



TECHNICAL SPECS

Welcome to the Swashdrive Whip Tattoo Machine an Original and fresh Invention.

We at Swashdrive Developments have been pioneering and refining different technology in Tattoo machines forward since 1993.

The Whip machine is a further refinement of our well known swashplate machines, We figured out and found GIVE really does matter !

Please note The RCA whip version has the RCA plug turned up out of the box, ensure not to snag the RED wire on the frame when re-positioning RCA plug to preferred position. Once plug is in position, avoid any floating movement with the plug, must be tight, as contact is part of the circuit !

Running the Whip & making Adjustments

The Whip is infinitely adjustable having 3 controlled variables ;

- **Volts = Speed of the machine in cycles per second**
- **Give = Soft to hard adjustment of give Slider (hit)**
- **Stroke = A combination of Volts & Give**

There are so many different ways to set up the Whip; outlining, shading & even the lightest wash. It comes out of the box setup with standard hard give clip. We recommend not to exceed 12 volts with this assembly. Try an initial setup with a shading mag with softest give setting running @ 6 – 8 Volts or slower). The action of the whip is able to stroke more than the crank stroke depending on needle bar weight and RPM (Volts) As volts are increased the anvil will stroke more depending on give setting & needle bar weight. For more information on settings etc please visit www.qualitytattoomachines.com

This is a whole new technology in rotary tattoo machinery and we are pioneering the way forward !

Changing Armature Give assembly is easy as

- 1 remove the E-clip from crank big-end bearing, **NOTE** Place machine in plastic bag when removing E-clip "so E-clip is not lost"
- 2 remove the rear pivot pin from the armature
- 3 with 2 small flat watch screw-drivers, push the connecting rod off the crankshaft by placing the 2 drivers behind the connecting rod so it slides off the crank evenly.
- 4 replace armature give assembly onto crankshaft, replace E-clip onto crankshaft then push the rear pivot pin into rear hole on the frame.

Armature up Spring has been removed from the Whip machine because its combination with the whip effect causes the ink to run up the tube, so special attention is required when stopping machine that needles are in retract position to avoid needle snagging.

Power supplies We recommend to use Only Quality **dual knob lab** DC power supplies to power this machine.

We recommend the supply have no more than Ripple & Noise $\leq 1.0mVrms$. Use the Instek, it's the great lab power supply for this machine or any other machine. Although this machine will run on most single knob supplies, **NOTE** poor quality supplies will reduce life of the electric motor considerably ! PWM controllers are not recommended, (Low inductance motor SURGING may occur). The WHIP machine is powered by the worlds best 6.0 Watt brushed coreless DC motor.

Manufactured by **Maxon Motor, Swiss made**. Neodymium magnet motor, Mechanical commutation, Excellent volume/performance ratio, Highest efficiency, Low inductance, No magnetic cogging, High acceleration thanks to a low mass inertia, Low electromagnetic interference, Linear characteristics, High reliability, 90% efficiency.

Calculation for machine speed

6.0Volts = 3000rpm which is = 50 Hz (50 Cycles Per Second)

9.0Volts = 6000 rpm which is = 100 Hz (100CPS)

12Volts = 9000rpm which is = 150Hz (150 CPS)

Setting power supply

Turn Volts to Zero first, then turn current (Amps) to full, vary speed of machine by altering/ increasing voltage only. This is important for the machine on start up as the power supply will deliver full amps at start-up then settle to what the machine needs to operate at desired voltage. Please do not exceed **12 Volt Max**. 12 volts is equal to 150 Hz (CPS). use of higher speeds are at your own peril. Do not exceed) 0.35 Amps @ 12 volts, this is 100 % duty cycle for the motor, the Whip machine should run at 10 to 50% duty cycle, (0.04 – 0.2Amp).

Tube Chucking System

The tube chucking lock works to accommodate tubes from 8.0mm up to 8.5mm (5/16 to 21/64), so needles may be loaded into tube before insertion into machine chuck. it has been designed so very light tightening of the nut is required for very strong tube clamping ! Note No more than 1/2 turn tension should be put on the tube clamp, do not use tools to tighten, **hand tighten only !**

Do not allow the following to happen !

- **Do not use oil or any lube on the electric motor**, this will cause motor failure and invalidate any Warranty.
- **Do not use sprays directly on machine especially in around Crankshaft area, use clean wipes !**
- **Do not** place machine into **Autoclave or immerse into an Ultra-sonic.**
- **Do not run** machine with **un-tested power supplies.**
- **Do not run** the machine above **12Volts DC.**
- **Do not force the armature up & down by the anvil**, move it by turning the Crankshaft centre boss. This is important as the Crankshaft will lock-over at TDC & BTC (Top & Bottom)
- **Do not over tighten the wing nut on the tube clamp**, test how well it works by just tightening it by taking up the slack then another 1/2 turn **MAX** and its held tight !
- **Do not exceed 0.35 Amps load @ 12V on electric motor, (5 Watt motor)**

Warranty The Swashdrive WHIP Tattoo machine has a **Six month warranty** from date of purchase. To which Swashdrive Developments will repair the manufacturing fault of the machine free of charge. However We do not cover return postage costs. Failure to the above do not list may invalidate your warranty. Proof/ Purchase invoice of date of purchase must be provided for any warranty claim.

Disclaimer Swashdrive Developments **warrantees** the manufacturing quality of the Swashdrive Whip Tattoo machine. But under no circumstances is Swashdrive Developments in any way liable for any injury, infection or quality of any tattoo of any person that Swashdrive Whip machine is used on. That is the sole responsibility & liability of the Artist / Owner of this Swashdrive Whip Tattoo machine. **Updated information on the WHIP Tattoo machine may be found at www.swashdrivetattoomachines.com**