

INSTALLATION: InvisoMatch Mounting Plates *(the easy way!)*

REQUIRED TOOLS:

STEP 1 Remove your old machine heads, any screws, and bushings

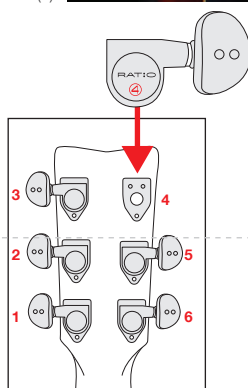
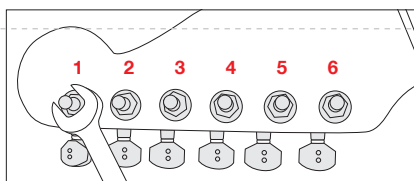
STEP 2 Find the InvisoMatch plate matching your old machine heads *(if none match, proceed to Standard Method)*

STEP 3 Screw down matching Invisomatch plates using pre-existing screw hole(s)



IMPORTANT

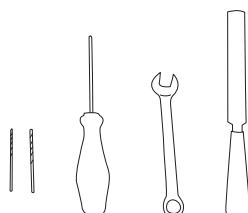
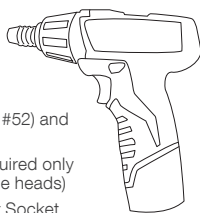
- Install all machine heads into the proper mounting hole by matching the number on the gear cover plate to the number over the headstock hole.
- Tighten all nuts using 10mm (7/16") wrench.



INSTALLATION: Standard Method

REQUIRED TOOLS:

- ① Drill
- ② Drill bits: 1/16" (1.6mm / #52) and 7/64" (2.5mm / #40)
- ③ Phillips Screwdriver (required only for screw mount machine heads)
- ④ 10mm (7/16") Wrench or Socket Wrench
- ⑤ Straight edge



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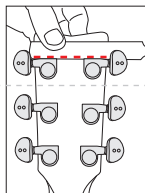
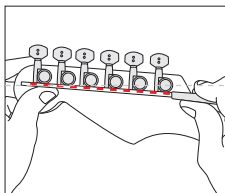
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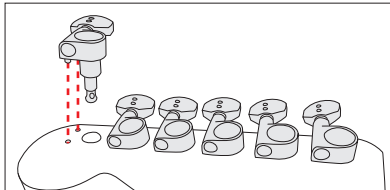
STEP 1 Align Machine Heads

- Place your Ratio machine heads into the headstock mounting holes. [Machine head hole diameter is 7/16" (10mm)]
- Align the machine heads using a straight edge, while gently finger tightening the mounting nuts.



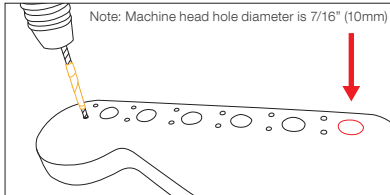
STEP 2 Mark Alignment Holes

- Once aligned, finger tighten the mounting nuts and firmly press the machine heads against the back of the headstock. The mounting pins will leave indentations in the headstock to mark the required hole locations.



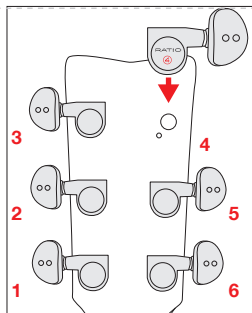
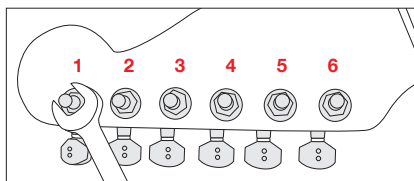
STEP 3 Drill Alignment Holes

- Using a 1/16" (1.6mm / #52) drill bit, drill pilot holes to a depth of 1/8" (3mm). Use masking tape to mark drill bit for your drilling depth
- Using a 7/64" (2.5mm / #40) drill bit, drill alignment holes to same depth.
- Test machine head to ensure fit.
- Repeat for all machine heads.



STEP 4 Install Machine Heads

- Install Ratio machine heads in the correct order (refer to red numbers in images) using the supplied washer and bushing.
- Tighten all nuts using 10mm (7/16") wrench.



Okay, now its time to play! You'll realize in time, Ratio is a lot different than any other machine head you have ever used. You don't have to sneak up on the plain G string (most electric guitar string sets) or the low E string, which require finer tuning. You also don't have to crank away on the high E or D string, as these strings are geared to a lower ratio. As a matter of fact, every string now feels the same to tune. Try doing one full rotation of any tuning key; the pitch of that string will change one tone (give or take). So, if you do any open tunings, or dropped D tunings, with a bit of practice you are going to the exact pitch a whole lot quicker than you ever did before. Welcome to the world of Graph Tech!

I'd love to hear about your Ratio experience. You can email me directly at dave@graphtech.com

- Dave Dunwoodie, Head Honcho