver inserted in the QC Holder, gently tighten receiver clockwise **(FIG. 3)** If erratic performance continues, then disassemble and clean the handpiece.



To disassemble the handpiece, use the crescent wrench or pliers to grip the graver **(FIG. 3)** and turn it counterclockwise to loosen the chuck retainer. After loosening, turn the chuck retainer out with your finger tips **(FIG. 4)**. As you pull out the chuck, there will be a

spring and piston.  
Loosen the locking ring and remove it (**FIG. 5**). Grip the knob and turn the handpiece body counter-clockwise until it is out of the knob body (**FIG. 6**).

Now, with the handpiece disassembled, clean the parts with a NON-residue solvent like denatured alcohol. Make sure the holes in the handpiece body are clear from dirt and debris. DO NOT get moisture down the air hose. If this happens you will need to clear and dry it before reassembly.



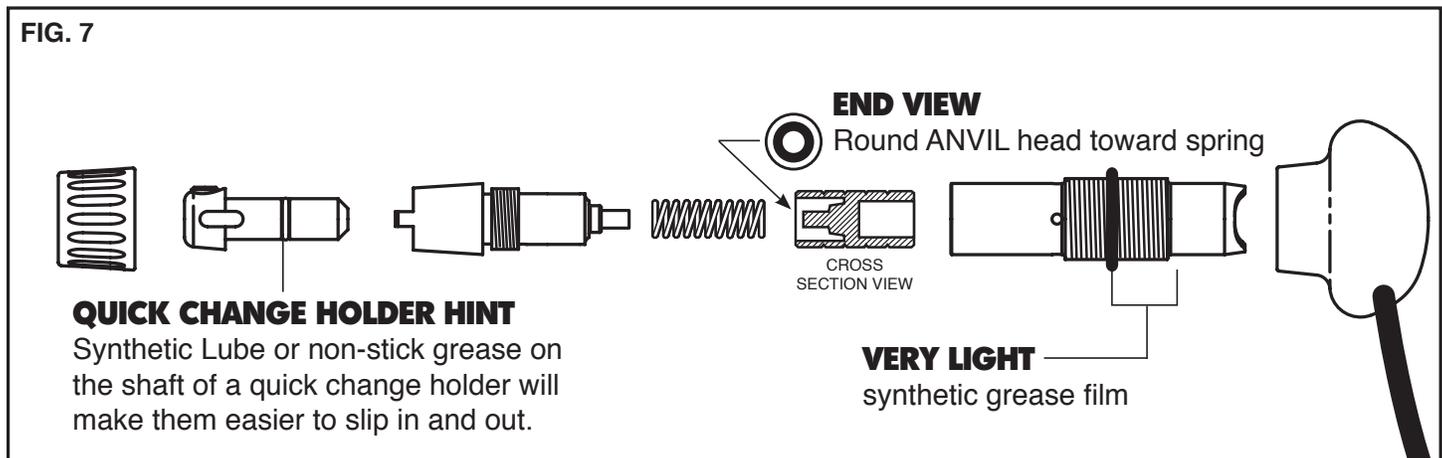
Before reassembly, make sure every thing is completely dry. DO NOT OIL INSIDE THE HANDPIECE. NO lubricant is required. Lubricant will actually decrease performance!

**REASSEMBLY NOTE:**

There is an O-ring inside the knob that makes getting the handpiece body to thread a little difficult when reassembling. Use a very small amount of synthetic lube or non-stick grease and create a thin film around the OUTSIDE of the shaft between the threads and the end (see call out in **FIG. 7**).

*NOTE: Do NOT use petroleum based oils - USE ONLY Synthetic oils. Fossil oils can damage the O-Rings.*

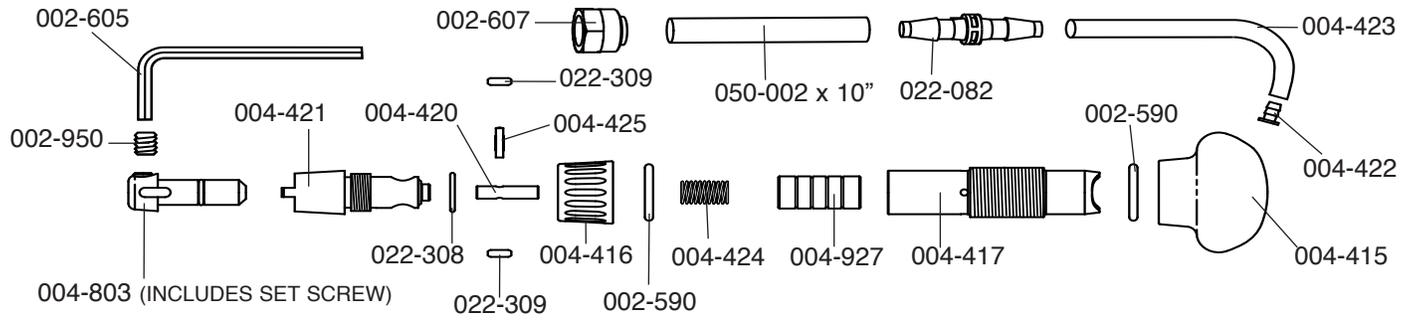
See “Adjusting the Handpiece” on page 1 for adjusting graver and hose position.





# Monarch QC Handpiece For GraverMach / GraverMax SC

PARTS LIST • #004-921



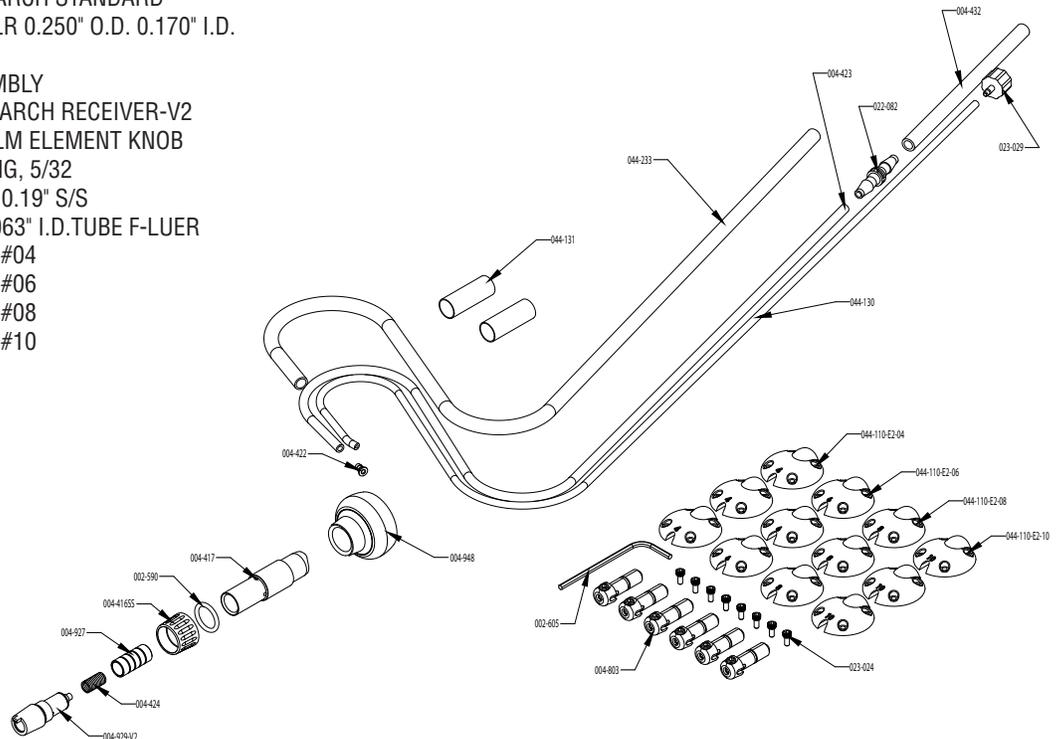
Part No.	Description
002-950	8-32 X .13
002-605	Allen Wrench
002-607	Nut with Sleeve
002-590	O-Ring 1/2" ID X 1/16" Wide
004-803	Quick Change Chuck (complete with set screw)
004-415	Handle Knob
004-416	Locking Nut
004-417	Handpiece Body
004-420	Anvil
004-421	Chuck Receiver
004-422	Air Hose Retainer
004-423	Air Hose - 1/8" dia. X 38"
004-424	Spring
004-416	Locking Nut
004-417	Handpiece Body
004-425	Roll Pin
004-927	Piston / Hammer
022-308	O-Ring 8 mm ID X 1 mm Wide
022-309	O-Ring .070 ID X .070 Wide
022-082	Tube Coupling
004-431	Urethane Tubing .170" I.D. X 10"

## Monarch Airtact Handpiece PARTS LIST #004-921-AT & #004-921-ATSS

### #004-921-AT MONARCH AIRTACT HANDPIECE (BLACK) or #004-921-ATSS MONARCH AIRTACT HANDPIECE (STAINLESS STEEL)

PART NO.	QTY.	DESCRIPTION
002-590	2	O-RING, 0.563" O.D. 0.438" I.D.
002-605	1	WRENCH, 5/64 ALLEN
004-416SS	1	LOCKING NUT
004-417	1	HANDPIECE BARREL
004-421	1	901 HAND PIECE RECEIVER
004-422	1	HOSE/BARB RETAINER
004-423	1	TUBING, PU CLR 0.156" O.D. 0.094" I.D.
004-424	1	SPRING, MONARCH STANDARD
004-432	1	TUBING, PU CLR 0.250" O.D. 0.170" I.D.
004-803	6	QC HOLDER
004-927	1	PISTON ASSEMBLY
004-929-V2	1	WELDED MONARCH RECEIVER-V2
004-948	1	MONARCH PALM ELEMENT KNOB
022-082	1	TUBE COUPLING, 5/32
023-024	8	SHCS, #2-56 x 0.19" S/S
023-029	1	FITTING, M-0.063" I.D. TUBE F-LUER
044-110-E2-04	3	PALM PAD, E2 #04
044-110-E2-06	3	PALM PAD, E2 #06
044-110-E2-08	3	PALM PAD, E2 #08
044-110-E2-10	3	PALM PAD, E2 #10

044-130	1	TUBING, PU CLR 0.125" O.D. 0.063" I.D.
044-131	2	SHRINK WRAP, BLK 0.375" I.D.
044-233	1	BRAIDED SLEEVE, 0.250" O.D. NYLON



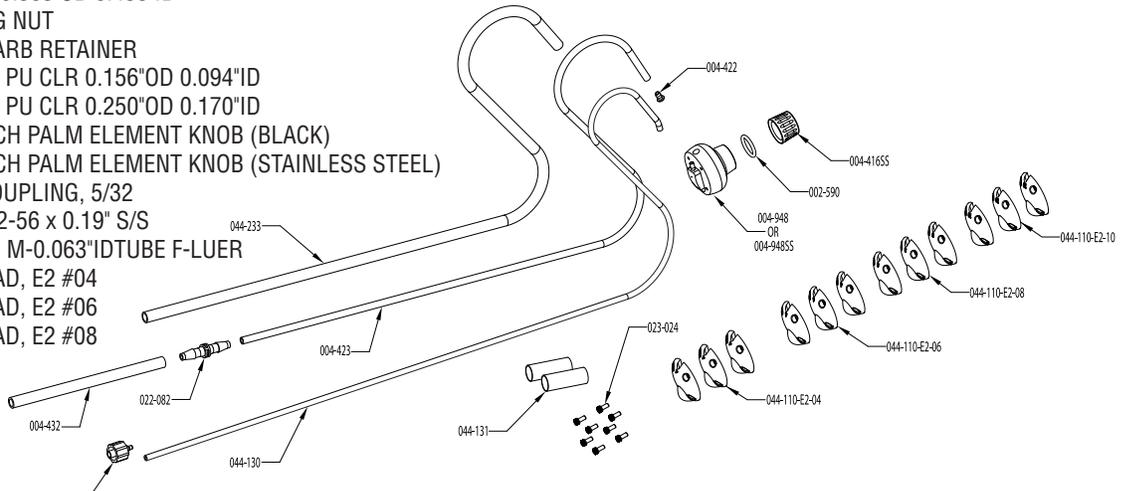
# Monarch PALM KNOB KIT PARTS LIST

#004-952 & #004-952SS

## #004-952 MONARCH PALM KNOB KIT (BLACK) or #004-952SS MONARCH PALM KNOB KIT (STAINLESS) STEEL

PART NO.	QTY.	DESCRIPTION
002-590	1	O-RING, 0.563"OD 0.438"ID
004-416SS	1	LOCKING NUT
004-422	1	HOSE/BARB RETAINER
004-423	1	TUBING, PU CLR 0.156"OD 0.094"ID
004-432	1	TUBING, PU CLR 0.250"OD 0.170"ID
004-948	1	MONARCH PALM ELEMENT KNOB (BLACK)
004-948SS	1	MONARCH PALM ELEMENT KNOB (STAINLESS STEEL)
022-082	1	TUBE COUPLING, 5/32
023-024	8	SHCS, #2-56 x 0.19" S/S
023-029	1	FITTING, M-0.063"ID TUBE F-LUER
044-110-E2-04	3	PALM PAD, E2 #04
044-110-E2-06	3	PALM PAD, E2 #06
044-110-E2-08	3	PALM PAD, E2 #08

044-110-E2-10	3	PALM PAD, E2 #10
044-130	1	TUBING, PU CLR 0.125"OD 0.063"ID
044-131	2	SHRINK WRAP, BLK 0.375"ID
044-233	1	BRAIDED SLEEVE, 0.250"OD NYLON



## PALM PAD FINE ADJUSTMENT

#004-940-ATSS & #004-957SS

### Type-E Palm Pads

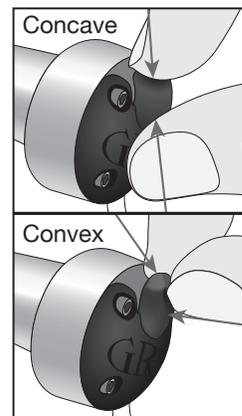
The latest palm pad design for Airtact hand control is Type-E, available in four sensitivity levels: 4, 6, 8, and 10. The handpiece is more responsive (less force required to activate) with a lower number palm pad installed.

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.

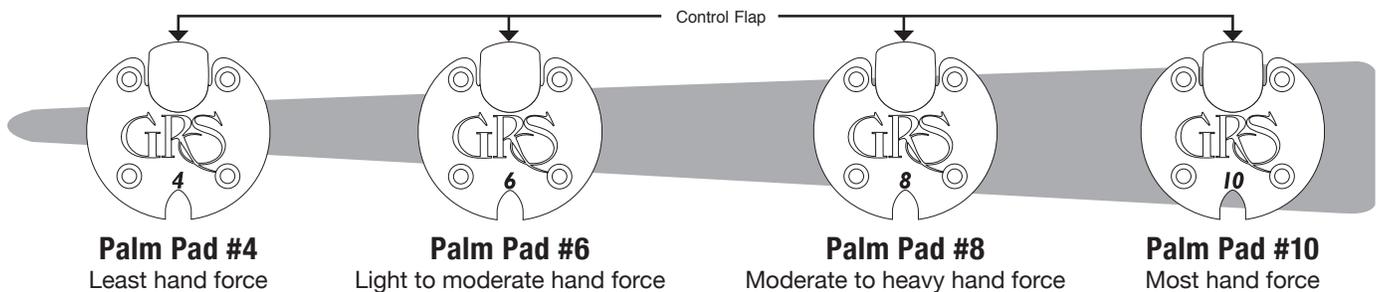


#### To increase required hand force:

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.



**Please Note:** the Palm Pad mounting screws should only be lightly snug; over-tightening can distort or damage the pad.

**GLENDO**  
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