



Build Your Own Diamond Lap

Recommended operating speeds:

12"	1050 - 1575 RPM
16"	800 - 1200 RPM
18"	700 - 1050 RPM
24"	500 - 750 RPM

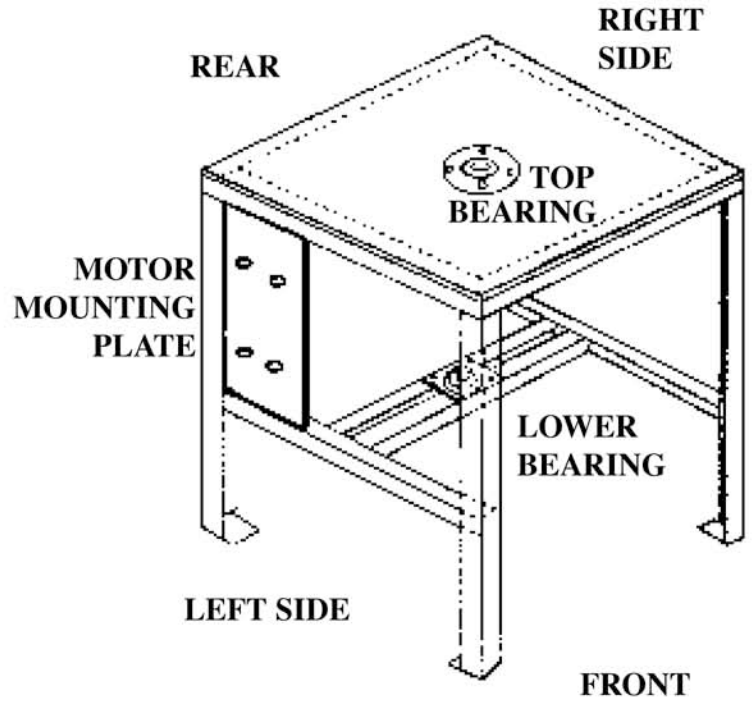


Figure 1. Basic Frame Design

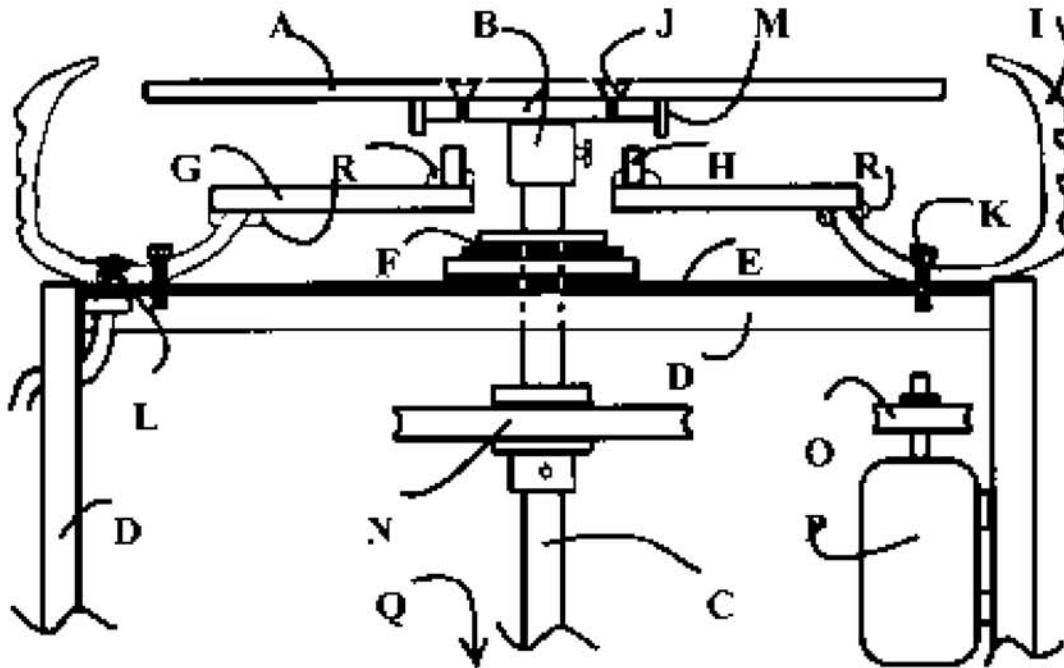


Figure 2. Detail (Be sure to put a guard around belts and other moving parts!)
Use eye protection when using any power equipment!

Label Description for Figures 1 & 2

- A. 23-1/2 inch diameter. 1/2 inch thick (minimum). 6–8 countersunk holes to mate to support flange 'B.' (The 1/2 inch reduction in top plate diameter makes changing the 24 inch diamond disks much easier.)
- B. Top plate support flange. Key into shaft. 6–8 threaded holes to bolt top plate onto it with bolts 'J' (6 inch OD minimum).
- C. 1 inch diameter shaft minimum. Length determined by frame and height dimensions.
- D. 2 inch thick wall, tubular steel for frame.
- E. 24 inch x 24 inch x 3/8 inch steel plate with 2 inch hole in center. Welded to top of steel frame 'D'.
- F. top 'flange' style bearing - size appropriately.
- G. 1/4 inch thick plexiglass circle to seal to inside tire rim to prevent water on shaft bearing. Cut 3 inch hole in center of plexiglass circle and adhere collar 'H' before sealing to tire rim. Seal with an adhesive sealant 'R' like Goop.
- H. Collar. A short piece of 4 inch PVC piping sealed to top side of plexiglass circle to prevent water spill down center. Tall enough to serve as a dam and must clear flange 'B'.
- I. Used tire for splash pan (won't rust or damage glass if bumped and good for many more miles). For a 24 inch machine I have found that a 19-1/2 inch tire or 20 inch is adequate. Cut side wall off to leave some curvature to catch and direct water spray (cuts well with a knife if side wall is not steel belted). Bolt tire to top of frame 'E' with 4 bolts with washers and plenty of sealant 'R' to prevent leaks. Cut a hole at a convenient place in lower curve of sidewall to attach a drain line 'L'. 3/4 inch threaded PVC plumbing part works well (hole should be slightly smaller than threaded part for tighter seal). Seal and screw into place. Now seal plexiglass circle to inner tire rim with 'R' for water tight integrity. Top of steel plate 'A' should be about 1 inch below the top of the tire (since tires vary in width, the actual tire dimensions will dictate other dimensions, i.e. shaft 'C' length and frame height 'D').
- J. threaded countersunk bolts to secure top plate 'A' to flange 'B'. Six bolts minimum.
- K. Bolts and washers to secure tire 'I' to frame top 'E'. Seal well with 'R'
- L. Threaded PVC drain fitting sealed into tire 'I'. 3/4 inch size.
- M. Plastic ring to serve as a drip ring. Seal top edge of flange 'B' (larger PVC piping works well or a piece of a plastic bottle). This must be of a larger diameter than collar 'H'.
- N. 10 inch sheave pulley for shaft (adjust size if other than 24 inch diameter wheel head).
- O. 3-1/2 inch sheave pulley for motor (adjust size if other than 24 inch machine).
- P. 1 HP motor 110V/220V, 1ph, 1725RPM (needs motor starter switch). Example: W.W. Grainger motor # 6K810 or similar and switch #2X440 or similar.
- Q. Lower bearing (size appropriately).
- R. Sealant (high strength structural adhesive recommended). GOOP is available in most hardware stores.

Not shown: Flexible water hose called Loc-Line for delivery of water with valve for flow control (available from His Glassworks online or over the phone).