

# Replacing the FM-5 Volume Control

Revision 1p0, November 4, 2018

## ***Section 1: About This Manual***

This manual gives the information you need to replace the original volume control/power switch in an FM-5 with a new part, Updatemydynaco part number FM5VCAS.

## ***Who Should Attempt these Projects?***

You can build this kit if you can:

1. solder (using normal rosin core solder and a soldering iron),
2. use simple hand tools like screwdrivers, wire cutters, and pliers, and
3. Read and follow directions.

It helps if you:

1. know a bit about electronics, or
2. have a friend who knows a bit about electronics
3. can get to YouTube to watch a few helpful videos about the assembly process (not available as of this version of the manual)

## ***Tools and Supplies You'll Need***

You'll need the following tools:

1. flat blade screwdrivers for #4 and #6 screws
2. Allen wrench, 1/16", to remove and replace knobs
3. needle nose pliers (helpful, but not strictly necessary)
4. pencil type soldering iron of 25 to 50 Watts (no huge honking soldering guns or blowtorches)
5. wire cutters and strippers
6. Magnifying glass, if you're over 42!

## ***Recommended Solder***

The kit must be assembled with 60/40 Rosin Core solder. The recommended diameter is 0.032 inches. Among many such sources of solder, I have used Radio Shack part number 64-009. It contains 8 oz. of solder, which is *much* more than you'll need to assemble this kit.

## ***Project Overview***

Broadly, the project consists of the following steps:

1. Unplug the tuner.
2. Open the tuner and remove the original volume control and power switch.
3. Install the new power switch.
4. Reassemble the tuner.

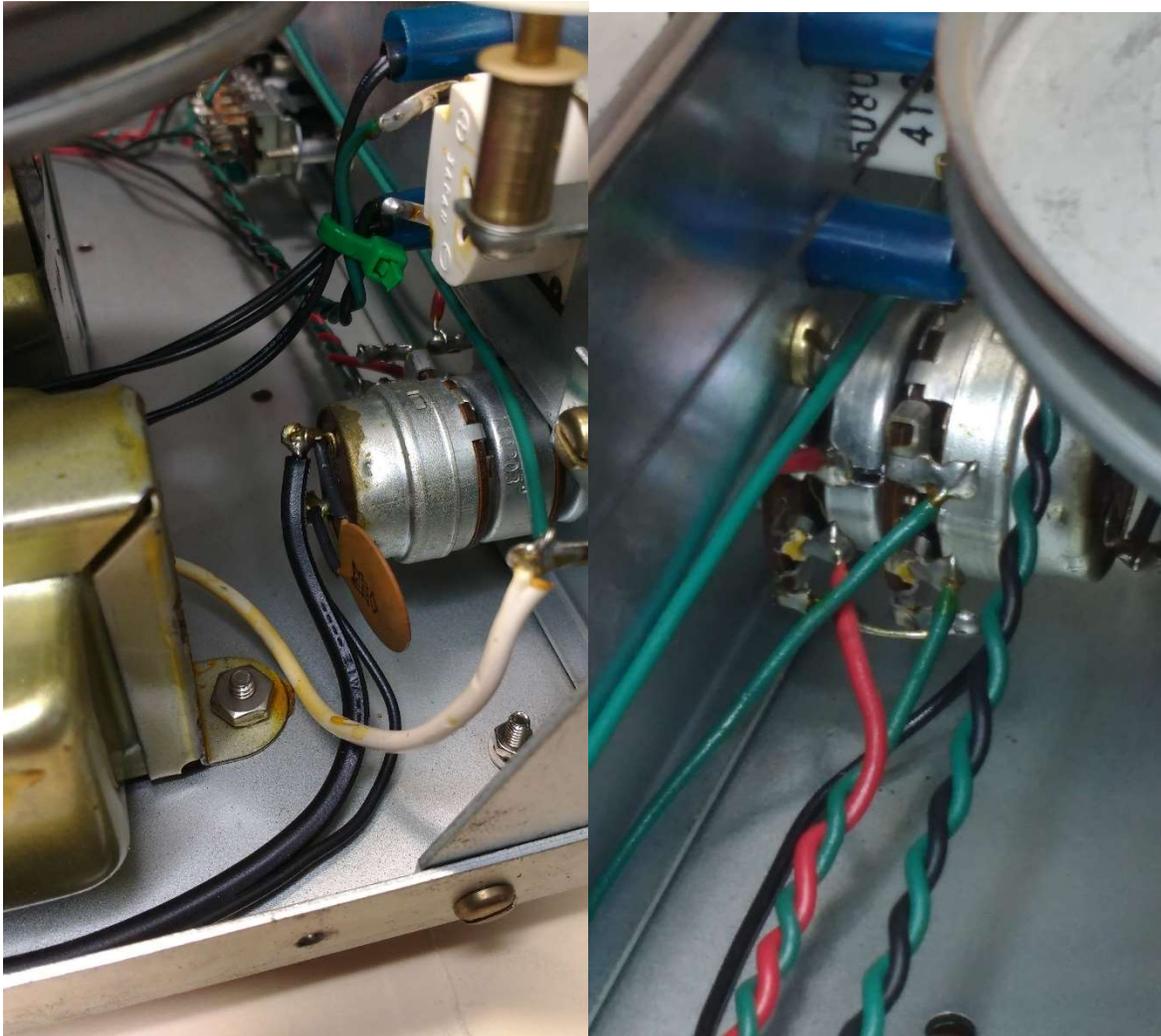
## ***Important Safety Notes***

By purchasing, using, or assembling this kit, you have agreed to hold Akitika, LLC harmless for any injuries you may receive in its assembly and/or use. To prevent injuries:

- Wear safety glasses when soldering to prevent eye injuries.
- Always unplug the power before working on the equipment.
- Large capacitors hold lots of energy for a long time. Before you put your hands into the equipment:
  - Pull the AC plug!
  - Wait 1 full minute for the capacitors to discharge!
- Remove jewelry and rings from your hands and wrists, or anything that might dangle into the amplifier.
- If working in the amplifier, keep one hand in your pocket, especially if you're near the power supply or power supply wires. This can prevent serious shocks.
- Build with a buddy nearby. If you've ignored all the previous advice, they can dial 911 or get you to the hospital.

## Introduction

I didn't write a set of instructions about replacing the FM-5 volume control. It seemed pretty straightforward to me, but then again, I never actually did the replacement myself. However, we're all fortunate enough that one of my customers, Dr. Joe, bought the control, and used it to replace the original one that had worn out. He was kind enough to share what he learned, and allow me to use it to guide all of you who are also interested in replacing your FM-5 volume controls. Thanks, Dr. Joe, for allowing me to reproduce and pass along your notes.



*Figure 1-looking at both sides of the volume control/power switch. Not a lot of room!*

## Background

The original On-Off AC Switch/Volume Control on the Dynaco FM-5 & AF-6 was notorious for developing noise & dead-spots from around the 8 to 12 o'clock position. It is really great that you are able to source a replacement for this impossible-to-find custom-made part, and it works like-new. However, because of its location and the existing zero-tolerance wiring, carrying out this replacement could present some real problems.

**Remove the power plug from the AC mains socket. Double check that the plug is removed from the socket before starting any work!**

Two options are available. The first is to dismantle the existing FM tuner setup and remove the obstructing flywheel to allow access to the pot. The second is to attempt the switch/pot replacement without interfering with any of the existing tuning arrangement. Both options, if not carefully undertaken, could result in damage to the tuning mechanism and other wiring. After reviewing the pros/cons for the two options, I opted for the second option which turned out just great . It took approximately two hours to complete. Outlined below, are the steps used to replace the defective Dynaco FM-5 combined switch/volume pot with the updated dynaco **Part No: FM5VCAS**.

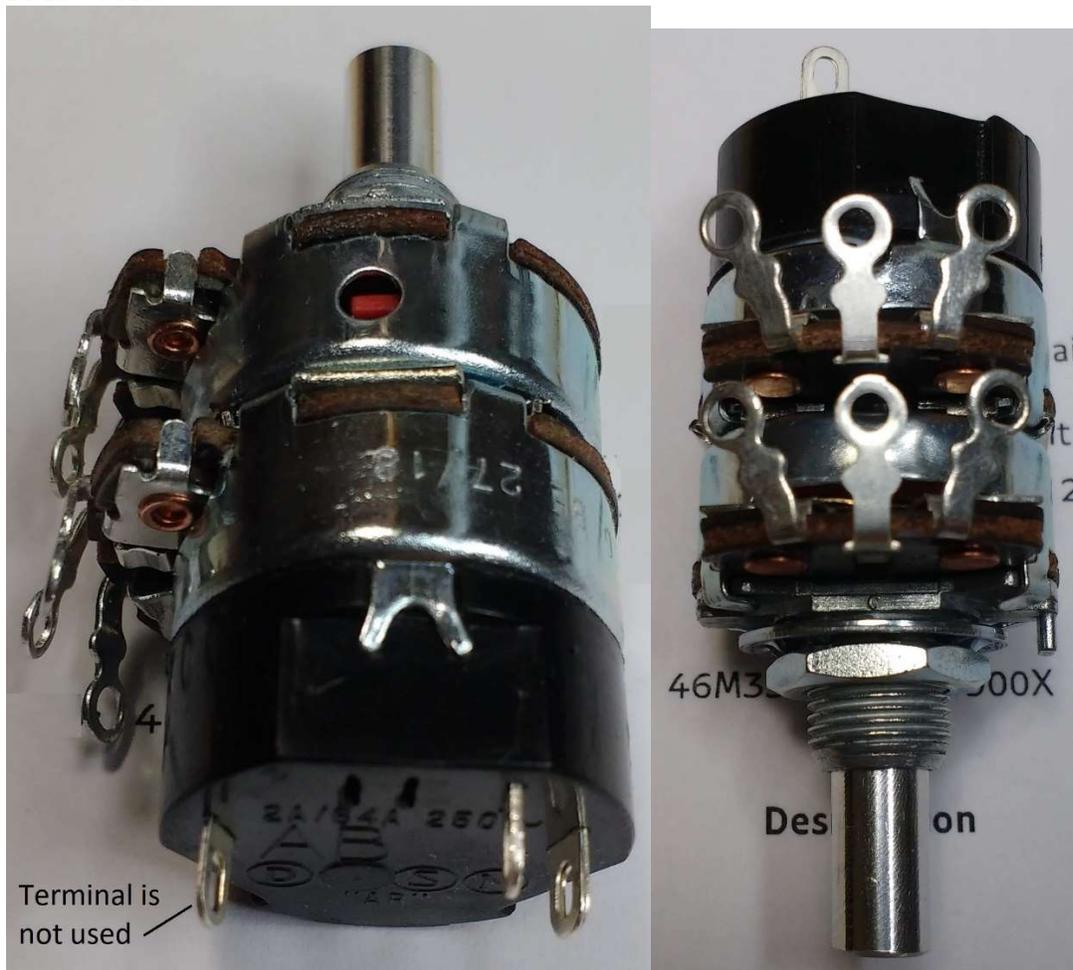


Figure 2-FM5 Volume Control and switch. Note that the closely spaced terminals on the back are the power switch contacts

Before starting, please be aware that apart from the two wires to the AC switch, the rest of the wires to the existing volume control are very exact in length and need be de-soldered rather than snipped-off, in-order to be able to re-position the pot back into its mounting hole. Even the orientation of the re-wiring of the new pot has to be the same as the original, defective pot.

**Step 1:** Cut off both AC wiring tabs at the rear of the defectives pot. The two wires will still be held together by the bypass capacitor.

**Step 2:** Loosen the small Allen nut securing the volume & tuning controls and remove both knobs. Next, carefully remove the two large hexagonal nuts securing the front panel of the FM-5, being careful not to scratch its surface. With pieces of masking tape, secure the calibrated plastic window in its cut-out location at the front of the chassis. Finally, remove the nut securing the defective volume control to the chassis.

**Step 3:** Push in the pot and reaching down from the top, carefully maneuver the control with all of its associated wiring to the top of the chassis between the flywheel & front chassis. Be very careful not to damage the flywheel or the tuning mechanism. Next, slip the control with its wiring along the cut-out in a manila folder and position the folder across the top of chassis. (Please refer to photo below) This will prevent any solder splatter from falling on the circuit boards below and will also prevent the accidental damage of the delicate dacron lines in the tuning mechanism.



*Figure 3-Protect the active work area with a folder (step 1)*

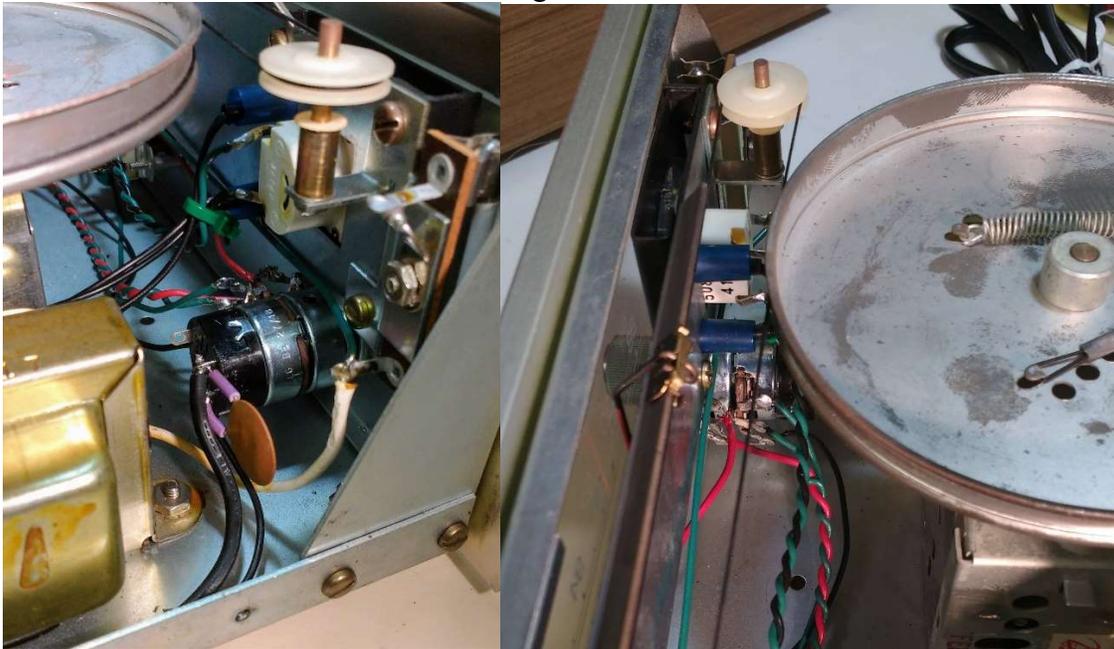


*Figure 4-Protect the active work area with a folder (step 2)*

**Step 4:** Position and orient the new control next to the defective control. De-solder (do not cut) and re-solder one wire at-a-time to the respective terminal on the new volume control. Double-check for identical placement & orientation of the wiring.

**Step 5:** Remove the manila folder and carefully maneuver the re-wired control to its chassis mounting hole. If the control cannot reach the mounting hole, then one of the wires ... most likely the single red wire running along the front wall of the chassis ... was not positioned correctly in relationship to the other wires on the control. Yes, the tolerances for the existing wire-lengths are that tight!

**Step 6:** After correctly positioning and securing the new rewired control to the chassis, reconnect the two AC wires and bypass capacitor to the two adjacent terminals at the rear (right side) of the control. There should be enough spare AC & capacitor lead wire to reconnect to the new switch terminals. If not, de-solder before reconnecting.



*Figure 5-The rewired pot/switch control in location*

**Step 7:** Finally, remove the masking tape securing the calibrated FM plastic panel and then reassemble & secure the front panel and knobs. Hook-up and test the on-off AC switch and volume control. This now complete the installation and testing of the FM5VCAS replacement control.

Best Wishes,

Dr. Joe  
(Toronto)