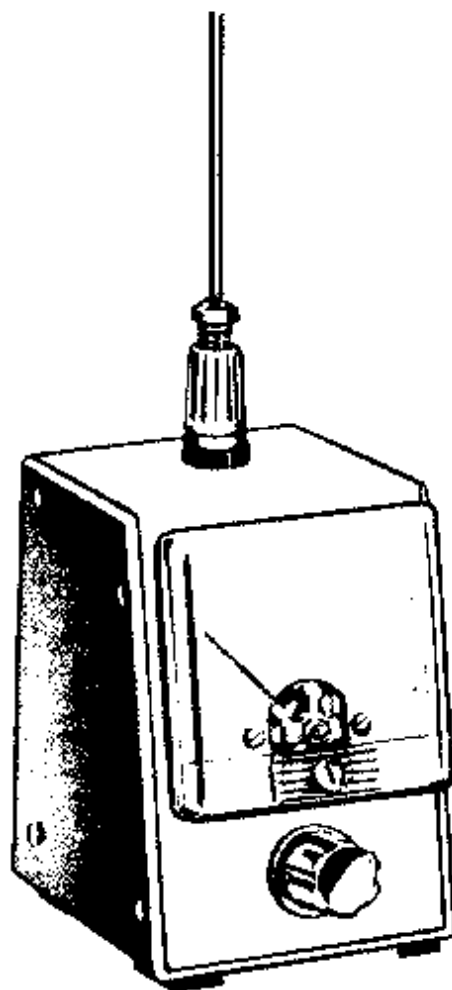
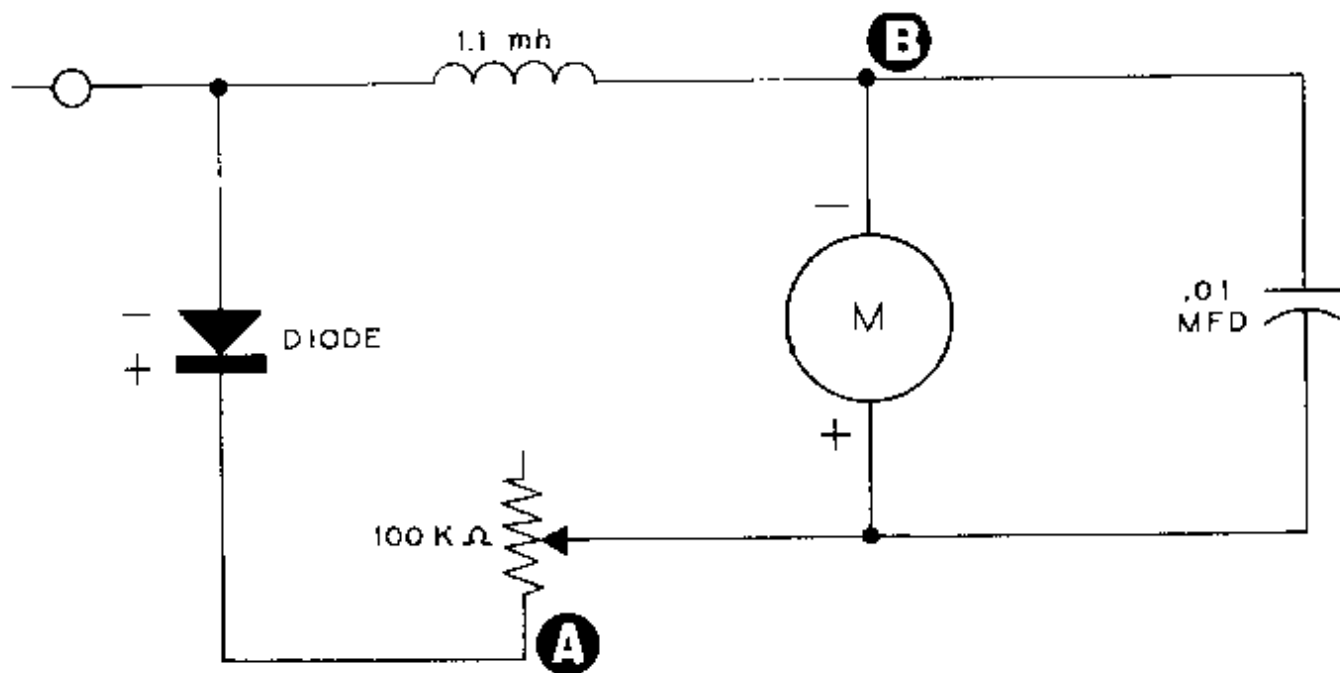


ASSEMBLY AND OPERATION OF THE HEATHKIT MOBILE TUNING METER MODEL PM-2



SPECIFICATIONS

Useful with transmitters of any power level.	No electricity or batteries required.
Frequency Range:	100 kc to over 250 megacycles.
Sensitivity:	0.3 volts RMS at antenna input terminal for full scale deflection, sensitivity control on panel.
Meter:	200 microamperes full scale.
Dimensions:	2 3/8" wide x 2 5/8" deep x 3 1/2" high.
Net Weight:	12 oz.
Shipping Weight:	2 lbs.



SCHEMATIC DIAGRAM
Heathkit Mobile Tuning Meter Model PM-2

DESCRIPTION

The Heathkit Model PM-2 Mobile Tuning Meter is a sensitive portable instrument for the measurement of relative power output of mobile transmitters. The signal radiated by the transmitter supplies the necessary operating power; no other power is required.

While designed expressly to serve as a mobile transmitter tuning meter, the PM-2 finds application in fixed station use as well as an output indicator for any transmitter. The magnet is incorporated to secure the unit to an auto dashboard or other metal surface.

PROPER SOLDERING TECHNIQUES

Only a small percentage of Heathkit purchasers find it necessary to return an instrument for factory service. Of these kits, by far the largest proportion of malfunctions are due to poor or improper soldering.

If terminals are bright and clean and free of wax, frayed insulation and other foreign substances, no difficulty will be experienced in soldering. Correctly soldered connections are essential if the performance engineered into a kit is to be fully realized. If you are a beginner with no experience in soldering, a half hour's practice with some odd lengths of wire may be a worthwhile investment.

For most wiring in this kit, a 30 to 100 watt iron or its equivalent in a soldering gun is very satisfactory. A lower wattage iron than this may not heat the connection enough to flow the solder smoothly over the joint. Keep the iron tip clean and bright by wiping it from time to time with a piece of cloth.

- (*) Start an 8-32 slot head setscrew in the small aluminum knob and mount the knob on the shaft of the 100 K ohm potentiometer. Tighten the setscrew.
- (✓) Place the red binding post cap on the binding post firmly, but do not tighten excessively.
- (*) Straighten the #10 wire and insert one end into the banana plug. Solder the wire by flowing solder completely around the top of the plug. The other end remains free and constitutes the antenna.
- (✓) Cut the rubber tape into four lengths 1/2" long. Peel the transparent tape from the sticky side and place one small 1/2" strip in each corner on the bottom of the cabinet. In like manner, install the identification label under the cabinet.

This completes the wiring and assembly of your PM-2 Mobile Tuning Meter.

OPERATING INSTRUCTIONS

Place the PM-2 in the vicinity of your transmitter or on the dashboard of your automobile and set the sensitivity control to its mid-point; then turn the transmitter on momentarily. Note the meter deflection. If the meter pins, rotate the sensitivity control counterclockwise until the meter reads 6 to 8. If the meter still pins, it may be necessary to shorten the pickup antenna slightly until a reading of 6 to 8 is obtained. If the meter reads low, it will be necessary to either place it closer to the transmitter or lengthen the antenna slightly.

In use, the PM-2 will show you at a glance whether or not your transmitter is radiating a signal. It may be used for tuning your transmitter to maximum power output.

The magnet is adjustable so that it may be set up or down or at any angle so as to secure the tuning meter in practically any position. Once the desired angle is set, the magnet and the bracket may be tightened.

NOTICE: If the PM-2 Power Meter is to be mounted in marine craft or airplanes, the possible effect of the magnet on the compass must be taken into consideration as well as the magnet incorporated in the meter.

IN CASE OF DIFFICULTY

In this event, your wiring should be thoroughly checked since, in an instrument of this simplicity, either an inadvertent wiring error or a defective component would be the major cause of difficulty.

The polarity of the meter and of the crystal diode are extremely important. If the meter tends to read backwards, reverse the leads of the crystal diode. The diode may be checked with an ohmmeter. The resistance will range from 100 to 200 ohms, with the negative lead of the ohmmeter on the BANDED end of the diode. With the negative lead on the opposite end of the diode, the resistance should be higher than 100 K.

The meter may be checked by the following method: Refer to the schematic diagram on page 2, and disconnect the diode from point "A". Rotate the sensitivity control FULL COUNTERCLOCKWISE. **NOTE: Any other position could damage the meter.** Place one lead of an ohmmeter on point "A". Place the other lead on point "B". The resistance should be approximately 100 K ohm. If no reading is obtained, either the 100 K ohm potentiometer or the meter is open. To determine which is open, check the potentiometer. **WARNING: DO NOT ATTEMPT TO PLACE THE OHMMETER DIRECTLY ACROSS THE TUNING METER TERMINALS.** In the event of continued difficulties, please refer to the following section, titled SERVICE.

WARRANTY

Heath Company warrants that for a period of three months from the date of shipment, all Heathkit parts shall be free of defects in materials and workmanship under normal use and service and that in fulfillment of any breach of such warranty, Heath Company shall replace such defective parts upon the return of the same to its factory. The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of all other warranties, whether express or implied and of all other obligations or liabilities on the part of Heath Company and in no event shall Heath Company be liable for any anticipated profits, consequential damages, loss of time or other losses incurred by the buyer in connection with the purchase, assembly or operation of Heathkits or components thereof. No replacement shall be made of parts damaged by the buyer in the course of handling or assembling Heathkit equipment.

NOTE: The foregoing warranty is completely void and we will not replace, repair or service instruments or parts thereof in which acid core solder or paste fluxes have been used.

HEATH COMPANY

All prices are subject to change without notice. The Heath Company reserves the right to discontinue instruments and to change specifications at any time without incurring any obligation to incorporate new features in instruments previously sold.

PARTS LIST

PART No.	PARTS Per Kit	DESCRIPTION	PART No.	PARTS Per Kit	DESCRIPTION
10-71	1	100 K Ω potentiometer	252-1	8	3-48 nut
21-16	1	.01 μ fd disc ceramic capacitor	252-3	3	6-32 nut
45-4	1	1.1 mh RF choke	252-7	2	3/8" x 32 nut
56-4	1	Diode	253-1	1	Fiber washer
73-M16	1	Length rubber tape	253-10	1	3/8" flat washer
75-17	2	Binding post bushing	253-40	1	Steel washer
90-M99F	1	Cabinet shell	254-1	1	#6 lockwasher
100-M16R	1	Binding post cap	254-4	1	3/8" lockwasher
203-M171F	1	Front panel	254-7	8	#3 lockwasher
204-M224F	1	Magnet bracket	259-1	1	#6 solder lug
205-M141	2	Magnet pole piece	340-4	1	Length #10 bare wire
250-15	1	6-32 x 1/8" slot head setscrew	390-65	1	Identification label
250-49	8	3-48 x 1/4" PHMS	407-61	1	200 μ a meter
250-134	1	6-32 x 3/4" brass RHMS	427-2	1	Binding post
			438-16	1	Banana plug
			462-61	1	9/16" aluminum knob
			474-1	1	Ferrite magnet
			595-251	1	Manual