



SENCORE TEST EQUIPMENT CATALOG

the idea people serving the needs of the Electronic Maintenance and Radio & TV Industry



4½ Inch Field Effect Multimeters



FE14

\$69.95

STANDARD
FET METER

Accuracy:

DC \pm 2.5%

AC \pm 4.5%

4½ inch meter,
vinyl-clad steel
case.



ALL THE
ADVANTAGES OF
A VTVM AND A
VOM IN ONE
SMALL "INSTANT ON"
PACKAGE.



FE16

\$84.50

HI ACCURACY
FET METER

Accuracy: DC \pm 1.5%

AC \pm 3%

4½ inch high-styled
meter, high-styled
knobs, and special me-
ter tilting metal handle.
Vinyl-clad steel case.

LESS CIRCUIT LOADING THAN A VTVM: 15 meg-
ohms on DC, and 10 megohms on AC.

INSTANT STABILITY: Zero warm-up time . . .
service ready with the flip of a switch.

FULL METER PROTECTION: 100 times AC over-
load; almost impossible to damage.

SPECIAL SHIELDED INPUT LEADS: Prevents stray
pick-up and erroneous readings on low volt-
age ranges.

SPECIFICATIONS

DC VOLTS

Ranges: 0 to 1, 3, 10, 30, 100, 300,
1000 full scale. \pm .5, 1.5, 5, 15, 50,
150, and 500 zero center scales.

Input Resistance: 15 megohms shunt-
ed by 14PF.

AC VOLTS

Ranges: (RMS): 0 to 1, 3, 10, 30, 100,
300 and 1000 full scale.

Ranges: (Peak to Peak) 0 to 2.8, 8.4,
28, 84, 280, 840 and 2800 full scale,
frequency compensated.

Input Impedance: 10 megohms shunt-
ed by 29PF.

Frequency Response: 10Hz to 10MHz
at 3 DB points.

OHMMETER

Ranges: 0 to 1000, 10K, 100K ohms,
and 100 megohms.

DC CURRENT MEASUREMENTS

Ranges: 0 to 100 microamps, 1ma,
10ma, 100ma, and 1 ampere.

GENERAL

Meter: 4½", 100 microamp, diode
protected and isolated from input.

Ohms Battery: 1.5V "C" cell (not sup-
plied).

Weight: 4 lbs.

Dimensions: 5" x 7⅝" x 3⅛"

Accessories: High
Voltage Probe
(39A19) extends 300
volt range to 30KV
(Not supplied). For
both FE14 and
FE16 \$9.95
5 oz.



7 Inch Push Button Field Effect Multimeter



FE149

\$169.50



- **LESS CIRCUIT LOADING** than any other multimeter on the market: 15 megohms on both AC and DC; insures most accurate measurements possible in the electronic industry.
- **SIMPLIFIED PUSH-BUTTON OPERATION** places at your fingertips every range and measurement possible.
- **3-WAY POWER WITH INSTANT STABILITY;** you can use the FE149 anywhere, anytime, without waiting for warm-up or stabilization . . . truly deluxe.

- **COMPLETE METER AND CIRCUIT PROTECTION.**
- **UNMATCHED ACCURACY** of 1.5% DC and 3% AC.
- **SPECIAL OHMS SCALE** of 6 ohms center, special .25 Volt Zero Center for transistor servicing, and shielded input lead to prevent RF pick-up means the most accurate measurements, even in critical circuits.
- **Vinyl-clad, scuff-resistant case** with satin chrome panel gives the appearance of class all the way.

SPECIFICATIONS

DC VOLTAGE RANGES:

+0 to .5, 1.5, 5, 15, 50, 150, 500, 1500 full scale.
 -0 to .5, 1.5, 5, 15, 50, 150, 500, 1500 full scale.
 -.25 to .25, -.75 to .75, -2.5 to 2.5, -7.5 to 7.5, -25 to 25, -75 to 75, -250 to 250 and -750 to 750 zero center ranges

Input Resistance: 15 megohms shunted by 45 pf; 1500 megohms when using high voltage probe.

Accuracy: $\pm 1.5\%$

AC Rejection: 30 db minimum

AC VOLTAGE RANGES:

RMS 0 to .5, 1.5, 5, 15, 50, 150, 500, 1500 full scale.
 Peak to Peak 0 to 1.4, 4.5, 14, 45, 140, 450, 1400, 4500 full scale.

Input Impedance: 15 megohms shunted by 125 pf.

Frequency Response: Flat: 25 Hz to 1 MHz. 3 db points 8 Hz to over 10MHz.

Accuracy: $\pm 3\%$

OHMMETER RANGES:

0 to 600, 6,000, 60K, 600K, 6 meg, 60 meg, 600 meg, 6,000 megohms.

Accuracy: $\pm 1\frac{1}{2}$ degree arc

HIGH VOLTAGE RANGES

High voltage probe 39A21 extends 50 volt DC range to 5KV, 150 volt DC range to 15KV and 500 volt DC range to 50KV.

ULTRA HIGH IMPEDANCE RANGES

High voltage probe 39A21 increases DC input impedance to 1500 megohm on all DC ranges.

DC CURRENT RANGES:

0 to 150 microamps, 500 microamps, 1.5, 5, 15, 50, 150, and 500 milliamps. 5 amps thru special jack on front panel.

Accuracy: $\pm 3\%$ full scale

AC CURRENT RANGES:

0 to 150 microamps, 500 microamps, 1.5, 5, 15, 50, 150 and 500 milliamps. 5 amps thru special jack on front panel.

Accuracy: $\pm 3\%$ full scale

DECIBELS:

Ranges: -10, 0, 10, 20, 30, 40, 50 and 60 db.
 Reference: 1 milliwatt into 600 ohms.

GENERAL

Meter: 7" 100 microamps $\pm 1\%$ tracking accuracy; diode and fuse protected and isolated from the input.
Multiplier Resistors: $\frac{1}{2}\%$ precision type.
Ohms Battery: 1.5 volt "D" cell (not supplied).
Power: Internal 9.6 volt rechargeable battery, Burgess type #CD 24 or equivalent (available direct from Sencore Service dept. - \$9.95).

Built-in battery charging circuit and battery checker.
 Use standard 105 to 130 volt AC, 50 to 60 Hertz with or without rechargeable battery.

Weight: (less batteries) 6 pounds
Dimensions: 9" x 7 $\frac{1}{2}$ " x 6"



39A21 HIGH VOLTAGE PROBE \$14.95



PUSH-BUTTON FET METER

99 Ranges
at your fingertips
 with
FET Accuracy

HI-LO Field Effect Multimeters — A New Concept in FE Meters



FE20

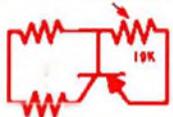
\$129.50

with
hi voltage
probe

9"x7"x4" 8 lbs.
(6 inch meter)

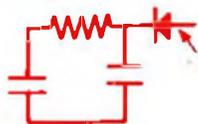


Uses low voltage on ohmmeter (on low PWR position) to measure in-circuit resistances:



Low voltage of .08 volts, .008 volts if built-in isolation resistor is used, prevents semiconductor from triggering off and upsetting resistance readings. For example, 10 K resistor will now measure 10 K.

Uses higher voltage of 1.5 volts on ohmmeter (on HI PWR Position) to measure front to back ratios:



1.5 volts causes semi-conductors to conduct to read proper front to back ratio or conductivity of diodes, rectifiers, or transistors when desired. Meter would not be complete without hi ohms reading.

High Input Impedance: 15 megohms on DC and 12 megohms on AC.
One Tenth Volt Low Voltage Scale: A must for measuring critical transistor biases, especially on latest semi-conductors.

.05 Volts Zero Center Scale: For measuring either positive or negative critical bias voltages without having to refer to schematics or determine polarity.

Laboratory Accuracy: 1.5 percent on DC and 3 percent on AC.

Battery Operated with Built-in Battery Checks: Long life "C" cells are used on FE20, and two transistor radio type batteries on FE21. Batteries last nearly shelf life.

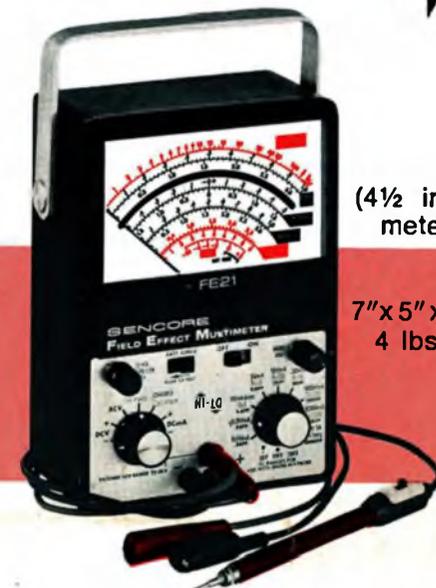
Meter Protected to 1000 Time Overload.

Multiplier Resistors Protected with .6 Amp Fuse: No more returning meter to factory every time that you forget and measure volts on ohms . . . simply replace the fuse.

FE21

\$99.50

NOW . . . MEASURE RESISTANCES IN CIRCUIT IN SOLID STATE DEVICES WITH EITHER OF THESE HI-LO FIELD EFFECT MULTIMETERS.



(4½ inch meter)

7"x5"x3"
4 lbs.



39A30 high voltage probe . . . \$12.00.
Free in FE20 cover.

SPECIAL PROBE: Prevents AC pick-up on DC measurements or loading of high impedance circuits such as oscillators. Produces only a .6 percent error in reading when switched in, and need not be figured in calculations. Left in normal position for most measurements. Prevents those odd things from happening when you are measuring circuits in a hurry.

LOOK AT THESE SPECIFICATIONS TO SEE WHY ONE OF THESE HI-LO METERS BELONGS ON YOUR WANT LIST.

- 9 DC voltage ranges from .1 volt to 1000 volts. A special 3000 volt jack is on FE21 because it does not have the high voltage probe included, and must be purchased separately.
- 3 high voltage ranges of 3KV, 10KV and 30KV.
- 9 DC zero center ranges from .05 volts to 500 volts. High voltage ranges can be used to extend zero center ranges to 15KV, if desired.
- 9 AC RMS range from .1 volts to 1000 volts.
- 7 resistance ranges from 1000 ohms full scale to 1000 megohms. Both Hi and Lo ohms are read on same scale.
- DB (decibel) range for audio and hi-fi work. Truly a deluxe feature.
- Peak to peak voltage measurements . . . up to 2800 volts . . . to please the service technician.

Mighty Mite Tube Tester



TC154

\$99.50

*World's
most popular
portable
tube tester...
over 60,000
now in use.*



Now faster than ever with new solid state circuitry: New field effect transistors in a bridge circuit make the Mighty Mite VI instant on and service ready.

Push button function switches: Speeds up every test. There is no need to go through each function every time you want to make a test on a tube . . . simply push the button.

Now checks over 3000 different tubes: The Mighty Mite now checks virtually every tube, large and small, domestic or foreign.

Tests each tube for full cathode emission: The Mighty Mite puts a full load on the tube being tested so that you can see whether or not it will really work back in the circuit. For example, if a power tube turns blue in-circuit, it will turn blue under test in the Mighty Mite.

Stethoscope shorts tests: Every element of the tube is checked against the other elements for shorts, to be sure that none are missed.

Famous grid leakage test: The control grid of the vacuum tube is tested for grid leakage to 100 megohms, catching even the most questionable as they start to give trouble.

Small but powerful: Measures less than one foot square. Uses 115 volts AC . . . 32 watts. 9 lbs.

Dynamic Mutual Conductance Tube Tester



MU150

\$269.50



*The world's finest
tube analyzer.*

Two testers in one: The MU150 can be used to check the mutual conductance of a vacuum tube, or simply use the first three controls for a fast "Mighty Mite" test. Both settings are listed in the set-up book.

True mutual conductance test: The MU150 continental uses a 5,000 hertz square wave to truly test the mutual conductance of a vacuum tube under operating conditions. The tube is tested for its ability to amplify the signal. There are no gimmicks, as actual operating potentials are applied to tube elements.

Full rated cathode current check for power tubes: Some tubes, such as output tubes need to be checked for their power capabilities more than ability to amplify. The MU150 checks at full rated cathode current.

100 megohm grid leakage check: The MU150 checks the grid leakage sensitivity for critical leakage just like the Mighty Mite. It catches the tough dog troubles before they get a chance to give trouble.

Stethoscope shorts test: Every element is checked against every other element for shorts or leakage. If a short is the problem, you can be sure that it will be caught by this grade A tube tester.

Life test: To find intermittents and temperature sensitive failures.

Housed in handsome vinyl-clad solid steel attache case: A tester that shows you are a professional the minute you pick it up. 17" x 11" x 14". 18 lbs.

Cathode Ray Tube Tester



CR143

\$119.50

Compare color guns automatically and according to industry standards.



Used and recommended by the industry: Here is a tester that is actually used by many of the TV manufacturers to test their own color tubes. It is recommended by some of the largest CRT manufacturers in the USA, because it was designed to do the job as they wanted it.

Compares color guns as a criteria: It was often thought that cathode emission was the criteria for a tube to be good or bad. New concepts by CRT manufacturers say that a balance between the three color guns is more important than emission. If emission is low, the balance will be off, too.

Only Sencore has separate control of each gun for simple tracking: Three separate G2 controls make the job of tracking simple and fast. According to industry standards, it also makes it correct. Simplified tracking procedure is shown in "living" color in the cover of the CR143 Champion.

Checks black and white tubes too: A separate simplified procedure is shown in the cover of the Champion also. You won't be outdated with the CR143.

Plug-in sockets: This unique feature makes it possible to wear out a socket and have it replaced without sending in the entire tester, and makes it easy to update your tester if new basings come on the market.

Also tests foreign tubes: The set-up manual includes tests on nearly all foreign CRT's as Sencore gets the information. Extra sockets have also been added to test them.

Automatic rejuvenation: You may still run into cases of where you wish to bring the emission up on a black and white CRT, or to balance out a color tube. The CR143 has three separate rejuvenation positions with each slightly more powerful. Each position charges up a large capacitor which is RC timed with the impedance of the CRT to apply just the right amount of voltage for the right amount of time to rejuvenate. No harm can come to the CR143, as it is disconnected as the rejuvenation switch is pushed. The circuit virtually thinks for you . . . you just push the button.

10" x 9" x 3½" 10 lbs. in all steel vinyl-clad two-toned attache case.

TV Sweep Circuit Analyzer



SS137

\$99.50

Everything you need to isolate any sweep circuit trouble in seconds and eliminate all guesswork.



Universal horizontal and vertical oscillators: Provides signals for direct substitution for suspected bad oscillators.

Dynamic in-circuit flyback check: Checks power delivering capabilities of flyback transformer under actual operating conditions.

Horizontal yoke substitutor: Provides a variable inductance universal yoke for direct substitution for the yoke in the TV set. If high voltage is restored, yoke is bad.

Vertical drive signal: To drive vertical yoke directly to see if height can be restored to determine good or bad TV yoke.

External checks: Measures DC volts to 1000 volts, AC peak to peak to 2800 volts, 3ma and 300ma for checking fuse currents and 10KV and 30KV. Rugged checks will protect your other sensitive meters while working in these high voltage circuits.

10" x 9" x 3½" 10 lbs. . . handsome two-toned all steel vinyl-clad case with mirror in cover for service work on TV.

In-Circuit Transistor and FET Testers



TF151

\$129.50

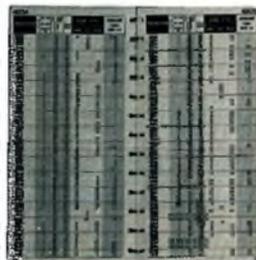
Bench type
with large 6"
meter 9½" x
7½" x 6" 9 lbs.



*Test any
transistor or
field effect
transistor in
or out of cir-
cuit.
Guaranteed
to work
every single
time.*

Speeds up work: Here are two testers that can simplify every solid state repair or trouble shooting job. They will test all transistors for beta gain right in circuit. Flip the function switch to the right and it will test field effect transistors for actual transconductance . . . right in the circuit and with no exceptions.

Special reference book: You will know what to expect from your tests too as a special reference book is included with each tester. There are no other reference books like it on the market; directing you all the way to gain, leakage, transistor formation of NPN or PNP, basing, etc. You won't need it for most tests to determine whether the transistor is just good or bad, but there are many critical times when you will want to know right on the button. Many mark most often used schematics with this information for quick reference, and so they can assign less technical people to do repair.



Icbo leakage test made on transistors out of circuit: Once you have removed the transistor from the circuit, you may want to check the all important leakage between collector



TF17

\$109.50

For the man on
the go
two-toned vi-
nyl-clad steel
carrying case
. . . 4½" meter
9½" x 7¾" x
3¼" 7 lbs.

and base with the emitter open. These two testers do it with just the flick of the function switch.

Igss leakage check out of circuit on field effect transistors: This all important leakage check can be made on a field effect transistor after you have removed it from the circuit. You will want to be sure before taking the time or spending the money for a new replacement. The reference book lists Igss leakages for all FETs, if you are in doubt.

Special Idss (zero bias) current check: Allows for matching FETs or for industrial production line "culling."

Special positive bias test for new enhancement type FETs.

Separate test for special RF transistors: RF transistors can easily be rejected as bad if they are not biased separately. These in-circuit transistor testers call them as they are.

Special test for hi-power transistors: High power transistors are dissipating more and more power and have to be checked like a power tube to be sure that they will deliver the required power when back in the circuit. The TF17 and TF151 are number one in transistor tester sales, because Sencore does it right, but simple . . . and you can't go wrong with a reference book on over 12,000 transistors and FETs.

TV Sweep & Marker Generator . . . *SPEED ALIGNER*



*Cut TV Alignment Time in Half with the All New Speed Aligner.
It is all solid state and is service ready at an instant.*

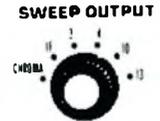
SM158

\$275.00



Here is why we call the SM158 the Speed Aligner:

PRODUCES ALL TV IF, CHROMA AND FOUR CHANNELS OF RF FOR FAST ALIGNMENT: Time is money and nothing can be faster than the Speed Aligner that provides just the signals that you need for fast aligning and alignment touch-up. Two high and two low RF channels are selected, as this is generally enough to check out a tuner.



Automatic all crystal controlled markers: Hard to believe, but all markers for all carriers and check points, RF, IF, or Chroma, are automatic and work on fundamental frequencies. If you want a carrier or trap frequency on any of the swept frequencies, you simply look at the table on the front panel and push that button. No more time lost in looking up or interpreting frequencies.



Unlimited marker amplitudes: The marker height control is like a power house; you can pump it up until the markers fly off the screen, if you want, and the response curve will not be upset, as post injection is used throughout.



Tiltable markers: You may want to tilt the markers 90 degrees to see into a trap, or to level the curve. Simply pull the Marker Height switch.



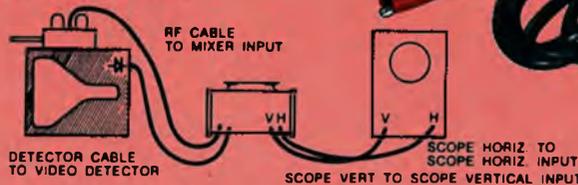
Plenty of sweep width: A full 15 megahertz sweep width covers the entire spectrum. Width is constant at all frequencies . . . a Sencore exclusive.

Generates a zero reference base line: You know where zero is at all times. All alignment procedures call for a zero reference line and the Speed Aligner has it.

7" x 11" x 6" 9 lbs.

Easy to connect: Just four connecting cables clearly marked TO TV and TO SCOPE. It takes just seconds to connect.

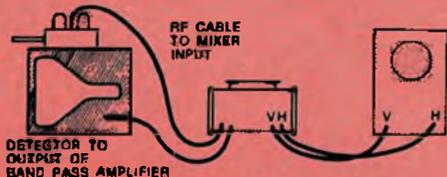
IF CONNECTION



TUNER CONNECTION



CHROMA CONNECTION



Special IF Link Alignment Probe. Provides detection and four times amplification of IF signal . . . allows viewing IF link response direct from output of 1st IF amplifier. Works with any Sweep and Marker. Uses voltage quadrupler . . . needs no batteries. Used with either SM158 or SM152.

39G26 \$9.95

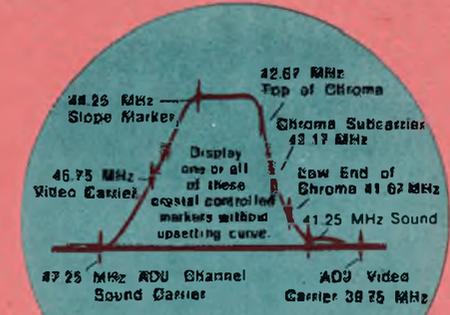


Deluxe Sweep and Marker Generator

SM152

\$450.00

The industry's most complete Sweep and Marker Generator. All Solid State.



DETECTOR

FAST AND EASY TO HOOK UP
MATCHING PAD

BE156

\$24.95



7 IN 1 DC Bias Supply

Now, align any TV set, black and white, tube or solid state. The all new BE156 bias supply provides the bias that you need for any set in any stage, negative or positive, as specified by the TV manufacturers. Negative biases are normally specified for tube sets and positive biases for solid state TV. Three separate and independent 25 volt supplies offer a carefully calibrated output and a positive and negative polarity switch; the last supply on the right has an additional position on the switch that increases the output to a negative 75 volts for use on such sets as the RCA chroma amplifiers that specify 67.5 volts. 7" x 4" x 2" 2 lbs.

Never before has so much been designed into one remarkable instrument: The SM152 can completely sweep align the UHF tuner, the complete VHF tuner, the IF, and the chroma bandpass. Each stage can be aligned individually, or the entire signal system can be aligned for a correct over-all response. Any number of true post injection markers can be selected at a push of a button. Sound, video, color and trap markers "pop" singly or simultaneously on the response waveform.

Ultra linear sweep width: Calibrated from .3 to 15 MHz is exclusive with Sencore. VHF and IF output is virtually flat; within 3 db over the entire range.

RF sweep output calibrated and variable from 10 microvolts to .1 volts.

Six bands cover all frequencies: VHF, UHF, IF, including chroma for bandpass alignment. Also, a special IF spot align band for touch-up, or for setting IF adjustments prior to sweeping.

Crystal controlled IF markers: At 39.75, 41.25 (sound carrier), 41.67, 42.17, 42.67, 44.25, 45.75 (video carrier) and 47.25 MHz. True post injection system used for all markers. Video carrier is present at all times for proper orientation.

Two preset chroma outputs available: A 3.58 MHz swept chroma signal of 0 to 2 volts peak to peak at the chroma output jack for direct injection into the chroma amplifiers. A 3.58 MHz swept signal at IF frequencies for injection into the IF to check the chroma response through the IF and chroma amplifiers as recommended by many manufacturers.

Crystal controlled chroma markers: At 3.08, 3.58 and 4.08 MHz. Markers are generated a half megahertz each side of the chroma carrier to check recommended chroma bandwidth.

RF video carrier markers for channels 4, 5, 10 and 13: Also crystal reference markers for sound and color on these four VHF frequencies.

Crystal controlled FM IF marker: At 10.7 MHz plus 10.6 and 10.8 MHz (100 KHZ bandwidth markers).

External marker: Special jack for extra marker input at 75 ohms for a 25 millivolt or greater signal input.

Sweep direction and response curve polarity fully controlled so you can duplicate the response curve in any alignment procedure.

Unit is complete with all leads, matching pad and detector probe. 14" x 10" x 6" 15 lbs.

Caddy Bar Color Generator



CG19
\$84.50



A standard color bar generator that is small enough to fit into your tube caddy. Smaller than a box of cigars.

Uses standard RCA licensed patterns: 10 standard RCA color bars, crosshatch and dots, plus individual vertical and horizontal bars. Stability is the word on every pattern. Timers are doubled in range over earlier models.

Only one cable to connect: Turn the CG19 on, dial in the pattern, plug in the RF cable and you are ready to converge a color receiver. Patterns are rock solid in seconds.

Battery operated for tops in portability: Uses two standard easy to get 5.6 volt mercury batteries. Voltage regulation of all circuits, rather than just the timers as it was in earlier models, means greater circuit stability as no circuit is affected until battery voltage goes down to 8.4 volts from 11.2 volts full battery voltage. You'll know that the battery is really dead when the Caddy Bar stops working properly.

All steel construction: Vinyl-clad steel case and brushed steel panel makes a non-breakable professional looking package.

8" x 6" x 2 1/4" 3 lbs.

Color Cadet Standard Color Generator



CG18
\$129.95



Standard RCA Licensed Color Patterns in a Small Handsome Carrying Case to Make Your Servicing Job Easier and Faster.

Standard RCA color bars: 10 standard keyed color bars, 10 vertical lines, 14 horizontal lines, crosshatch and adjustable clean white dots provide the industry's standard color patterns at the flick of a switch.

Snap tuning for channel 2 through 6: Just like a standard TV tuner. Eliminates any unnecessary co-channel interference.

Interlace control: Another Sencore patented exclusive. Stops dot bounce and pairing of horizontal lines that vary from set to set. Produces a good round dot.

Color gun Interrupters: Right on the front panel to simplify purity adjustments, and other tests where only one gun is to be on at a time.

Crystal controlled 4.5 megahertz sound carrier: For adjusting fine tuning in accordance with different manufacturers alignment procedures.

Battery operated for greatest portability. Uses long life "C" cells. Normally last a full year or more without replacing.

Lid automatically turns off CG18: When cover is closed, the off-on switch is turned off automatically to prevent batteries from running down when unit is not in use.

Built-in battery tester: You will want your Color Cadet to be in top notch condition at all times, and you will want to know that the batteries are up and ready to go. A special battery meter, mounted on the battery compartment is calibrated "Good and Bad". Simply push the test switch and read at any time.

Housed in new Handicase: The Color Cadet is housed in a smart looking two-toned vinyl covered steel case for tops in eye appeal. Shock mounted glass mirror in cover helps converge color sets in a hurry. 9" x 8" x 4" 7 lbs.

Deluxe Color Bar Generator...The Color King



CG153

\$169.95



It's patented.

Only Color Bar Generator that automatically preheats all circuits; a must in cold weather when making home calls.

The King of All Color Bar Generators Twice as stable as any generator produced to date.

All steel vinyl covered case, with removable protective lid. High quality shock-mounted plate glass mirror in lid for convenient set-up and convergence in the home. 10 x 9 x 3 1/2 9 lbs.

Temperature controlled circuits: No more worry about pattern instability in cold weather or on hot days. Sencore's new "Temp Control" maintains a thermostatically controlled temperature above 80 degrees even on the coldest days. New silicon timers, specially designed for hot weather, maintain complete stability to 140 degrees Fahrenheit. A Sencore exclusive.

Increased circuit stability: Timer range has been doubled over earlier models through the use of new transistors and improved circuits. All circuits are now voltage regulated and preheated for maximum current stability.

Snap tuning for channels 2 through 6: Eliminates troublesome tuning between channels and co-channel interference. It's just like tuning in a channel on a TV.

Interlace: A patented interlace control to stop dot bounce found on some sets. Forms a perfectly round dot.

Extra analyzing features: Increased output of composite chroma ($\pm 7VPP$) and sync signals ($-5VPP$) for new TV sets makes the job of tying down chroma troubles a snap.

Standard color bars: RCA licensed standard color bars, 14 horizontal lines, 10 vertical lines, crosshatch, adjustable white dots, and an individual movable single dot and single cross. Complete convenience.

Two extra color patterns: The Color King has all five standard patterns plus two EXTRA patterns; a single dot and a single cross. The dot and cross can be centered or moved to any spot on the screen, simplifying both static and dynamic convergence. A Sencore exclusive.

Crystal controlled sound carrier: 4.5 megahertz for adjusting fine tuning according to manufacturer recommendations.

Color Gun Interrupters . . . with switches on the front panel. Resistors in lead piercing clips eliminate picture smearing found on other generators.

Solid State . . . AC operated and solid state throughout. Zener regulated power supply for added stability and solid patterns.

Power Monitor



PM157
\$69.50

The Most Practical Service Tool Ever Devised.

It is a zero to 1150 watt wattmeter: You will know whether or not you are dissipating too much power before you start changing expensive parts.

It is an AC line voltage monitor calibrated right on the nose at 115 volts: How many times has your trouble simply been line voltage and you could have saved so much time?

It is an AC ammeter to determine how much line current is being drawn up to 10 amps: A good check on fuses and other line protectors. How do you know that a circuit breaker is really bad? Also checks DC current up to 10 amps.

It is a fuse resistor checker with special scales for each fuse resistor: You will know whether or not you are sending back a TV or Radio set with an overloaded fuse resistor that will go out within hours.

It is protected by a 10 ampere circuit breaker.

Fully protected against shock hazard to appliance being tested, instrument, or operator.

8" x 6" x 5" 5 lbs.

Field Strength Meter



FS134
\$229.50



Equip yourself for CATV, MATV and additional Antenna Work.

Covers all TV and FM: Covers all VHF, UHF channels and the FM band.

Calibrated accurately in microvolts: You can believe what you read as signal strength is calibrated in actual microvolts. The FS134 is calibrated within 3 DB on VHF channels and within 6 DB on UHF channels.

Highly sensitive: The FS134 goes all the way down to 30 microvolt sensitivity on both VHF and UHF. Built-in attenuators of 0, 20 and 40 DB (X1, X10 and X100) enable you to measure signal strength from the amplifier to the last tap off in the distribution system. Also helps you find line loss in a hurry.

Uses Jerrold zero DBJ as reference: The FS134 fits right into any job that you are doing, as it uses the same reference level as the manufacturers of distribu-

tion systems . . . even uses standard Jerrold coax connectors so that you can work right into existing systems.

Completely portable with three-way power: The FS134 uses long life "C" cells, but can be equipped with rechargeable batteries or simply a power supply and battery charger combination at only \$9.95. It can be installed with only four connections as the "cheater cord" receptacle is already installed in your meter. Simply order from the factory service department.

Uses speaker to free your hands: You can be sure that you have tuned in the correct station when you listen to it . . . but headphones get in the way. The FS134 uses a self-contained sound system and speaker to "free you up."

Both 75 and 300 ohm match: Coaxial cable provides a 75 ohm match; built-in balun matches to 300 ohm line. 10" x 9" x 5" 9 lbs.

Component Substitutors



SAVE VALUABLE SERVICING TIME "hunting up" exact components for substitution testing only. The Sencore substitutors also cost you less than your cost of the individual parts inside.

RC144 Handy "36" **\$19.95**

Provides 36 most often needed resistors, capacitors and electrolytics—24 ½ watt and 1 watt resistors from 10 ohms to 5.6 megohms; 10 capacitors from 100 mmfd to 0.5 mfd at 600 volts; and two electrolytics at 10mfd and 40 mfd at 450 volts DC. 4" x 3" x 2", 1 lb.



RC145 Handy "53" **\$39.95**

Same resistor and capacitor line-up as RC144 above. Full range of electrolytics from 2 mfd to 250 mfd at 450 VDC can be used as single or duals for direct fast substitution. Exclusive current surge protector protects circuit and operator. 7" x 4¾" x 4¾" 3 lbs.



RC146 Handy "75" **\$69.95**

"Top-of-the-line" substitution unit. Provides 75 frequently used values of carbon resistors, capacitors, electrolytics, power resistors, and universal selenium and silicon rectifiers for fast, on-the-spot substitution.

Twelve 1-watt resistors from 10 to 5.6k ohms. Twelve ½-watt resistors from 10k to 5.6 megohms. Ten 600 volt capacitors from 100mmfd to 0.5mfd. Ten electrolytics that can be used singly or as duals to form up to 25 different values. Exclusive electrolytic surge protector circuit prevents arc, spark or heating of electrolytic in set; 2mfd to 250mfd at 450 volts. Power resistors of 20 watts from 2.5 to 15,000 ohms, and a universal 0.5 amp silicon and selenium rectifier makes the RC146 a deluxe instrument for parts substitution. 10¼" x 4¾" x 4¾", 4 lbs.



Transistor Radio Battery Eliminator

BE124

Battery Eliminator

\$29.95



Power supply replaces batteries during transistor radio repair. Tapped voltages at 1.5 volt DC intervals from 0 to 12 volts on front panel, connects simply for center tap and bias voltages as required. Function switch converts meter to troubleshooting 0 to 50 Ma current reading device to monitor transistor radio current drain. Charges nickel-cadmium batteries. Guaranteed accurate.

5" x 4 1/2" x 2 1/2", 3 lbs.

Filament Checker

FC147

Filament Checker

\$7.95



Check continuity of all tube filaments including the new Compactrons, Novars, 10-pins, Nuvisitors and the new Decals. Test leads for CRT filament checking. Also, doubles as neon voltage indicator. TV cheater cord is used to power unit as a check on the cord to insure 115 volts AC on TV.

4" x 3" x 1". 1 lb.

Dual Purpose Oscilloscope/Vectorscope



PS148

\$269.50

**THE FIRST
REALLY COMPLETE
SERVICE SCOPE**

The many exclusive features place this combination oscilloscope / vectorscope in a class by itself. Portable and smartly styled, this scope equips you for every servicing job; outstanding flexibility makes it ideal for field engineering and production line testing and many other applications where ease of operation and healthy specifications are desired. The Sencore PS148 compares to other scopes costing much more for comparable features and performance.

The workhorse of the servicing industry

A CONVENTIONAL WIDEBAND OSCILLOSCOPE

Direct vertical peak to peak voltage readout that is always accurate. Voltages are read right off the front panel. No need to feed in confusing calibration signals and interpolate readings. Measure exactly any voltage on display with no confusing bandswitching. It is even faster than using a VTVM.

Wide band. Vertical amplifier frequency response from 10 Hz to 5.2 megahertz, ± 1 DB. Rise time of .055 microseconds. This extra response insures true waveform reproduction of complex signals.

High sensitivity. Vertical amplifier sensitivity of .017 volts rms per inch deflection. Great for transistor work and to read low level signals such as directly from the tuner in a TV receiver.

Extended horizontal sweep frequencies. Horizontal sweep ranges 5 Hertz to 500KHz in five overlapping ranges. TV horizontal and vertical sweep frequencies preset on course control.

Positive sync outstanding stability is due to precise control over sync signals. Variable control enables operator to lock in complex waveforms as easily as triggered sweep types.

High input impedance.

Minimum circuit loading is assured with input impedance of 27 megohms shunted by 11pF using built-in low capacity probe. Direct probe is 2.7 megohms shunted by 107 pF.

Seven kilovolt Hi voltage rating in built-in low capacity probe to view waveforms in TV horizontal and vertical output circuits.

External inputs for horizontal sweep and external sync on front panel. Provisions for intensity modulation and direct connection to deflection plates on rear of instrument.

Retrace blanking. Horizontal retrace is built-in and effective on all of the horizontal sweep ranges.

Standby switch. Cuts to half power when unit is not in use and provides instant warm-up when needed.

All-steel case with beautiful brushed chrome front panel, the Sencore PS148 is as handsome as it is functional.

11" x 9" x 15½", 22 lbs. 100 watts, 60 cycle, AC, 47 watts on standby.

39G3 Demodulator Probe (Not supplied) \$5.75



STANDARD RCA
"S" CURVE



VECTOR PATTERN

A PROFESSIONAL 5 INCH VECTORSCOPE Converts easily to professional Vectorscope.

Flick one switch at the rear of the PS148 and you have a 5-inch vectorscope. Connect the lead piercing clips to the output of the B-Y and R-Y chroma circuits or right at the color CRT grids. Actual vectors as taught on vector charts will appear on the screen.



Complete chroma bandpass and color sub carrier alignment is made with the one vector pattern. Concise demodulation angle is determined with the special vector graph.

Minimum circuit loading prevents distorted vector pattern. Lead lengths and inter-lead capacities are kept to a minimum by having vectorscope connecting at rear of PS148.

SENCORE . . . the only test equipment company that makes test equipment from raw steel to finished product

Complete modern sheet metal works that delivers finished cases, panels etc. direct from machines to assembly line



Printed circuit board punching & drilling to speed delivery



Streamlined electronics assembly and testing in one long line for best quality control



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