

UNIVERSAL LABORATORY SET



MODEL PHD-100

The **UNIVERSAL LABORATORY SET** is a versatile, compact, precision made, multiple use signal detection system, with its specially designed transducer-accessories and high gain (1000x) self contained pen size signal tracer (trade mark "STETHOTRACER"). The **UNIVERSAL LABORATORY SET** is an extremely useful instrument in the fields of electronics, mechanical, electro-mechanical, acoustics, vibration, magnetic recording and radio frequency communications including the microwave frequencies. See reverse side for individual transducer information.

Due to its compactness and versatility the **UNIVERSAL LABORATORY SET** is an ideal instrument to be used in production line, laboratory, or carried anywhere in the field to perform instantaneous analyzing, trouble shooting, or designing of countless products and systems.

This new concept of miniature instrumentation allows easy access in hard to reach areas in miniature products, and it outperforms present bulky equipment.

Stethotracer can also be used as an oscilloscope or voltmeter preamplifier, thereby increasing the range of these instruments and enables them to detect low level signals in the microwatt region.

The **UNIVERSAL LABORATORY SET** is supplied with the **STETHOTRACER** and its three interchangeable attenuator tips, one rf detector crystal diode, ground clip lead, and battery. Included are **TRANSDUCERS-ACCESSORIES**: Vibration Pickup, Miniature Magnetic Microphone, Magnetic Tape Head, RF-Microwave Demodulator, Input Adapter, and Output Adapter. The set comes in a handsome fitted case, 10-3/4 x 7-1/4 x 1-1/2 inches.

See pages 2, 3, and 4 for information on Stethotracer, and on other Transducers and Accessories.



Net Price \$149.95



Don Bosco
ELECTRONICS, INC.

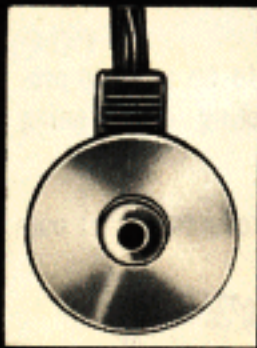
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New Stethotracer

actual size



The instrument for every electronic signal tracing need in your vest pocket. Locates defective circuit fast!

INTRODUCTION

STETHOTRACER is a transistorized, pen size, self contained signal tracer. It is a multipurpose instrument, capable of being used to perform all the operations of a standard signal tracer and many others in addition. The instrument is completely safe to operate since it is entirely insulated from the power line.

STETHOTRACER is an extremely handy and versatile instrument for field and lab work. It is ideal to locate and troubleshoot defective circuits and electronic components in all types of radio (auto, AC-DC, portable, etc.), HI-FI amplifiers and preamplifiers, phonographs, P. A. systems, magnetic tape recorders, dictating machines, telephones, audio circuits of television receivers, hearing aids, magnetic recording heads, microphones, phono pickup cartridges, etc. It is especially suited for locating hum, oscillations, ground loop, and breaks in printed circuit boards. Any low level microwatt audio or modulated radio frequency signal can be detected or demodulated, and then highly amplified (approximately 1000 times) by this instrument which will reproduce the signal through a high quality earphone. **STETHOTRACER** can also be used as an oscilloscope or voltmeter preamplifier, thereby increasing the range of these instruments and enabling them to detect low level signals in the microwatt region. In this application the output of the **STETHOTRACER** is plugged into the oscilloscope by means of a specially designed adaptor plug (available optionally). The adaptor plug has an equivalent terminated impedance of 600 ohms and will fit most types of commercially available laboratory oscilloscopes. **STETHOTRACER** is supplied complete with earphone, cord, plug, three interchangeable attenuator probes, one RF detector-demodulator crystal diode probe, ground clip lead, and battery. It comes packaged in an attractive, pocket size, plastic box.

FEATURES

- **TRUE POCKET SIZE**—only 5 $\frac{5}{8}$ " long x $\frac{1}{2}$ " diameter.
- **LIGHTWEIGHT**—weighs only 1 $\frac{1}{2}$ ounces (including battery).
- **ECONOMICAL TO OPERATE**—uses only one standard A. A. A. size low cost 1.5 volt battery (912).
- **WIDE RANGE OF OPERATION**—from audio to microwave frequencies with versatile R F microwave probes.
- **INDEPENDENT OF POWER LINE**—avoids grounding problems.
- **LONG LIFE**—uses reliable solid state components.
- **HIGH GAIN**—60db.
- **AUTOMATIC SOUND LIMITING**—limits sound to 2mw of power for complete ear protection.
- **VERSATILITY**—high gain preamplifier for scope, voltmeter, with low impedance output, at your fingertips.
- **EASILY INTERCHANGEABLE PROBES**—many possible applications by just changing probe tips.

SPECIFICATIONS

AMPLIFICATION: 1000X approx. at 1kc. (600 ohm load).

LOW FREQUENCY BANDWIDTH: Useable from 60cps to 100kc.

MODULATED HIGH FREQUENCY BANDWIDTH: 100kc - 200 mc (with 1kc audio modulation) - microwave frequencies with special probes.

INPUT IMPEDANCE: 3,500 ohm at 0 attenuation
35,000 ohm at 20db attenuation
350,000 ohm at 40db attenuation.

MAXIMUM AC SIGNAL INPUT VOLTAGE: One millivolt peak-to-peak for linear operation across 600 ohm scope adaptor load. (0 attenuation)

MAXIMUM INPUT DC VOLTAGE: 250V DC max. from the input terminal to case ground.

OUTPUT VOLTAGE: 0.5 volts peak-to-peak across 600 ohm scope adaptor load (linear operation).

OUTPUT ACOUSTICAL LIMITING: The output sound is limited electrically to the earpiece at 2 milliwatt level so that audio output is limited to a comfortable and safe level.

EQUIVALENT INPUT NOISE LEVEL: 3 microvolt peak-to-peak broad band with input shorted.

DISTORTION: 5% max. harmonic distortion within its dynamic range.

POWER SOURCE: 1.5 volt standard A. A. A. size battery (EVEREADY #912 or equivalent). Battery life: 250 hrs. normal use.

PROBES: 0db, 20db, 40db, attenuator probes, and RF crystal diode probe included.

OSCILLOSCOPE PREAMPLIFIER ADAPTOR: (Optional) equivalent of 600 ohms impedance with a DC level of +0.80 volt (use AC input on scope) output plug will fit all laboratory scopes with plug adaptor.

Net Price \$34.95



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Stethotracer
with
Transducers

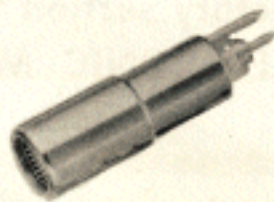
STETHOTRACER TRANSDUCERS



VIBRATION PICKUP Model SA-112

Detects low level mechanical vibration such as movement of watch escapement, the flow of gases and liquids through pipes, and movement of bearings, gears, shafts, etc. The frequency range is from 200 cycles up to and including ultrasonic frequencies. (Output Adapter and oscilloscope are required for ultrasonic frequency observation).

Net Price \$29.95



RF-MICROWAVE DEMODULATOR Model SA-114

Detects and demodulates any low level modulated RF-Microwave signals as low as -50DBM from 30MC to 10KMC when used with the Stethotracer Model ST-111. Model SA-114 is useful in R.F. circuit tracing, monitoring, checking approximate antenna radiation patterns, sliding detector to measure SWR, short range microwave receiver, or checking a coaxial system in the field. See models SA-121 and SA-122 for additional applications in RF detection.

Net Price \$39.95



MAGNETIC TAPE HEAD (93 MIL TRACK) Model SA-115

This transducer monitors recorded information of magnetic sheet, drum, or tape while any of those are in motion - from the simplest to the most sophisticated magnetic tape recording device. Ideal for studying magnetic recording behavior.

Net Price \$24.95



MINIATURE MICROPHONE MODEL SA-116

This is a rugged, miniature, magnetic microphone. It may be used with the Stethotracer as a high gain hearing aid, and to detect any low level sound. It covers the speech frequency range.

Net Price \$29.95



INDUCTIVE DETECTOR Model SA-119

Applications include detection and pin-pointing the source of low magnitude, as low as .001 oersted, AC field radiating from a transformer, coil, oscillator tank, hidden wire, relay, solenoid, motor, transducer, or any inductive field generating device.

It may be used as a magnetic tachometer for detection of speed, motion of any ferrous moving object, to solve magnetic shielding problems in circuit designs and layout of electromagnetic components, to control and to actuate electronic counters, relays, solid state switches, recorders, to study field intensity and radiation patterns, to generate voltage-frequency without direct contact by induction method. Frequency range is from 5 cps to 100 kc.

Net Price \$22.50



PHOTOVOLTAIC DETECTOR Model SA-120

An illumination sensitive voltage generating transducer. The output voltage is proportional to the frequency and illumination level. It may be used in pin-pointing the source of low level modulated and unmodulated light in alternating, pulse, or continuous form. It may be used to trigger other instruments, as a frequency selective light control device, and to study frequency-intensity characteristics of any illumination. It may also be used as an accurate tachometer in conjunction with an oscilloscope or other indicating devices.

Net Price \$29.95



STETHOTRACER ACCESSORIES



OUTPUT ADAPTER Model SA-113

Interconnects Stethotracer Model ST-111 to oscilloscope or recording instruments for more accurate visual output measurement. It has a terminated impedance of 600 ohms with a DC level of -0.80 volt when connected with the Stethotracer (Use AC input on scope). Stethotracer with output adapter is an excellent high gain preamplifier providing a gain of 1000x at 1KC.

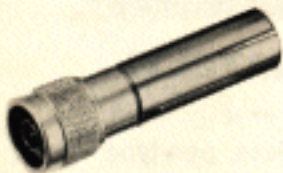
Net Price \$7.95



INPUT ADAPTER Model SA-117

Connects Stethotracer to output of any device through a standard miniature phono pin plug.

Net Price \$7.50



N CONNECTOR ADAPTER Model SA-121

This adapter has an "N" type of plug at one end, and a shield type slide fit connector at the opposite end. It will interconnect the RF-Demodulator (SA-114) with most "N" types of coaxial systems.

Net Price \$8.95

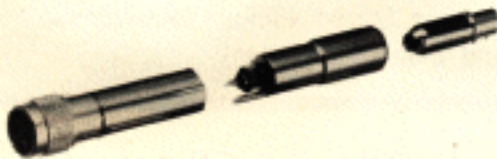


BNC CONNECTOR ADAPTER Model SA-122

This adapter provides direct output connection between any D.B.E. transducer to any amplifier or measuring equipment. It consists of three parts: Tapered adapter with UG625 B/U connector on one end, mating BNC locking type connector, and four feet of RG58/U cable.

Net Price \$5.50

RF-DETECTOR AND ADAPTERS MODEL SA-123



Model SA-123 consists of RF-Demodulator (SA-114), "N" connector adapter (SA-121), and BNC Connector Adapter (SA-122). These adapters provide unlimited applications with and without the Stethotracer (ST-111). See each item for individual information.

Net Price \$52.00

NEW! THE UNIVERSAL LABORATORY SET, Model PHD-100-A

Net Price \$180.00

This is a general purpose instrument set in a compact case 10-3/4 x 7-1/4 x 1-1/2 inches. This instrument set consists of the new high gain Stethotracer and the following transducers-accessories:

PHOTOVOLTAIC DETECTOR	MINIATURE MAGNETIC MICROPHONE	OUTPUT ADAPTER
INDUCTIVE DETECTOR	INPUT ADAPTER	BNC CONNECTOR ADAPTER
TAPEHEAD (93 MIL TRACK)	VIBRATION PICKUP	

See pages 2, 3, and 4 for individual information.

An instrument case is available to those who already have purchased DON BOSCO ELECTRONICS transducer-accessories and Stethotracer.

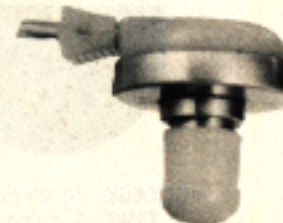
Net Price \$24.95



VIBROTRACER Model VT-170

9/10size

A self-contained transistorized pen-size vibration sensing instrument. The high gain amplification of this instrument permits detection of low level mechanical vibrations such as movement of watch escapement, the flow of liquids and gases through pipes, and movement of bearings, gears, shafts, etc. The frequency range is from 200 cycles up to and including ultrasonics. Output Adapter, Model SA-113, and oscilloscope are required for ultrasonic frequency and other more accurate visual analysis and measurements. Vibrotracer is powered by a single 1.5 volt AAA size battery.



Net Price \$59.50



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THE NEW "MOSQUITO"

**A SIGNAL SOURCE FOR
EVERY ELECTRONIC APPLICATION.**

Actual Size



... pocket size instrument finds defective circuits—IMMEDIATELY!

Now, for every technician or engineer who must find defective circuits quickly and exactly, Don Bosco Electronics offers the **new MOSQUITO** with detachable probe—pocket size, cordless, pen-type instrument which generates and injects a rich signal covering the audio, IF and RF spectrum!

The Mosquito contains a transistor oscillator, powered by a single 1.5 volt pen light cell, which completely eliminates the need for a large, expensive signal generator. It can be coupled into magnetic pickups and circuits **without leads**. And the MOSQUITO oscillates at approximately 1,000 cycles per second, with a wave form which is rich in harmonics. This is truly the simplest, fastest, **most effective**, most economical way to find defective circuits — it belongs in your pocket now!

Some typical applications for the new MOSQUITO Transistorized Signal Injector

- Radio — AF, IF and RF section of vacuum tube, transistor and auto radios
- Television — AF, RF section
- Tape Recorders
- Movie Projectors (sound)
- Telephone Circuits
- Sound Systems
- Hearing Aids
- Amplifiers
- Transformers
- Reproducers—speakers and earphones
- Resistors and Capacitors — continuity check
- Oscilloscope Voltage Calibrator
- Sound Pickup Cartridges—microphone phonograph pickup (Piezoelectric crystal, ceramic and magnetic types*)

SPECIFICATIONS

FREQUENCY: 1KC approximately with harmonics to 30MC

OUTPUT VOLTAGE: 50 volts peak-to-peak approximately open circuit

OUTPUT IMPEDANCE: 10K ohm capacitive

INPUT DC VOLTAGE: 600 volts max. from output tip to case ground

SUPPLY VOLTAGE: Use only one 1.5V conventional

battery (Eveready #912 or any A. A. A. size equivalent)

BATTERY LIFE: 2000 hours normal use

SIZE: 5 $\frac{5}{8}$ " long x $\frac{1}{2}$ " O. D.

WEIGHT: One ounce!

OUTPUT WAVE FORM: See oscilloscope picture at various load conditions.

FEATURES

- Detachable attenuator probe head
- All solid state components
- Economical to operate—use only **one** 1.5V battery
- Wide Frequency Range: 1KC to 1F RF in harmonics
- Light Weight: **ONLY ONE OUNCE**
- Inductively Sensitive: Couple to inductive circuits without leads
- Guaranteed Workmanship
- True Vest Pocket Size: Only 5 $\frac{5}{8}$ " long x $\frac{1}{2}$ " O.D.

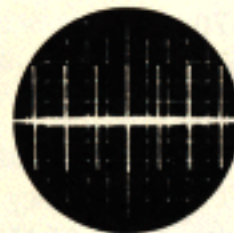
Typical Output Wave Forms of the New "MOSQUITO" with 600 Ohms Load and No Load



VOLTAGE: 10 volts/CM
TIME: 1 msec./CM
— NO LOAD —



VOLTAGE: 10 volts/CM
TIME: 50 μ sec./CM
— NO LOAD —



VOLTAGE: 0.5 V./CM
TIME: 1 msec./CM
LOAD: 600 ohms



VOLTAGE: 0.5 V./CM
TIME: 50 μ sec./CM
LOAD: 600 ohms

Net Price \$9.95



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electronic engineers master | 2900



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