Mechanical Adjustments

Technical Support Bulletin

Mechanical Adjustments to Improve Cut Quality

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Abstract This TSB is written to help make adjustments to cutter mechanical that cause distortions in cut quality. If your machine is cutting correctly do not adjust as you could reduce your cut quality. See pictures below.

Long belt tension adjustment: Web Site Copy / CD Copy

Move carriage away from home position by 12 inches (30 cm). Pluck the belt like a guitar string. Tune belt in range to about the pitch of the lowest note on a guitar. Loosen the Long belt lock nut and use Phillips screwdriver to adjust long belt tension.

Short belt tension adjustment: (X belt Web Site Copy / CD Copy, Y belt Web Site Copy / CD Copy)

Depress belt half way between pinion gear on motor and drive gear with about 10 oz (300 grams) of sideways force. The belt should move 3/16 of an inch or 0.5 cm. Loosen the X and Y motor brackets and adjust tension. Tighten screws.

Gear Set screws: (X set Screws Web Site Copy / CD Copy, Y Set Screws Web Site Copy / CD Copy)

The setscrews in the gears (3 on y axis and 2 on x axis) must be tight so that the gear does not slip on the shaft. Use Allen wrench to test tightness.

Carriage loose on rail: Web Site Copy / CD Copy

Grab carriage with hand and test whether carriage is loose on rail by rotating clockwise and counter clockwise with about 16 oz (450 grams) of force. The screws must not be too tight or too loose. Large (>> 16 oz) rotational force should flex springs. Small (< 16 oz) rotational force should not move carriage on rail.

Octagon adjustment: Web Site Copy / CD Copy

With the pen in the down position the pen should not move from side to side or front to back. Loosen top and bottom Allen bolt on adjustment bar and tap adjustment bar at top and bottom with back end of screwdriver until there is no detectable movement. An alternate procedure would be to loosen all 6 Octagon adjustment screws. Hold adjustment bar tightly towards back bar while tightening bar allen bolts.

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Adjusting Perpendicularity: Web Site Copy / CD Copy
This document describes the carriage adjustment to adjust carriage so it does not cut through backer. If you carriage cuts through when traversing the x axis in only one direction , this adjustment will fix the problem.