

For best results the ground terminal No. 3 of the oscillator coil should be carried directly to the chassis end of the braided ground lead from terminal No. 4 of the recording head. This lead carries 5 watts of high frequency R.F. so the connections must be especially good

CONNECTIONS

To Record From Radio:

Connect the radio-phonograph input (Terminals 1 and 3 on P-1) across the volume control of the radio receiver by means of a suitable plug or connector. The volume will be controlled by the volume control on the recorder.

To Record From Phonograph:

Connect the radio-phonograph input to the leads from the high impedance crystal pickup by means of a suitable plug or connector as in Radio Recording.

NOTE: Connecting the radio or phono pickup to terminal 1 and 3 of P-1 automatically leads the signal to the first grid of the 6SN7. This leaves the grid of the 6SJ7 open. Terminal 2 of the input-

plug must be grounded to terminal 1 to short out the 6SJ7 grid and the input plug must be removed during playback. See Figs. 1 and 2.

To Record From Microphone:

Connect the leads from a high impedance crystal or dynamic microphone to the "microphone input" (Terminals 1 and 2 on P-1) by means of a suitable plug or connector.

To Playback Through a Radio:

Connect the output of the amplifier to the "television" or "FM, Audio" connection of the radio or across the volume control as indicated in the typical circuit diagram. A switch should be provided to break the B+ as indicated to silence the radio effectively. The volume may be controlled by either the radio or by the recorder volume control.

To Playback Through an Audio Amplifier:

Connect the output of the wire recorder amplifier to the "phono input" jack of the external audio amplifier.

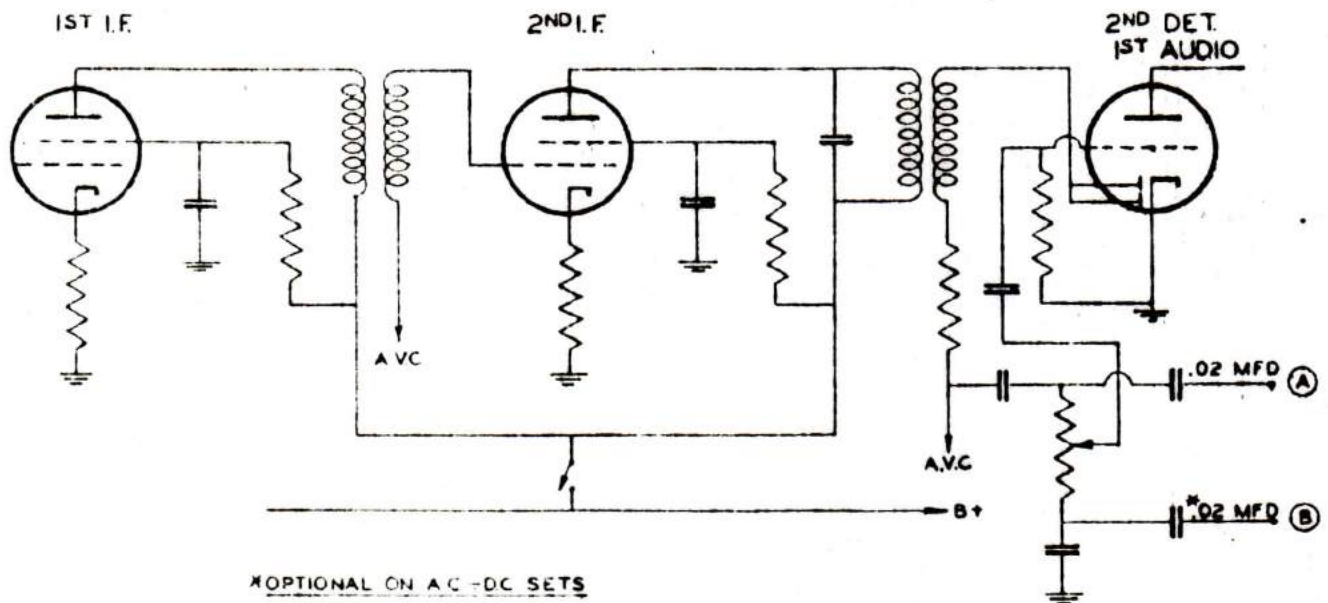


Fig. 6 -- Connections to a Typical Radio Receiver

WIRE RECORDER MODEL 79 FOUNDATION UNIT

WEBSTER  CHICAGO

VOLUME LEVEL INDICATOR

Although experience will indicate the best volume setting for the proper recording level, visual volume level indicators are a definite advantage. Two methods of monitoring the volume level are illustrated.

1. A. C. Output Meter:

To Calibrate: Feed 7 volts at 400 cps from an audio oscillator to the input (indicated by an asterisk in Fig 3) measured with a VTVM. Calibrate the meter at that setting.

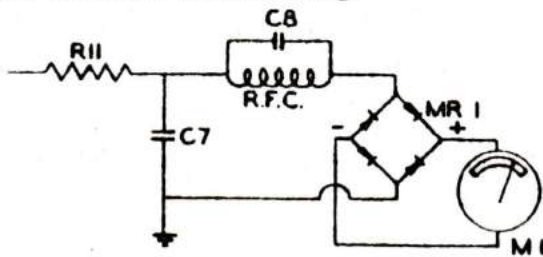


Fig. 7 — A.C. Output Meter

If a suitable audio oscillator and A.C. VTVM are not available, a "cut and try" method of calibration is as follows:

1. Secure a 1000 cycle test phonograph record.
2. Use a crystal phono pickup with an output of 1 volt.
3. Record the 1000 cycle tone at various volume control settings.
4. Mark the meter to indicate the level which is distorted and difficult to erase.

To Use:

Measure the voltage being applied to the recording head by connecting to the point (*) indicated in the schematic diagram. Do not exceed the over-load mark on the meter on peaks. In order to preserve the full dynamic range when recording, permit the level to rise and fall with the natural level of the program. Do not keep the needle at the "over-load" point.

2. Neon Bulb Volume Level Indicator:

To Calibrate: Substitute a variable resistor for the 220,000 ohm resistor. Fig. 8 Apply 7 volts from an audio oscillator, to the .01 mfd. conden-

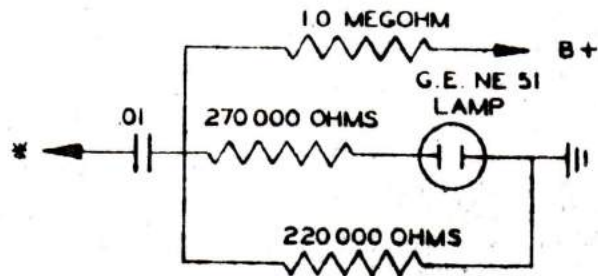


Fig. 8 — Neon Bulb Volume Level Indicator

ser, measured with a VTVM, and adjust the variable resistor until the bulb just flashes. Replace with suitable resistor in the circuit. The values suggested in the circuit diagram are for a 300 volt D.C. power supply, hence the need for calibration.

To Use:

Connect permanently into the circuit at the point indicated by an asterisk in the amplifier diagram. Adjust the volume control when recording so that the neon bulb just flashes on peaks only. Most of the time the bulb should not flash if the full dynamic range of a program is to be preserved.

RECORDING

A-15 minute spool of recording wire is supplied with the Model 79 as standard equipment. Extra spools for 15 minutes, 30 minutes and 1-hour recordings are available as accessories.

1. Place the spool of wire in position with the label side up.
2. Rotate the large righthand drum by hand until the recording head reaches the top of its vertical travel. This is important for both recording and playback.
3. Pull the loose end of the wire from the spool so that it is long enough to reach across the back of the recording head, through the groove in the large drum and under the clip, with about one inch to spare.
4. Press down on the button in the center of the large drum to release the clip so that the wire can be slipped under it.
5. Press down on the Control Lever Limiting But-



tion and move the control lever from the "STOP" to the "RUN" position. (These buttons are provided to prevent moving the control past the stop position when returning from either the "RUN" or "REWIND" positions. Moving past the "STOP" position would release the brakes on the trailing drum and cause the wire to spill.) This will start the motor and wind the wire from the spool to the drum, across the recording head, at the rate of approximately two feet per second. The recording head will move up and down to distribute the wire evenly on the drum. The recording may be interrupted at any time by moving the control switch to the "STOP" position.

6. AT THE COMPLETION OF THE RECORDING, MOVE THE "RECORD-LISTEN" SWITCH TO LISTEN POSITION AND THE CONTROL SWITCH TO THE REWIND POSITION. The drum and spool will then start revolving in the reverse direction, increasing in speed to about seven times the recording speed.

If the wire is permitted to run all the way off the drum and onto the supply spool, the clip will release the end of the wire. Note that when this occurs, the last turn of wire will be "tucked" into the spool and the spool will not unravel.

However, it is not necessary to let the wire run all the way off the drum, especially if an immediate playback is to be made. The pilot light has been placed in such a position that the wire on the drum is easily watched and the mechanism can be stopped before it has completely unwound.

A recording may be played back thousands of times without any appreciable loss of volume or quality or it may be stored indefinitely. On the other hand, having served its purpose, the recordings may be erased and the wire used again and again for successive recordings. Further details are given in the paragraph entitled "Erasing a Recording".

NEW SPOOL OF WIRE

Before making a permanent recording on a new spool of wire, run the entire spool through the recorder once and rewind it. This is important for two reasons. First, the wire will then be phased on the spool in direct relation to the rise and fall of the recording head. Second, the rewound spool will be somewhat more loosely wound and the free end will "tuck in" more securely.

BROKEN WIRE

If the wire is accidentally broken, or if it is desired to remove or insert a section for editing purposes, splice the ends by tying them together with a simple square knot. Pull the knot tight and cut off the loose ends close to the splice. The knot will pull across the recording head without catching.

ERASING A RECORDING

As the wire passes across the recording head, with the control switch set to "RUN" and the "RECORD-LISTEN" switch to "RECORD", it is first demagnetized by the action of the erase coil before it reaches the recording coil, both coils being incorporated in the dual-purpose head. Therefore, recording is always done on demagnetized wire. It follows that if the wire passes through the recording head with the switch in "RECORD" and the volume control turned off, the wire will be erased and no recording will remain. This feature of magnetic recording makes it possible to erase a word or phrase in a voice recording and if desired, insert a new word or phrase in its place.

A wire may be used for thousands of successive recordings or a complete spool may be erased without putting any other sound on the wire.

It is possible, by turning the volume control on full and shouting into the microphone, to magnetize the wire to such a degree that the recording cannot be erased by normal means. Later recordings will not be clear but will be distorted due to the over-magnetization of the wire. When this occurs, "erase" the wire two or more times