



# Rake Hand Rail Connection Angled ZipBolt™ (S-3001 A) Instructions

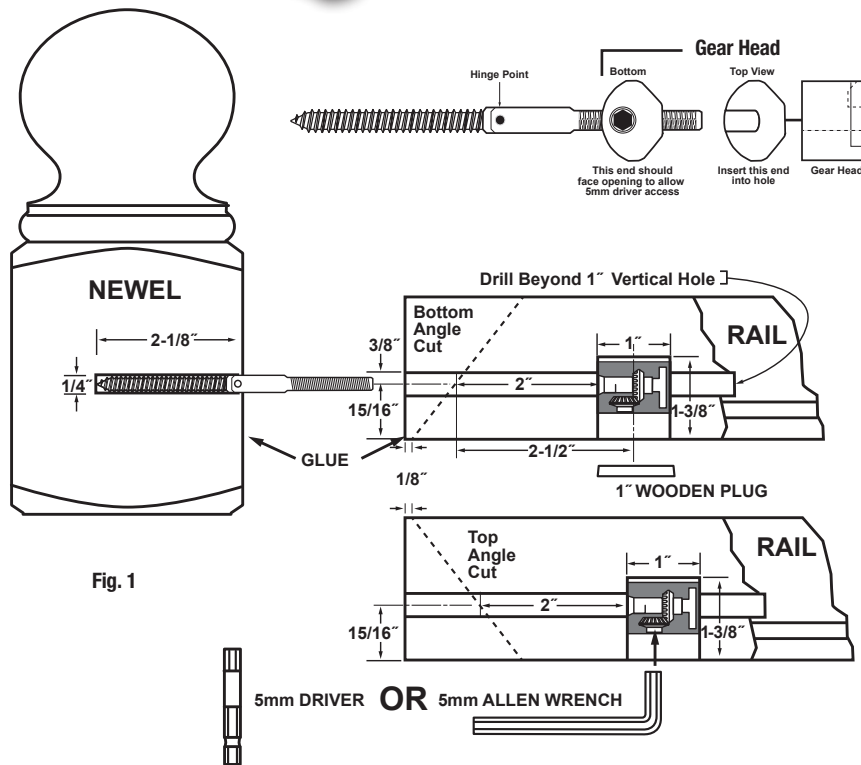


Fig. 1

*Wax threads for easier tightening*

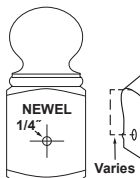


Fig. 2

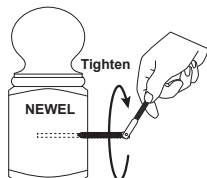


Fig. 3

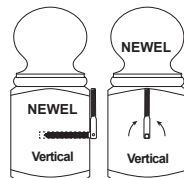


Fig. 4

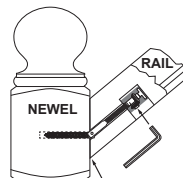


Fig. 5

1. Cut rail 90 degrees square. Then mark proper angle on railing, 1/8" in from the cut. (Fig. 1)
2. Mark center of rail on 90 degree cut, up 15/16" from bottom of rail. (Fig. 1)
3. Drill a 1" diam. hole in bottom of rail on center line 2-1/2" from where angle line and 15/16" dimensions intersect. Hole should be 1-3/8" deep. (Fig. 1)
4. Drill a 3/8" diam. hole in the end of the rail. Hole should be 3 to 3-1/2" deep, drilling past 1" hole. (Fig. 1) **It is very important that the 3/8" hole is drilled before cutting the angle of the rail.**
5. Measure 1/8" in from the end of the 90 degree cut in rail. Mark the correct pitch and start the cut at that point. (Fig. 1)
6. Measure distance from top of the rail to center of 3/8" hole in pitch cut. (Fig.2)
7. Mark newel in center and at proper height to achieve rail height. (Fig. 2)
8. Drill 1/4" pilot hole 2-1/8" deep. (Fig. 2.)
9. Install Rail Bolt in post with 2-7/8" of bolt protruding (Fig. 3). Verify that the bolt ends in the vertical position (Fig. 4).
10. Slide the rail on to the bolt and "dry fit" to be sure of proper angle and fit. If another cut is needed, take the least amount off to correct cut (Fig. 5). The 3/8" deep hole that was drilled should allow enough room for you to make this adjustment.

When proper fit is complete, apply wood glue to contact surfaces, insert gear head and tighten into place with 5mm driver or allen wrench. Glue and insert a 1" diam. wood plug. Sand flush with bottom of the rail.



Gear Head...  
Single piece gear head allows you to tighten your fitting to the rail with a drill driver or allen wrench.