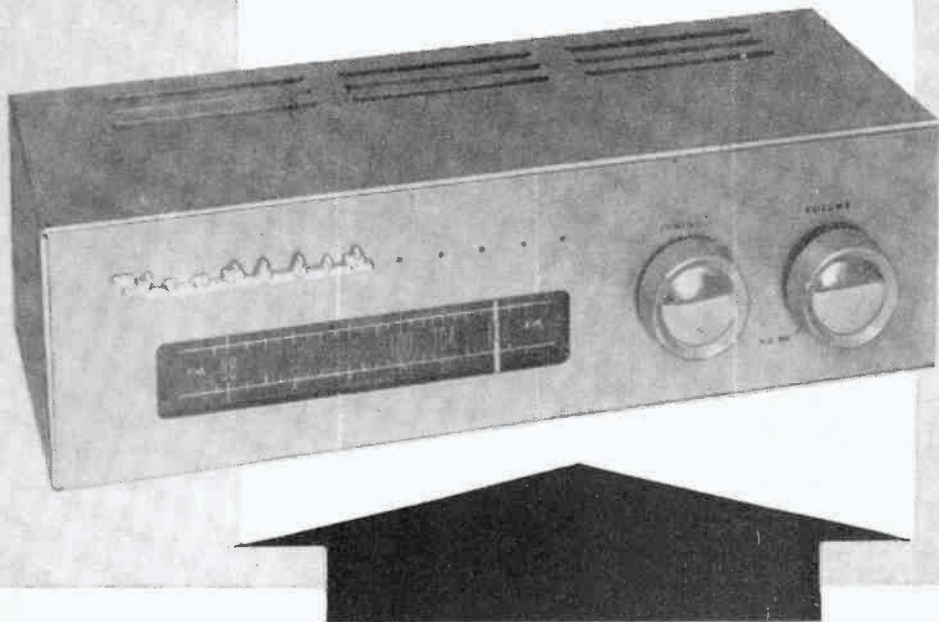




## You Can Up-date Your Heathkit FM-3



***Tuners are basically temperamental—but a few simple modifications will serve to keep this one “on the nose”***

**I**F YOU OWN an FM-3 tuner, you can now incorporate in it the design refinements of the FM-3A. A kit of parts for the purpose is available directly from the Heath Company, Benton Harbor, Mich. Designated as the C-FM-3, it contains numerous capacitors, resistors, a new front panel (with dial calibration), an additional pilot lamp and holder, a new dial drive system, and wire and hardware to complete the conversion.

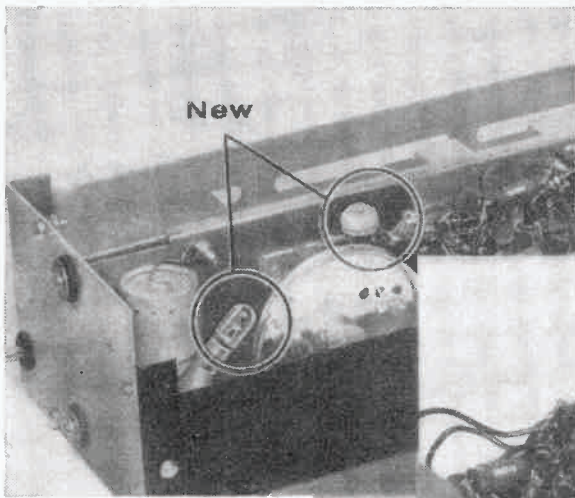
This kit will improve the performance of the FM-3 from several standpoints. The improved mechanical drive results in much easier tuning. Automatic gain control action is made more effective by applying the control voltage to an additional i.f. amplifier stage. The edge-illuminated glass dial enhances the unit's appearance. Parts are provided to stabilize drift, if this has

**By DONALD L. STONER**

been a problem with your FM-3 tuner. And decoupling components will reduce regeneration and noise.

It is advisable to have the original FM-3 construction manual at hand for reference as you work. It will facilitate the conversion.

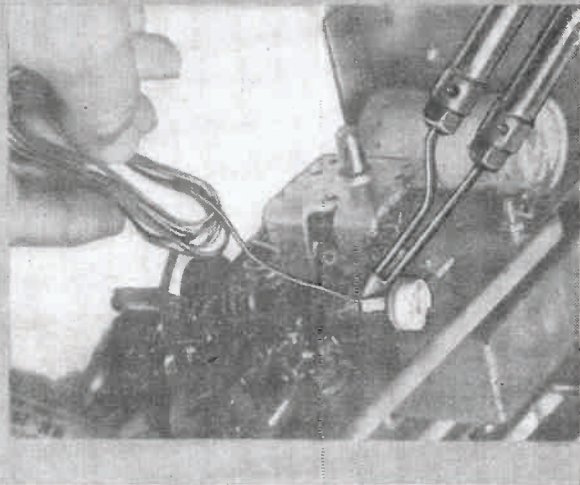
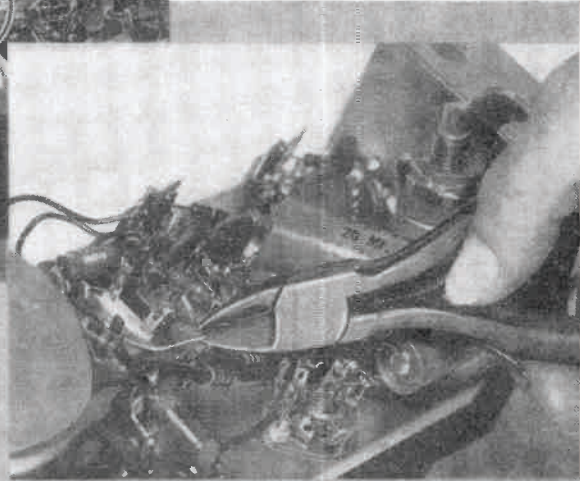
**Reduce Drift and Hum.** A new oscillator trimmer capacitor is supplied as well as a temperature-compensating capacitor to solve your drift problem. If you have no such problem, skip this part of the conversion. Any change in a circuit which is working perfectly may tend to cause trouble rather than make for further improvement. Drift characteristics may be considered normal if warm-up drift time



The modifications are completed with the new parts shown in the photograph at left. But the only change in the external appearance of the unit is the edge-lit dial.

Apply a.g.c. voltage to one additional stage in the i.f. amplifier simply by clipping and moving one wire. This results in more effective automatic gain control action, especially on strong stations.

It's a tight squeeze and a soldering gun comes in handy. Solder the trimmer capacitor securely to prevent mechanical instability.



is ten minutes or less. The tuner should be perfectly stable after this period of time.

If tunable hum has been a problem for you, it can be minimized by installing an r.f. filter at the output of the power rectifier. This consists of a 0.001- $\mu$ fd., 1000-volt disc ceramic capacitor connected between the rectifier cathode (pin 7) and ground.

The final steps of the conversion consist of reorienting the large pulley, installing the new dial plate (a long black plate that provides a new background for the dial), installing a new dial drive shaft, and re-

stringing the dial with a new cord and a white pointer.

**Check Alignment.** After completing the modifications, check the r.f. alignment. The only adjustment that might be incorrect is the oscillator frequency. With the dial set to the frequency of a known station, adjust the new oscillator trimmer until the station is received properly. The r.f. trimmer can be repeaked for maximum signal strength although it will not be off very far if your receiver was previously aligned.

These simple but worthwhile changes should only take you an hour or two. -30-