

# RATIO<sup>®</sup>

TUNED MACHINE HEADS

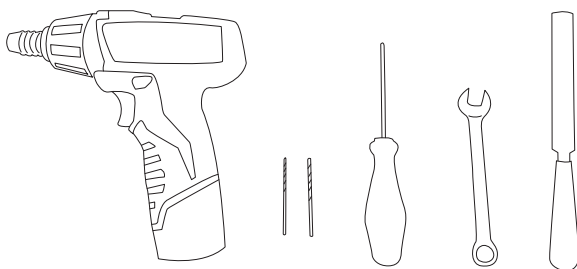
## Installation Guide

*Note: Installation should only be completed by a professional guitar technician or luthier.*



### Required Tools:

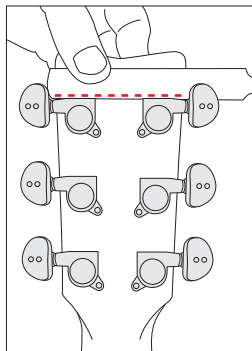
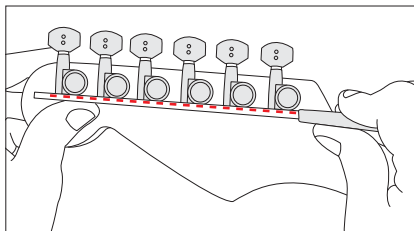
- Drill
- Drill bits: 1/16" (1.6mm / #52) and 7/64" (2.5mm / #40)
- Phillips Screwdriver (required only for screw mount machine heads)
- 10mm Wrench
- Straight edge



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.

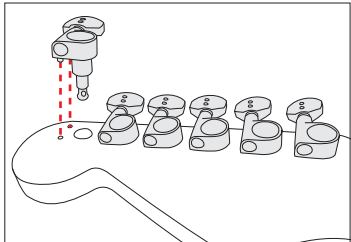


## 2

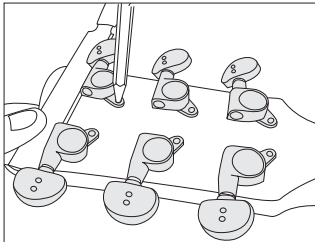
### Mark Alignment Holes

- **2 Pin Mount:** 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.
- **Offset Screw:** Once the machine heads are aligned and finger tightened, use a pencil to mark the hole locations.

#### 2 Pin Mount



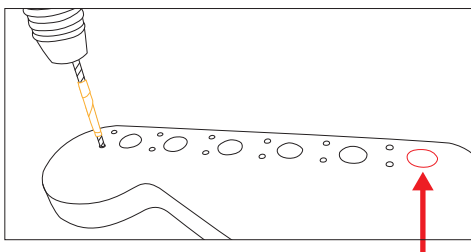
#### Offset Screw



## 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 maximum 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.



Note: Machine head hole diameter is 7/16" (10mm)

## 4

### Install Machine Heads

- 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 10 mm wrench.

