Mastercraft 17FY2-MC Cordless Drill Teardown

Teardown of the Mastercraft 17FY2-MC Cordless Drill/Driver performed on November 9, 2017

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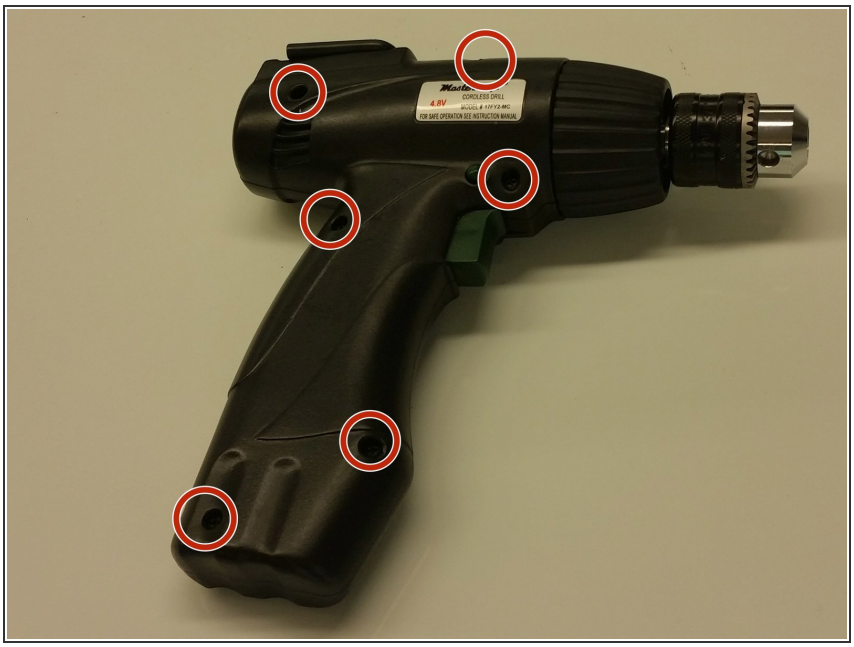
INTRODUCTION

This teardown shows the disassembly of the Mastercraft 17FY2-MC Cordless Drill/Driver. The guide shows all components after disassembly and explains their functionality.

TOOLS:

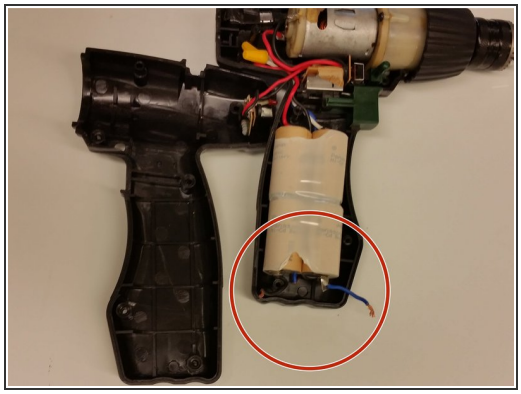
- Pro Tech Toolkit (1)

Step 1 — Remove the screws from the casing



- Use a Phillips head screwdriver to remove the 6 screws from the casing

Step 2 — Remove the battery

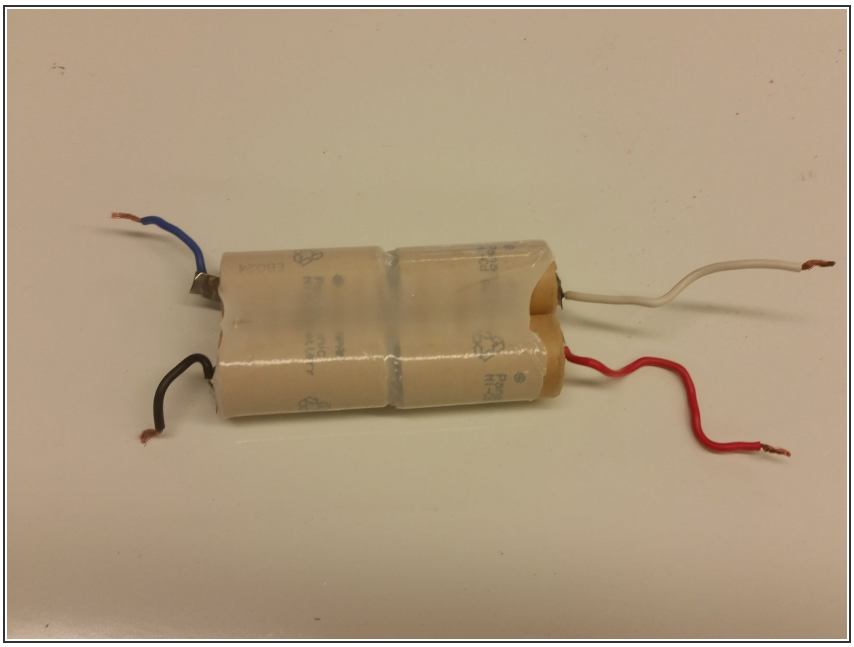


- First remove the two yellow twist-on connectors from the bottom of the handle, then bend the wires away from each other to prevent accidental reconnection

  This disconnects the negative side of the battery, and removes the danger of touching other parts of the drill while the battery is connected

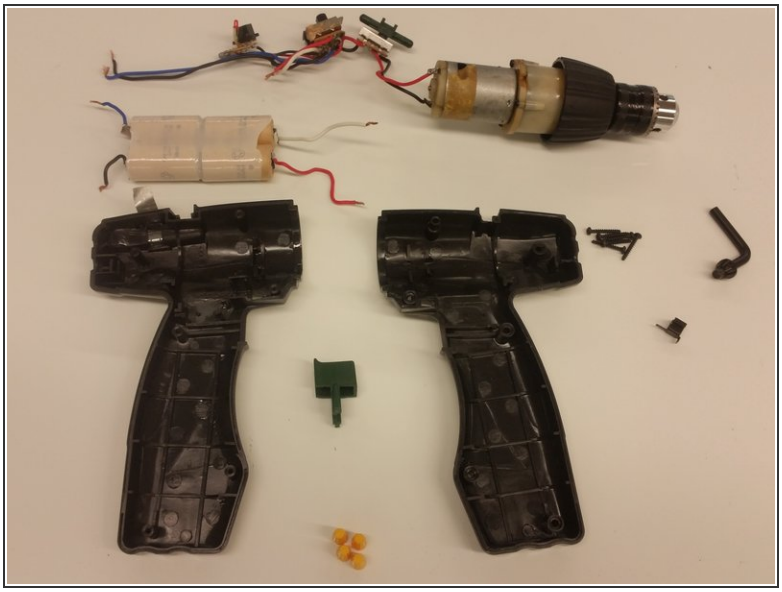
- Then remove the two yellow twist-on connectors from the top of the drill, and remove the entire battery pack

Step 3 — The battery pack



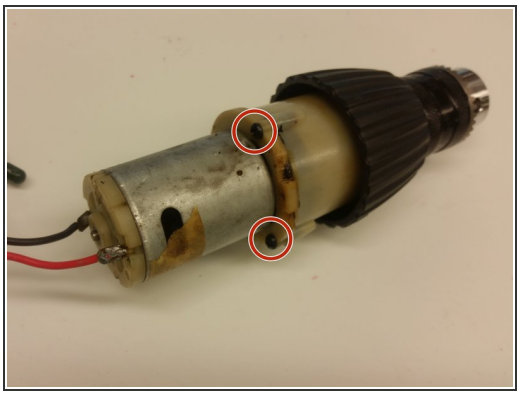
The drill uses a battery pack consisting of four NiCd cells each with a nominal voltage of 1.2V. This gives a total pack voltage of 4.8V when all batteries are connected in series.

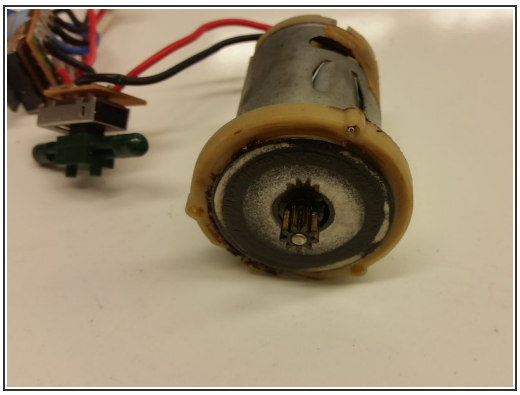
Step 4 — Remove motor assembly from casing

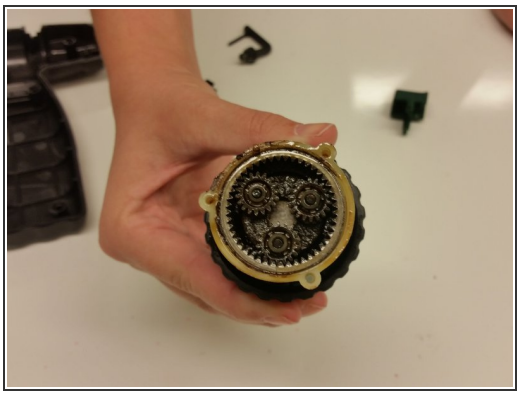


- Slide the charging port, trigger switch, and direction switch out of their slots in the casing. Then remove the entire motor assembly from the casing

Step 5 — Remove the drill mechanism from the motor





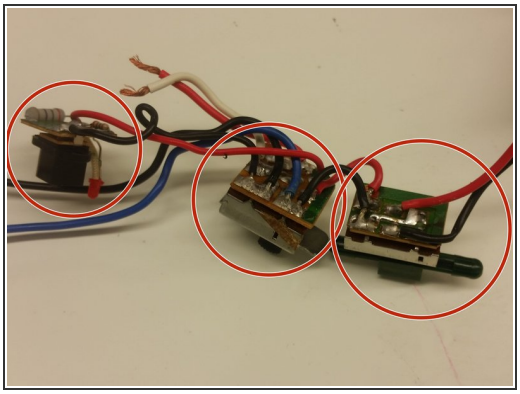


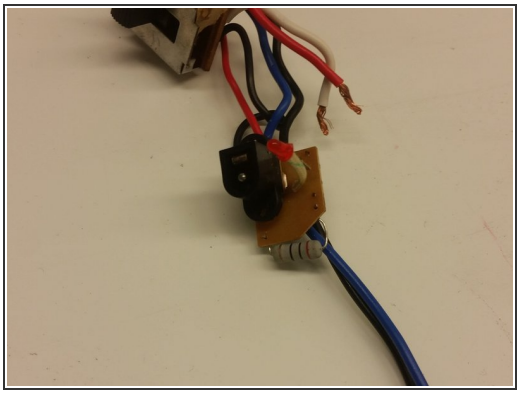
- Remove three screws on the motor with a Phillips head screwdriver to disconnect the drill mechanism from the motor

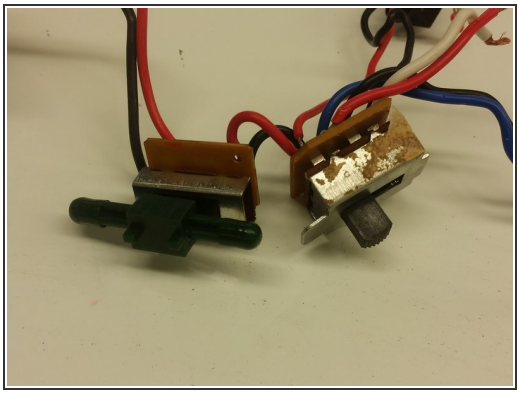
The DC motor (second image) spins a shaft connected to a small gear.

The drill mechanism (third image) uses a set of gears to provide more torque to the drill head.

Step 6 — Motor control electronics







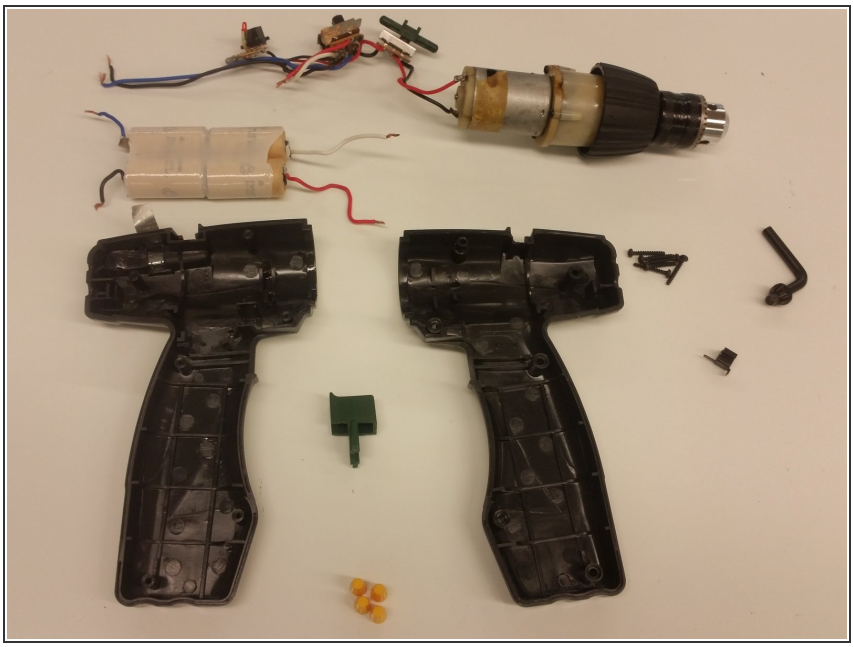
- The three parts of the controlling electronics are (from left to right in the first image): the charging port, the trigger mechanism, and the direction switch.

- The charging port (second image) charges the battery when a DC power supply is inserted into the connector. The port also lights up a red LED while charging.

- The trigger switch controls the speed of the motor by connecting more of the batteries as the trigger is depressed further.

- The direction switch controls the polarity of the voltage connected to the motor, which spins the motor either clockwise or counterclockwise.

Step 7 — Parts overview



- This concludes the teardown of the Mastercraft 17FY2-MC Cordless Drill