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Loudspeaker Polarity Tester Model-139B

Even in a very noisy environment, Model-139B still has the ability to determine quickly and precisely the positive and negative polarity of a loudspeaker、headphone、receiver and every single unit in a loudspeaker system. Model-139B also includes 3 sets of external input terminal and selector which can be used to combine with other instruments, in order to measure the other features of a loudspeaker simultaneously. It is quite suitable for 100% Q.C. testing for loudspeakers in production line.

Ⅰ. Characteristic

(1) Model-139B can determine at once the positive & negative polarity of a loudspeaker, receiver, headphone and every single unit in a loudspeaker system.

(2) Model-139B uses both the "positive" & "negative" polarity indicators, to measure instantly the positive & negative polarity of a loudspeaker, besides, to avoid visual error that causes the wrong determination of polarity, Model-139B is designed with the supplement of a beeper, which when buzzing, indicates the positive polarity.

(3) Model-139B can't not be interfered by the background noise, even in a noisy production line, Model-139B still can determine quickly & precisely the polarity of a speaker.

(4) Model-139B also includes 3 sets of external input terminal and selector which can be used to combine with other instruments, in order to measure the other features of a loudspeaker, for example :

(a) Model-139B can combine with an Impedance Meter / Freq. meter (Model-152A), to measure the impedance of a loudspeaker.

(b) Model-139B can combine with a Digital High Speed Fo Meter (Model-7117C), to measure the Fo value of a loudspeaker.

(c) Model-139B can combine externally with an Audio Sweeper(Model-7116C), to test the buzz, rattle of a loudspeaker, it needs only one person to operate, its quite speedy & convenient to operate. Users may use a foot switch to control the selection of either one set of testing item, to make alternate testing with loudspeaker's polarity (WF or M&T).

II. Panel Description

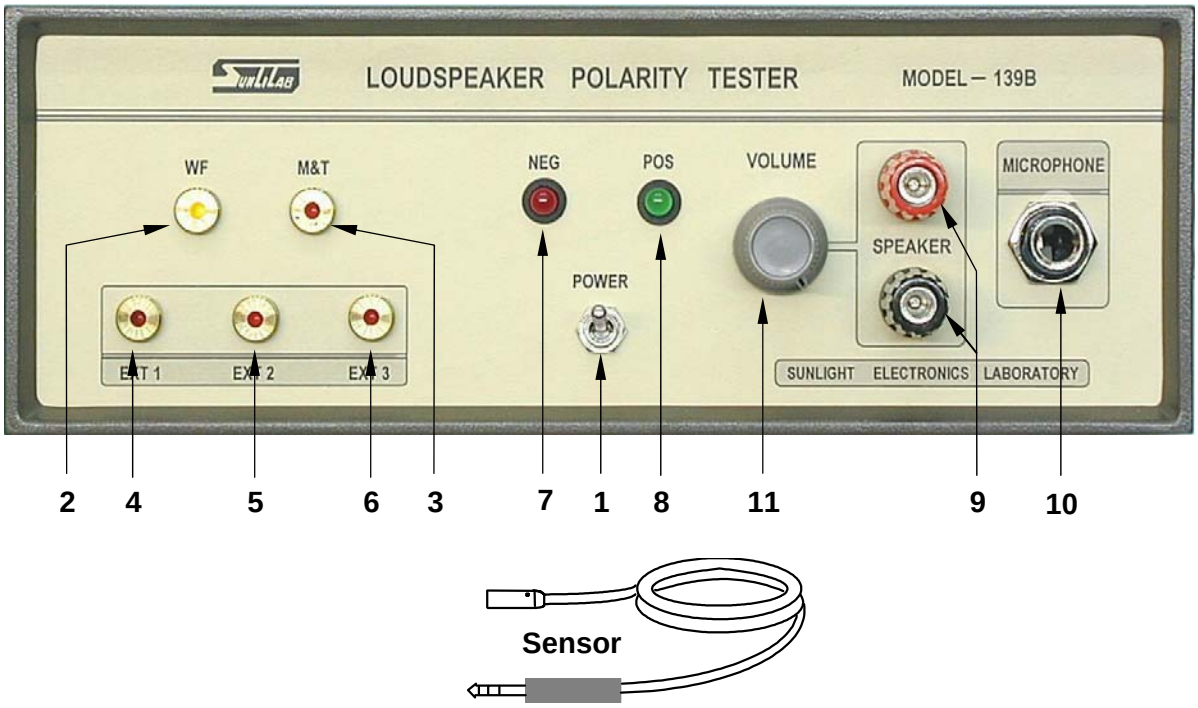

Fig. (1) Model-139B and Sensor

(1) Power : Power switch.

(2) WF : WF Selecting touch switch and red indicator, this range is suitable for determining the polarity of a woofer, when touching this switch, the red indicator will light up, and the red and black terminals on (9) will output measurement signal to a loudspeaker.

(3) M & T : M & T Selecting touch switch and red indicator, this range is suitable for determining the polarity of a midrange & tweeter, when touching this switch, the red indicator will light up, and the red and black terminals on (9) will output measurement signal to a loudspeaker.

(4) EXT.1 : EXT.1 Selecting touch switch and red indicator. When touching this switch, the red indicator will light up, and the pre-measure loudspeaker on the red & black terminals (9) will automatically be switched to EXT.1 " external input terminal (11) ", if EXT.1 external input terminal is connected to an Audio Sweeper (Model-7116C), then, Model-7116C will through its internal circuit, output signal to pre-measure loudspeaker, to measure the buzz, rattle of a loudspeaker.

(5) EXT.2 : EXT. 2 Selecting touch switch and red indicator. When touching this switch, the red indicator will light up, and the pre-measure loudspeaker on the red & black terminals (9) will automatically be switched to EXT.2 " external input terminal (12) ", if EXT.2 external input terminal is connected to an Digital High

Speed Fo Meter (Model-7117C), then, Model-7117C will through its internal circuit, output signal to pre-measure loudspeaker, to measure the Fo value of a loudspeaker.

(6) EXT.3 : EXT. 3 Selecting touch switch and red indicator. When touching this switch, the red indicator will light up, and the pre-measure loudspeaker on the red & black terminals (9) will automatically be switched to EXT.3 " external input terminal (11) ", if EXT.3 external input terminal is connected to an Impedance Tester/ Freq. Counter (Model-152A), then, Model-152A will through its internal circuit, output signal to pre-measure loudspeaker, to measure the DC resistance or Zx impedance of a loudspeaker.

(7) NEG. : Negative polarity indicator (red) of loudspeaker. Users should connect the (+), (-) terminals of the pre-measure loudspeaker respectively to the red, black terminals (9) , if the voice coil polarity of the pre-measure loudspeaker was inversely connected, upon detected by a microphone, this red negative polarity indicator will be blinking at once, which indicates that the voice coil was inversely connected to the speaker terminals, users should change the lead wires of voice coil.

(8) POS. : Positive polarity indicator (green) of a loudspeaker. Users should connect the (+), (-)terminals of the pre-measure loudspeaker respectively to the red , black terminals (9), if the voice coil polarity of the pre-measure loudspeaker was properly connected, then, upon detected by a microphone, this green positive polarity indicator will be blinking at once, & its built-in buzzer will be ringing, which indicated that the polarity of the pre-measure loudspeaker was properly connected.

(9) Speaker : Pre-measure loudspeaker or headphone is connected to (9), the (+) , (-) terminals of the pre-measure loudspeaker should be connected properly to the red and terminals (9) respectively, otherwise, opposite measurement result will occur.

(10) MICROPHONE : Stereo phone jack. Connect the sensor of Model-139B to this jack, in order to detect the positive, negative polarity of loudspeaker.

(11) VOLUME : Can adjust the output to the volume of the speaker To test the Positive & negative polarity of headphone, it is necessary to adjust the volume to the appropriate position, to avoid too high volume might cause the voice coil of the headphone from rocking down from its magnetic circuit. On the other hand, to test the pos. & neg. polarity of loudspeaker , the volume should be adjusted to the highest position. Note: This volume control knob is used only for the headphone firms.

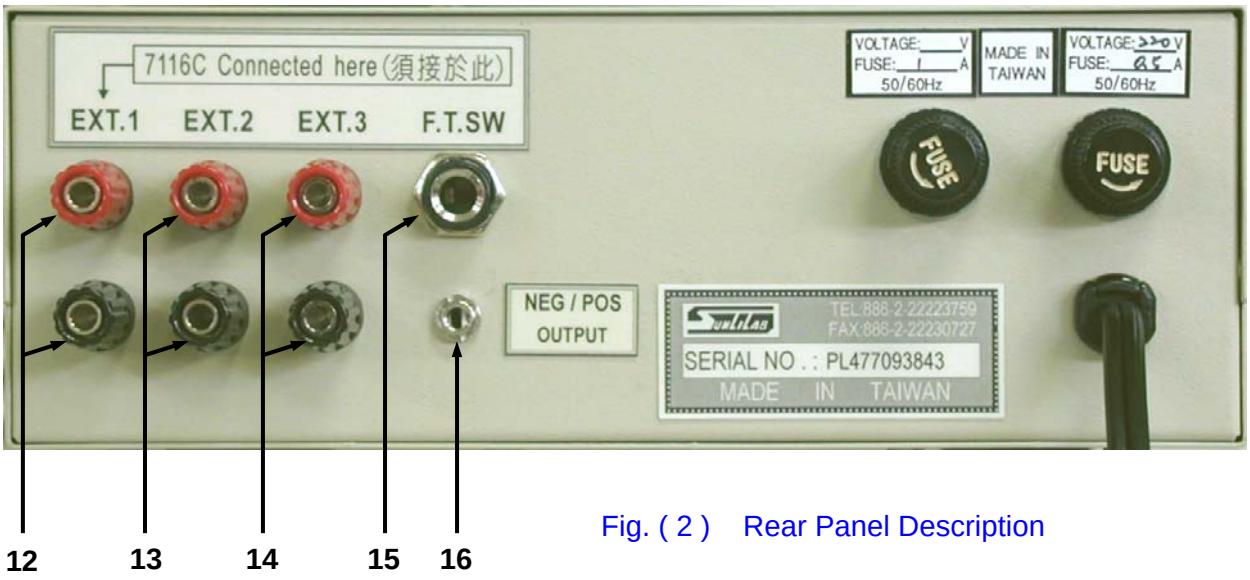

Fig. (2) Rear Panel Description

(12) EXT. 1 : Input terminal for connection of Model-139B with other measuring instrument, which is being control by the EXT.1 touch switch. (If connected with the foot switch, has interaction with Ext.1)

(13) EXT. 2 : Input terminal for connection of Model-139B with other measuring instrument, which is being control by EXT.2 touch switch.

(14) EXT. 3 : Input terminal for connection of Model-139B with other measuring instrument, which is being control by EXT.3 touch switch.

(15) F.T. : Connector of foot switch to Model-139B. (Has interaction with Ext.1)

(16) NEG/POS OUTPUT : The socket for the extended Negative/Positive Polarity Indicators, only those Model-139B with serial nos. prefixed with **PLxxxxxxxxx** have this function . This socket is used to plug in the "**Extended Pilot Model-139BL**" , Please refer to the explanation on "**New Function**" at the end of the page.

III. Usage

(A) When Model-139B is being used without connection of a foot switch :

(1) According to user's measurement requirement, simply "touch" either one of the 5 touch switches, to set the desired measuring item.

(2) If combined externally with other measuring instruments, to measure the other features of a loudspeaker & every single unit of the loudspeaker system, users only need to connect the said intend measuring instrument to the external input terminal at the rear panel of Model-139B (it has 3 set of external input terminals, thus, it can connect instruments of 3 different measuring items). Please refer to connection diagram (A) and (B).

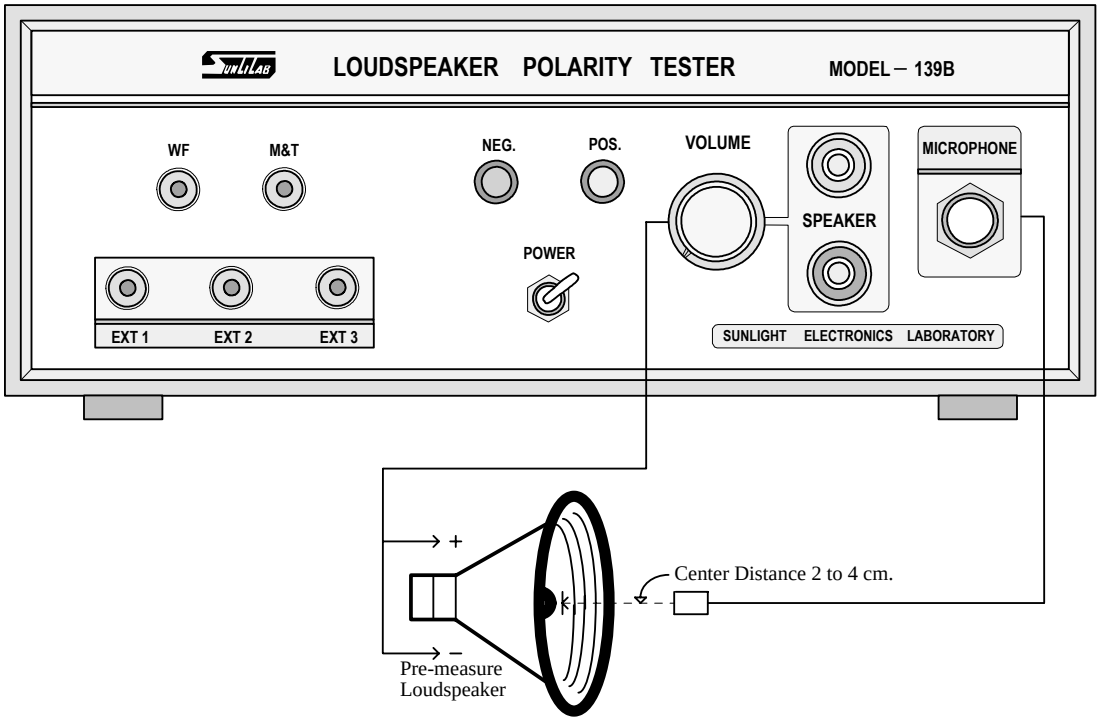

Fig. A. Polarity Measurement Connection Diagram

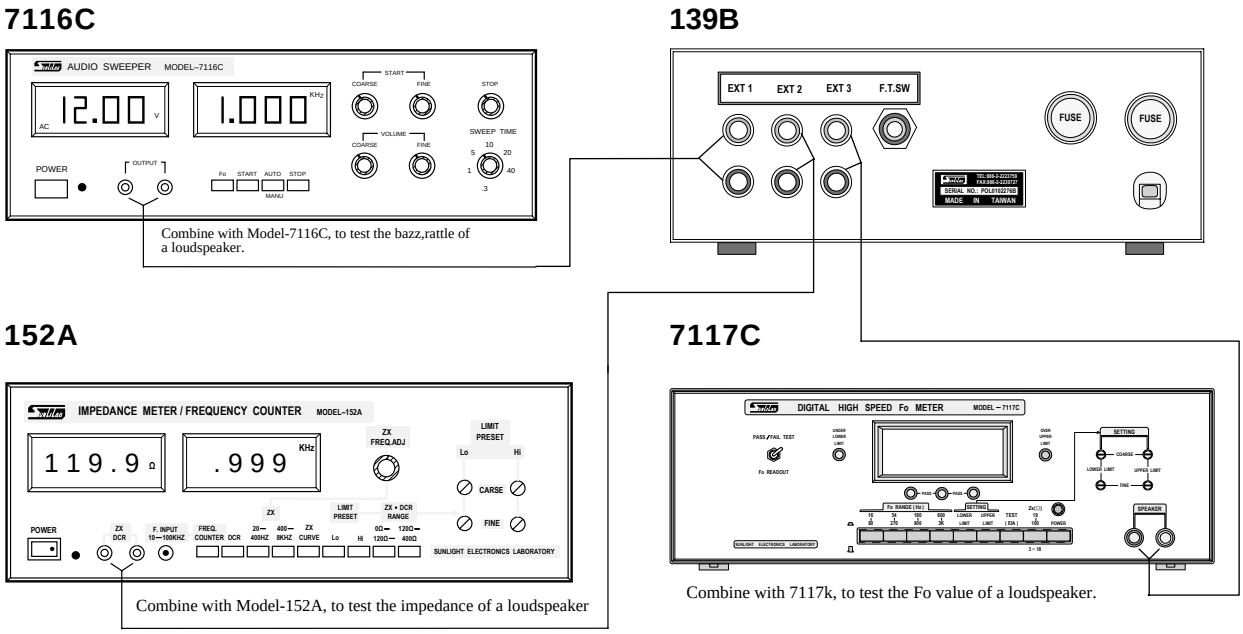

Fig B. Reference Connection Diagram of Rear Panel With External Instruments

(B) When Model-139B is being used with connection of a foot switch :

(1) The purpose of connecting a foot switch to 139B is for the convenience of using " foot " in processing & for controlling the switch selection, users don't need to "touch" the selecting switch every time a selection is occurred, this will eliminate the work load.

(2) With the addition of a foot switch, only 2 sets of touch switch can be controlled by foot switch, when connecting the foot switch to Model-139B, and without tapping it, the touch

switch will remains at EXT.1 range, if the EXT.1 input terminal (11) is connected to the Audio Sweeper (Model-7116C), the pre-measure loudspeaker connected to the red, black terminals (9) will have a sweeping sound, which can be used to measure the buzz rattle of a loudspeaker. Users may based on their own need, select either one of the remaining touch switches : WF, M & T, EXT.2 and EXT.3. For example : If the users " touched " the WF selecting switch, & tapped the foot switch, then, EXT.1 touch switch will automatically change to WF selecting switch, & instantly transmit WF measuring signal to the pre-measure loudspeaker connected at the red and black terminals (9), to measure the positive & negative polarity of the woofer, on the other hand, if without tapping the foot switch, the WF touch switch will automatically revert to EXT.1 range, to measure the buzz rattle of a loudspeaker, thus, users may use the foot switch to control the WF range and EXT.1 range

(2 sets of touch selecting switch), thereby saving time.(10)

IV. Caution

If a loudspeaker or loudspeaker system has no crossover, users may use Model-139B, to undergo polarity testing, users may select either WF range (2) or M & T range (3), no need to change the range. But if the pre-measure loudspeaker system has a crossover, whether in 2 WAY, 3 WAY or 4 WAY, still, changing of range is needed, which means : use WF range to measure the woofer, and use M&T range to measure the tweeter and midrange, so that precise measurement can be attained .

V. Specification

(1) Pulse measuring method.

(2) Polarity indicator :

(a) Green indicator : Positive polarity with beep sound.

(b) Red indicator : Negative polarity with no sound at all.

(3) Five touch switches :

(a) WF range : Suitable for measuring the polarity of woofer.

(b) M & T range : Suitable for measuring the polarity of midrange and tweeter.

(c) EXT.1 to EXT.3 : Used to select the instrument connected to the external input terminal.

(4) Model-139B can be connected with Model-7116C, to measure the buzz, rattle of a loudspeaker. Only one operator is needed.

(5) Measuring distance : 2 to 4 Cm. from the center point. of dust cover of the pre-measure loudspeaker.

(6) Measuring sensor : Uses ECM.

(7) Dimension (m / m) : 85 (height) x 205 (width) x 280 (depth).

(8) Weight : 2.3 Kg.

New function ：

Only those Model-139B with serial nos. prefixed with **PLxxxxxxxxx** have this function.

As indicated inside the red frame on **Fig. 1**, there is a “NEG/POS Output” socket at the rear panel of Model-139B, this socket provides the same signal output as the “NEG” and “POS” indicators at the panel, Usage ： Plug in the Extended Pilot Model-139BL onto this socket”, (As **Fig. 2 shown**), then, the red, green indictors at the 139B panel can be extended to Model-139BL, the operator, upon putting Model-139BL on the most apparent place in front of him, he may use the red, green indicators on Model-139BL, to determine the PASS/FAIL of the polarity , and can just ignore the “Beep, Beep” sound from Model-139B. Thus, upon using Model-139BL, there is no restriction as to where should Model-139B be placed, it can be placed any available place that would not affect the testing, as long as the user has plug in Model-139BL onto the rear panel of Model-139B, and has put Model-139BL in the most apparent place in front of him to perform the testing.

Fig. 1 Rear panel of Model-139B

Fig. 2 Extended Pilot Model-139BL

Note ：

(1) **Extended Pilot (Model-139BL) is not a standard accessory**, user must buy it separately. If Model-139B is used in production line, then, there is a necessity to buy Model-139BL, thus, it is up to the user to determine whether or not to buy Model-139BL.

(2) Red, green indicators of Model-139BL use the high brightness LED, if the user feels the LED are not brightly enough, he may reduce the resistor series connection inside the box with LEDs.