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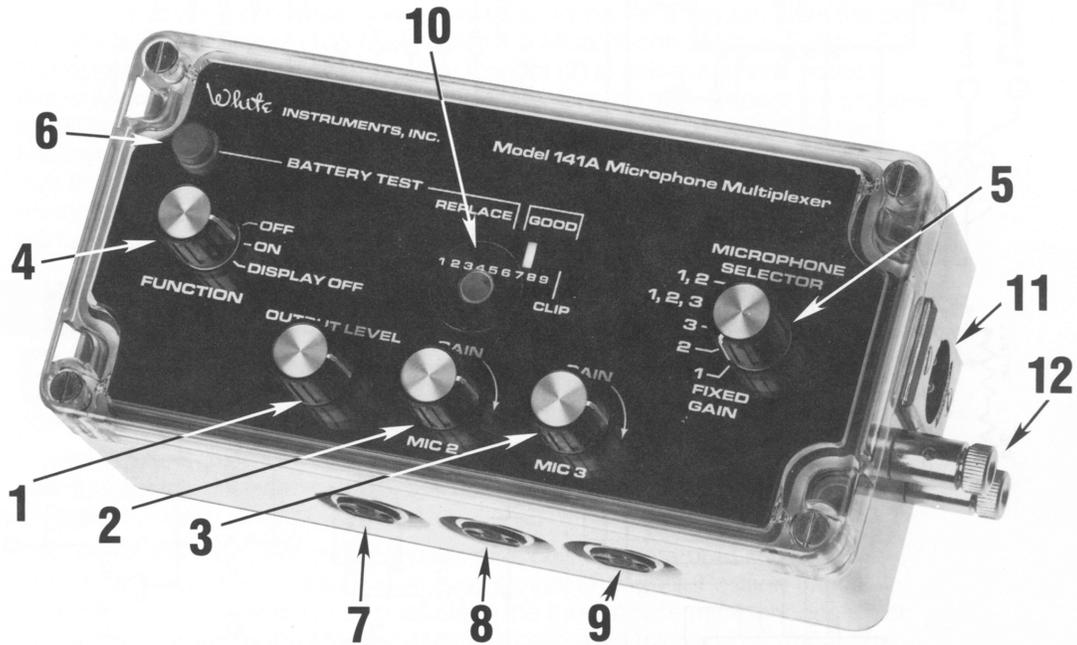
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**Note:** Repairs and packages should be shipped to Suite 202



# Model 141A Microphone Multiplexer



1. **OUTPUT LEVEL:** This is a continuously variable gain stage of up to 20dB on the output of the unit.
2. **ATTENUATOR, MICROPHONE PREAMP 2:** The microphone preamp is operating at a fixed gain of 40dB. This is a continuously variable attenuator of up to 20dB. Maximum attenuation in the extreme CCW position.
3. **ATTENUATOR, MICROPHONE PREAMP 3:** Same as 2, above. **NOTE:** The gain of Microphone Preamp 1 is fixed at 40dB. Microphones 2 & 3 must be adjusted to match Microphone 1.
4. **FUNCTION SWITCH:** This switch controls the power to the unit as well as allowing the user to turn-off the Meter Display to save battery power.
5. **MICROPHONE SELECTOR SWITCH:** This switch selects one or a multiplexed combination of up to three microphones to the unit's output.
6. **BATTERY TEST BUTTON:** This button will only work when the Function Switch, 4 above, is set to the "ON" position. The Meter Display, 10 below, will indicate the condition of the battery.
7. **MICROPHONE INPUT 1:** Unbalanced, 200 Ohm nominal. XLR-F connector. Pins 1 & 2 = Common. Pin 3 = Signal +.
8. **MICROPHONE INPUT 2:** Same as 7, above.
9. **MICROPHONE INPUT 3:** Same as 7, above.
10. **METER DISPLAY:** This LED display indicates the condition of the battery as well as serving as a guide in balancing the three microphones to be multiplexed.
11. **OUTPUT CONNECTOR:** Unbalanced, 0 ohms nominal. XLR-M connector. Pins 1 & 2 = Common. Pin 3 = Signal +.
12. **OUTPUT CONNECTOR:** Redundant to 11, above. Binding post closest to top of unit is signal +.

## **Description**

The *Model 141A Microphone Multiplexer* is basically a microphone commutator. It is designed to accept the outputs from three dynamic microphones, amplify their signals to line level, and scan them at a rate determined to minimize the "aliasing" effect so as to present a spatial average of the sound field to the Real Time Analyzer such as our *Model 140 Sound Analyzer* or *System 200 Signal Analyzer*. The output of the *Model 141A* is at a high level so that the signal may be transmitted to the analyzer via a simple pair of conductors which need not be shielded. The scan rate is approximately three times per second. The *Model 141A* is battery powered for ease of remote operation.

## **Operation**

In practice, three microphones (usually the "house" microphones) are connected to the *Model 141A* down on the floor of the room being equalized. The output of the *Model 141A* is connected to the real time analyzer via a simple, unshielded pair of wires. Three microphones are arranged in close proximity to each other. Set the Microphone Selector Switch (5) to Microphone 1. Excite the room with noise from the real time analyzer and adjust the Output Level Control (1) to achieve an appropriately positioned display on the analyzer. Note the position of the Meter Display (10). Now switch the Microphone Selector Switch (5) to Microphone 2 and adjust its Attenuator Control (2) to achieve a level equal to that of Microphone 1 as indicated on the Meter Display (10). Repeat the process for Microphone 3. When all three microphones have been balanced set the Microphone Selector Switch (5) to the "1,2,3" position. This will multiplex the signals from the three microphones to the output of the *Model 141A*. The microphones are then placed across the room and a spatial average of the sound field will be displayed on the real time analyzer.

## **Calibration for Sound Pressure Level**

Because the *Model 141A* features continuously variable gain and attenuator controls it can not be factory calibrated for any given measurement microphone/real time analyzer combination. This calibration, however, is easily accomplished on the job provided that the user has a measurement microphone/real time analyzer combination already calibrated to each other.

First, excite the room with the analyzer's pink noise generator to some convenient level. Once this excitation level is set do not change it. Position the calibrated microphone as close as possible to the three house microphones which will be multiplexed by the *Model 141A*. The calibrated microphone should be connected directly to the real time analyzer. Adjust the analyzer to yield an appropriate display and note the sound pressure level (spl) indicated. When this is accomplished do not move the analyzer's input controls again.

Connect the *Model 141A* to the analyzer's line level input connector. Adjust the *Model 141A* as in section 3 except that the initial adjustment of Microphone 1 will be to achieve the same sound pressure level as that produced by the calibrated microphone.

## **Battery Change**

1. Secure a good quality alkaline 9V transistor radio battery available almost anywhere.
2. Loosen the four captive screws in the top of the unit.
3. Carefully remove the *Model 141A* from its case bottom by disconnecting the two Molex connectors from the rear of the Output Connector (11). Note colors.
4. Replace the battery and reverse the above process to reassemble the unit.

