Pace P5403A Owner's Manual

PACE Division

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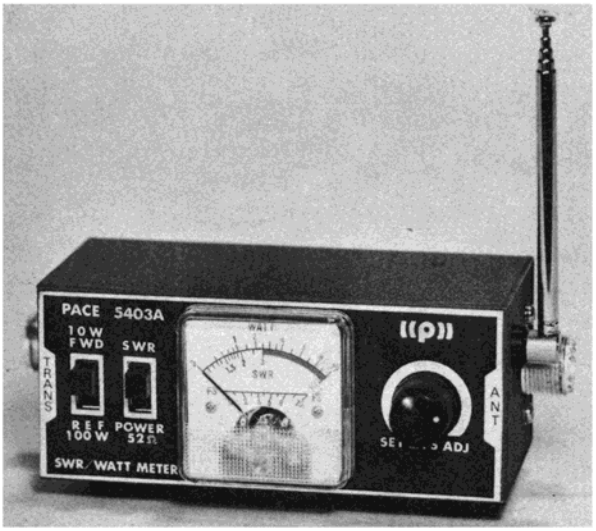

MODEL P-5403A

SWR BRIDGE, POWER METER
and FIELD STRENGTH INDICATOR

1. GENERAL DESCRIPTION

The PACE Model P5403A is a handy, compact device for the amateur radio station in checking transmitters operation.

For SWR measurements, Model P5403A uses the bridge method of comparing the voltage supplied to and reflected from the antenna system. The operation can accurately and quickly match the antenna to the transmitter. For RF power measurement, the average voltage from a carrier detector is measured. Continuous monitoring of the transmitter output is possible by having the instrument in the circuit at all times. The indicator can also be used as a field strength meter by disconnecting it from the feed line and attaching the small pick-up antenna included.

2. SPECIFICATIONS

SWR	1:1 to 1:3
RF Power	0-10 watts and 0-100 watts
Accuracy	SWR 5%, RF Power 10%
Impedance	52 ohms
Frequency Range	1.5 MHz to 144 MHz
Indicator	100 DC Micro-ammeter
Connector	SO-239, UHF type
Antenna	5 Section, full length 9 1/4"
Dimensions	6" X 2" X 2"
Weight	14 oz.

3. STANDING WAVE RATIO MEASUREMENT

a. Turn the transmitter off and disconnect the antenna coaxial cable at the transmitter output.

b. Connect the P5403A "TRANS" connector to transmitter output, and "ANT" to antenna connector. A short cable equipped with a male connector on both ends will be required between the transmitter and the P5403A.

c. Set the slide switch to "SWR" and "FWD". Rotate the "SET" and "FS ADJ" counterclockwise to near minimum position.

d. Turn the transmitter on (key the microphone), rotate the "SET" and "FS ADJ" for full scale, "SET" position on meter.

e. Next, set the slide switch (FWD/REF) to "REF" and read the meter scale. The meter will give the SWR reading directly.

f. A 1:1 ratio is the ideal match. Adjustments on the antenna system should be made so that the SWR is as low as possible. A SWR reading of 2.0 is considered satisfactory, taking into consideration the line losses and slight mismatching. Use the manufacturers instructions included with your antenna for the correct antenna matching procedure. Never attempt to adjust the set to the antenna.

g. The power required for the SWR bridge operation is dependent upon the frequency. About 25 watts for 3.5 MHz, 15 watts for 7 MHz and proportionately lower power at higher frequencies. If the transmitter power is not sufficient and a full meter swing cannot be achieved, adjust the antenna system for the lowest possible swing at the "REF" position of the slide switch.

4. READING RF POWER

a. Connect the P5403A "TRANS" connector to the transmitter output, and "ANT" to the antenna connector.

b. Set the slide switch (SWR, PWR) at "PWR" position, and set the range slide switch (FWD/REF) to either 10 watts or 100 watts position, whichever is suitable.

c. When the transmitter is switched on, the meter needle will deflect. Read the amount of deflection on the top scale. If the range switch had been set to the 10 watt range, the value is multiplied by 10.

d. For accurate power reading the P5403A should be used in circuits having SWR value of up to 1.5. The meter accuracy will decrease if the SWR value exceeds 1.5.

e. Always have the transmitter switched off when removing this meter from the circuit.

f. NEVER disconnect the "ANT" connector when transmitting. The abnormal voltage generated may damage the P5403A.

5. FIELD STRENGTH INDICATIONS

A pair of diodes has been inserted in the circuit to rectify the RF energy picked up by the small antenna. Remove the instrument from the transmitter output circuit and restore the former transmitter antenna connections.

a. Set the slide switch to "SWR" and "FWD".

b. Fasten the collapsible pickup antenna to the stud on the side of the case and extend it to full length.

c. Bring the P5403A in the vicinity of the transmitter or antenna system with the transmitter in operation. Be careful that the pickup antenna does not come in contact with any metallic portion of the transmitter or antenna.

d. The adjusting knob is rotated to obtain a convenient reading on the meter.

e. After the above steps have been completed, any adjustments performed on the transmitter or antenna will be reflected by an increase or decrease in the meter reading.

6. IN-CIRCUIT MONITORING

The P5403A can be left continuously in the circuit for monitoring transmitter output up to 100 watts. Set the slide switch to "SWR" and "FWD". Adjust the knob for a meter swing to about midscale with the transmitter on. Any abnormal variation in the transmitting system will be quickly detected. The instrument consumes practically no power for this purpose.

Schematic for Model P-5403A