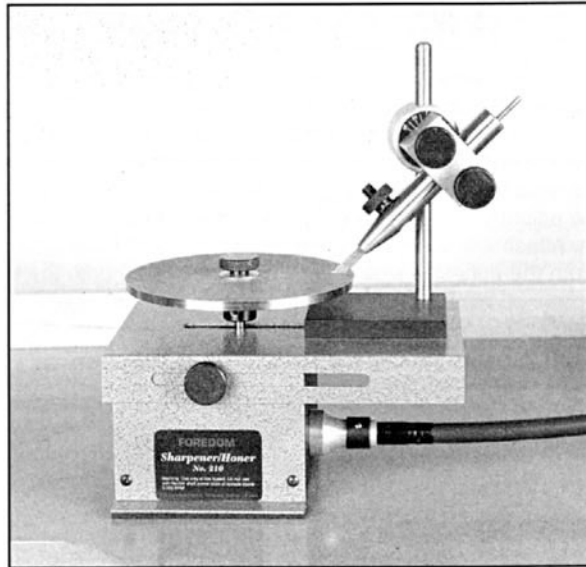


# FOREDOM®

## OWNER'S MANUAL

### Sharpener/Honer No. 210

### Sharpening Fixture No. 220



#### For Your Own Safety:

- Always wear eye protection while using power tools
- Read this Owner's Manual before operating your Foredom tools

### GENERAL INFORMATION

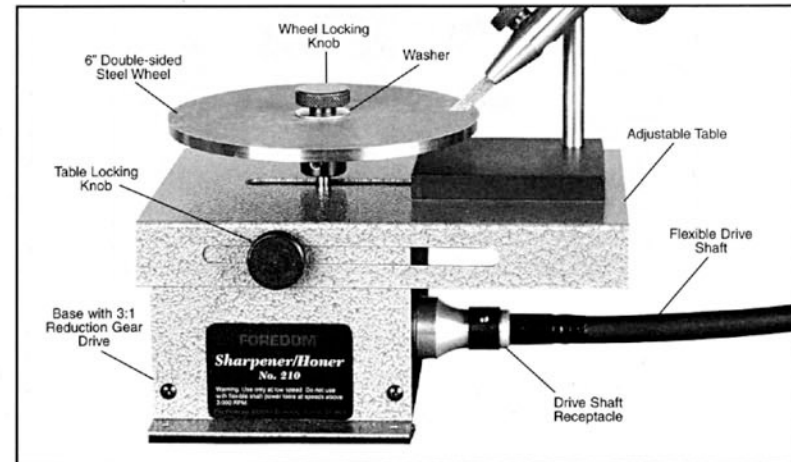
The Foredom® Sharpener/Honer No. 210 is designed to assist the jeweler, stone setter and engraver by providing a variable speed rotating disk for sharpening and honing gravers and other tools.

The Foredom Sharpener/Honer No. 210 includes: a drive unit, an adjustable sharpening fixture table, double-sided precision ground 6" steel disk (wheel) and six 3M® self-adhesive abrasive pads.

The Sharpener/Honer requires an outside flexible shaft power source, preferably a Foredom 0-3,000 RPM Power Graver or 0-5,000 RPM Series L Motor. These permanent magnet motors provide the smooth, high torque, low RPM power suitable to drive the Sharpener/Honer at its most efficient speeds. The Sharpener/Honer uses a 3:1 gear reduction to reduce the motor speed to an optimal operating speed of 300-1,000 RPM. You may use a flex shaft that operates at higher speeds, but **do not operate at motor speeds above 3,000 RPM!**

### SET-UP AND OPERATION

To set up your Sharpener/Honer, first select a place on your bench or adjoining table where your flex shaft will reach the base of the Sharpener/Honer without interference. Remove the handpiece. With the motor turning at a slow speed, push the tip of the flex shaft into the power receptacle. Make sure the flex shaft is installed correctly and turns freely. The sharpening fixture table can now be adjusted to the right or left side of the Sharpener/Honer for best application. Attach the abrasive pad to the wheel by removing the protective covering from the adhesive side and placing it centered onto the wheel. Rub

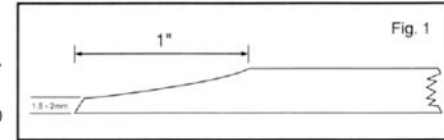


firmly towards the outside edge with the edge of a ruler to remove any air pockets that may be trapped under the pad. Apply a second abrasive pad to the opposite side of the wheel. You can have several different grits ready for use by purchasing additional wheels. (See parts list.) Mount the wheel onto the power unit, install flat washer and threaded knob, then **tighten firmly**.

A light lubricant should be used to provide the greatest efficiency and promote longevity of the abrasive pad. A thin liquid soap solution (such as diluted dish washing soap) applied to the abrasive pad with a spray bottle will aid in sharpening, create a finer polish, and hold the residual metal in suspension above the surface of the pad, reducing clogging. After sharpening, wipe soapy film and metal residue from wheel with a paper towel.

The Foredom® Sharpener/Honer was designed for use with the Sharpening Fixture, but you can sharpen tools by hand without the fixture:

1. Prepare the graver- Reduce the size of the point (face) of the graver to 1.5 - 2.0mm. This will make the graver easier to work with. Grind the graver using a bench grinder (such as a Foredom BL-1), grind from the point back, at a taper of approximately 3/4" - 1". (See Fig. 1) Dip the graver in water after each grinding pass to minimize heat build up and maintain the hardness.
2. Hold graver at desired angle while resting hand on adjustable table for security. Place graver face at desired angle. Using a foot speed control or manual speed control, rotate wheel at desired speed (300-1,000 RPM). **The speed of the flex shaft should be no more than 3,000 RPM.** (The gear reduction mechanism of the tool will bring the speed down to 1,000 RPM.)
4. Slowly sweep the graver across the abrasive surface while maintaining graver angle. Use the entire surface and lubricate with a thin liquid soap solution to increase longevity.



### SHARPENING FIXTURE OPERATION

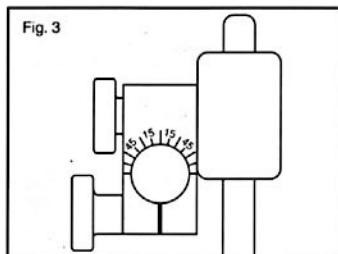
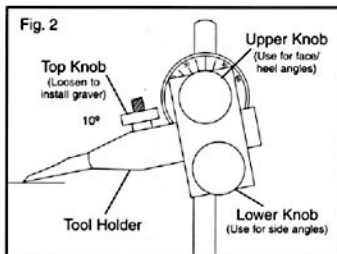
The Foredom Sharpening Fixture No. 220 is designed for producing accurate angles on gravers and other tools. The tool holder offers a secure clamping device that will hold gravers or tools up to 3/16" (5mm) in width. The magnetic base holds the Sharpening Fixture securely to the adjustable table.

Install the graver into the tool holder by loosening the top knob. (see Fig.2). The length of the graver extending from tip of holder will not change desired angle. Loosen lower knob and place slot at top of tool holder at 0° on the degree gauge. Tighten knob.

**There are two graver angle adjustments on the Sharpening Fixture:**

1. **Adjusting Face/Heel Angle:** Loosen upper knob, set desired degree angle. Tighten knob. (Can be done with fixture on or off the support rod). (See Fig. 2)

**2. Adjusting Side Angles:** Loosen lower knob, rotate tool holder to the right or left to desired side angle on degree gauge. Tighten knob. This can also be done with the fixture on or off the support rod. (See Fig. 3)



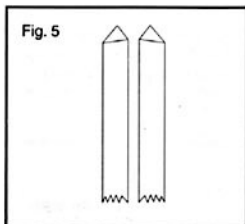
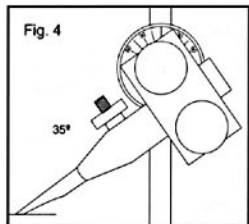
**Example of sharpening a 90° "V" shaped graver:** Mount bevel or square graver in tool holder. Tighten knob. Adjust heel/face angle to 10° - 15° using upper knob (see Fig. 2). Loosen lower knob, rotate tool holder to the right to 45°, tighten knob. Sharpen left side. Loosen lower knob again, rotate tool holder to the right to 45°, tighten knob. Sharpen right side. Slide the tool holder off the top of the magnetic base and rod to inspect the sharpening progress. Do not remove graver from tool holder until finished.

**To Sharpen Face Angle:** Remove graver from tool holder and reinstall upside down. In some applications, the tool holder can be rotated 180° with graver installed, placing graver upside down. (See Fig. 3) **To Sharpen a 45° Face Angle:** Loosen upper knob. Set degree gauge at 35° (35° graver angle + 10° heel angle = 45°). (See Fig. 4) To sharpen a 45° face with an offset angle to the right or left, loosen lower knob, rotate tool holder to the right or left 8° - 10° and tighten knob. (See Figures 3 and 5) Then sharpen face.

The Freedom Sharpening Fixture No. 220 can also be use with a bench sharpening stone. Place a hard, flat, non-ferrous surface (plastic, glass, etc.) next to the stone. Hold fixture and base while sharpening graver.

Experience will be the best guide for determining the proper angle, however, here are some general guidelines to follow:

most applications- 45° hard materials- 50° - 55° soft materials- 40°



## PARTS LIST

Description	P/N
Sharpener/Honer . . . . .	.210
with one each of 6 3M® abrasive pads	
Sharpener/Honer . . . . .	.210-1
without abrasive pads	
Sharpening Fixture . . . . .	.220
Sharpener/Honer & Fixture Kit . . . . .	.2225
with one each of 6 3M® abrasive pads	
Double-sided 6" wheel . . . . .	.215
3M® Abrasive Pads:	
Fine polishing . . . . .	HLD3
Medium polishing . . . . .	HLD5
Extra fine sharpening . . . . .	HLD9
Fine sharpening . . . . .	HLD15
Medium sharpening . . . . .	HLD30
Coarse sharpening . . . . .	HLD60

### LIMITED WARRANTY

The Freedom Electric Co. warrants the Sharpener/Honer and Sharpening Fixture to be free of defects in material or workmanship for a period of 1 year after purchase. During the warranty period, the defective product will be repaired or replaced without charge or, at our option, the purchase price will be refunded. This warranty does not cover damage caused in transit or by accident, misuse, or ordinary wear.

ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO WARRANTIES OF FITNESS AND MERCHANTABILITY, ARE HEREBY LIMITED IN DURATION TO A PERIOD ENDING ONE YEAR FROM DATE OF PURCHASE, AND WE WILL NOT BE LIABLE OR RESPONSIBLE FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES.

Repair or replacement will be made at our option if the product is returned post-paid to:

The Freedom Electric Company  
16 Stony Hill Road  
Bethel, CT USA 06801

All warranty repairs must be done at the factory at the above address. We will not pay any shipping or transportation charges. This warranty only covers the original purchaser of the product. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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