



THE ALL AMERICAN LINE
OF HIGH QUALITY
TEST EQUIPMENT

SENCORE

3200 SENCORE DRIVE, SIOUX FALLS, SOUTH DAKOTA 57107

here is your checklist of why our customers buy the Sencore
FE23 LITTLE HENRY FIELD EFFECT MULTIMETER

- ☑ It's the toughest little meter in the whole wide world; it'll go with you anywhere under all conditions . . . even in the dark with an illuminated meter.
- ☑ Easy to operate with push button ease. Even shuts itself off when lead compartment door is closed.
- ☑ No draggy leads or meters to break, as Little Henry jumps back into the tube caddy for his next ride. Everything is tucked away neatly and the whole meter is only the size of two 5U4 tubes.



the toughest little meter in the whole wide world with 1.5% FET Accuracy



\$90

DC Volts: 0-3, 30, 300, 1KV and 6KV full scale. Input resistance: 15 megohms shunted by 27pf at jack. Accuracy: 1.5 percent. AC rejection: 30DB minimum.

AC Volts: 0-3, 30, 300 and 1KV full scale, Input resistance: 950K shunted by 27pf at jack. Accuracy: 3 percent.

Ohmmeter: 0-1K, 100K, 10Meg and 1000Meg full scale, 10 ohms center scale. Accuracy: 2 degrees of arc.

DC Current: 0 to 1 ampere full scale. Uses separate jack. Accuracy: 3 percent. Internal voltage drop: 300 millivolts.

Protection: 1000V on all ranges.

Meter: 3 1/2 inch, 100 microamp, 2 percent, diode protected. Shockproof mounted with sliding door to

protect face during transit or when not in use. Meter illuminates when turned on by switch in lead compartment.

Batteries: 9 volt Eveready No. 222 or equivalent (not supplied) for power supply. Three AA 1.5 volt batteries (not supplied) for ohms and meter light. Operate independently so ohmmeter will still function if scale illumination battery is run down. Unit automatically turns all batteries off when lead compartment is closed.

Mechanical Description: Unbreakable acrylic and vinyl-clad steel case with aluminum handle. 6 1/2" x 4 1/2" x 2 1/4", 2.5 pounds.

High Voltage Probe: 39A30, extends 300 volt range to 30KV. (not supplied) \$12.00.

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore
FE27 BIG HENRY FIELD EFFECT MULTIMETER

- ✓ Dependable 1000V internal protection on all ranges for more profitable uptime—less downtime.
- ✓ Dependable external protection with indestructible acrylic case, sliding meter cover and handy lead storage compartment.
- ✓ Dependable 1.5% FET accuracy on DC volts and 3% accuracy on AC volts.
- ✓ Dependable battery operation for a rugged portable multimeter that will go anywhere.

*Most dependable multimeter
 on the market today -
 protected mechanically
 and electrically for
 the man on the go.*



\$150.



DC Volts: 0-0.3, 1, 3, 10, 30, 100, 300 1KV, 3KV, full scale, positive and negative. Zero center ranges: All positive and negative, 0.15, 0.5, 1.5, 5, 15, 50, 150, 500, 1.5KV. Input resistance: 15 megohms shunted by 58 pf. Accuracy: 1.5%. AC rejection: 30DB minimum.

AC Volts: 0-0.3, 1, 3, 10, 30, 100, 300, 1KV, RMS full scale. 0-0.3, 1, 3, 10, 30, 100, 300, 1KV, P-P full scale. Accuracy: $\pm 3\%$.

Input Resistance: 2.4 megohms shunted by 95 pf. Accuracy: 3%.

Ohmmeter: 0-1K, 10K, 1Meg and 1000Meg full scale, 10 ohms center scale. Accuracy: 2 degrees.

DC Current: 0-1 ma, 100ma, 1 amp, 3 amp, positive and negative. Accuracy: 3%. Internal voltage drop: 200mV.

Protection: to 1000V on all ranges.

Illuminated Meter: 4 1/2 inch, 100 microamp, diode protected. Shockproof mounting. Sliding cover to protect meter face during transit.

Batteries: Two 9 volt Eveready No. 222, or equivalent, for power supply. Two "C" cell Eveready No. 1035, or equivalent for ohms and meter light. Operate independently so ohmmeter will still function if scale illumination battery is run down. Unit automatically turns batteries off when lead compartment is closed.

Mechanical Description: Unbreakable acrylic and vinyl-clad steel case with aluminum handle. 10" x 5 1/2" x 3 1/2", 4 1/4 pounds.

High Voltage Probe: 39A30, extends 300 volt range to 30KV. (not supplied) \$12.00

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore
**FE20 FIELD EFFECT MULTIMETER AND
 FE21 PORTABLE FIELD EFFECT MULTIMETER**

- ✓ Instant 1.5% accuracy with no messy line cords.
- ✓ Low ohms ranges using only .08 volts to prevent transistors from conducting, for accurate measurements in solid state circuits.
- ✓ .1 volt DC range for sensitive solid state voltage measurements.
- ✓ Fully protected to 1000V overload on any range with back-up fuse protection to eliminate costly repairs and downtime.



\$120



\$150

DC Volts: Full scale: 0 to .1, .3, 1, 3, 10, 30, 100, 300, 1000 both positive and negative. Zero center: (all positive and negative) .05, .15, .5, 1.5, 5, 15, 50, 150, 500. Input resistance: 15 megohms with 200K switchable isolation resistor in series with 90 pf. Accuracy: 1.5%. AC rejection: 30 DB minimum.

AC Volts: RMS: 0 to .1, .3, 1, 3, 10, 30, 100, 300, 1000. Peak to peak: 0 to .28, .84, 2.8, 8.4, 28, 84, 280, 840, 2800. Input impedance: 12 megohms shunted by 90 pf. Accuracy: ±3%.

Frequency Response: 10Hz to 150KHz, within 1 DB. 5Hz to 500KHz within 3DB. Accuracy: 3%.

Resistance: Ranges (both Hi and Lo ohms): 1K, 10K, 100K, 1Megohm, 10Meg, 100Meg and 1000Meg, full scale. Center Scale: 12 ohms. Accuracy: 2 degrees of arc.

DC Current: Full scale: 0 to 100 microamps, 300 microamps, 1ma, 3ma, 10ma, 100ma, 300ma and 1 amp. Accuracy: 3 percent full scale. Internal voltage drop: 80mv on 100 microamp to 850 mv on 1 amp range.

Protection: 1000V on all ranges.

Fuse: 3AG, .6 amp to protect multiplier resistors from accidentally burning out.

Meter: 6 inch, 200 microamp, D'Arsonval, diode protected and isolated from input.

Batteries: Seven 1.5 volts "C" cells.

Mechanical Description: Rugged black vinyl-clad steel case with aluminum panel. 9 1/2" x 7 3/4" x 3 3/4", 8 pounds. (without batteries)

High Voltage Probe: 39A30, extends 300V range to 30KV. (supplied with unit)

FE21 FIELD EFFECT MULTIMETER

Same specifications as FE20 except for the following:

Meter: 4 1/2", 100 microamp, D'Arsonval, diode protected and isolated from input.

Batteries: Two Eveready E222 or equivalent for meter amplifier. 1.5 volt "C" cell for ohms function. (batteries not supplied)

Mechanical Description: Rugged black vinyl-clad steel case with steel panel. 5" x 7 1/2" x 3 1/16", 4 pounds.

High Voltage Probe: 39A30, extends 300 volt range to 30KV. (not supplied) \$12.00

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore

FE160 SENIOR FIELD EFFECT METER

- ✓ 112 Ranges; more ranges for more work than any other multimeter on the market.
- ✓ Simplified push button ease of operation.
- ✓ Lo Ohms scale to check resistance in circuit without firing transistors.
- ✓ .1 volt full scale for solid state work.

it's the market's most complete multimeter - 112 ranges in all

\$195



DC Volts: 10 Positive and 10 Negative Ranges: 0-0.1, 0.3, 1, 3, 10, 30, 100, 300, 1000 and 3000. 10 Zero Center Ranges: -0.05 to 0.05, -0.15 to 0.15, -0.5 to 0.5, -1.5 to 1.5, -5 to 5, -15 to 15, -50 to 50, -150 to 150, -500 to 500, and -1500 to 1500. Input resistance: 15 megohm, shunted by 90pf in probe (NORM.) 10 pf in 200K (ISOLATION.) Accuracy: 1.5 percent. AC rejection: 30 DB minimum.

AC Volts: 9 RMS ranges: 0-0.1, 0.3, 1, 3, 10, 30, 100, 300 and 1000. 9 PP ranges: 0-0.28, 0.84, 2.8, 8.4, 28, 84, 280, 840 and 2800, frequency compensated. Input resistance: 12 megohm shunted by 90pf. Frequency response: 1DB 10Hz-150KHz, 3DB 5Hz-500KHz. Accuracy: 2.5%.

DC Current: 10 positive and 10 negative ranges: 0-30uA, 100, 300, 1mA, 3, 10, 30, 100, 300 and 3A. 10 zero center ranges: -15 to 15uA, -50 to 50uA, -150 to 150uA, -500 to 500uA, -1.5 to 1.5mA, -5 to 5mA, -15 to 15mA, -50 to 50mA, -150 to 150mA and -1.5 to 1.5A. Internal voltage drop: 0.1V. Accuracy: 2 percent.

AC Current: 10 RMS ranges 0-30, 100, 300uA, 1, 3, 10, 30, 100, 300mA and 3A. Internal voltage drop: 0.1V RMS. Accuracy: 3 percent.

Protection: 1,000 times overload on volts. Fuse and diode protected on ohms.

Ohmmeter: 8 high power ranges (1.5V) 0 - 600 ohms, 6K, 60K, 600K, 6M, 60M, 600M and 6000M. 7 low power ranges (0.08V) 0 - 600 ohms, 6K, 60K, 600K, 6M, 60M and 600M. Accuracy: 2 degrees arc.

Decibel (DB): 9 ranges: -20, -10, 0, 10, 20, 30, 40, 50, 60db. Reference: 1mV into 600 ohm.

Meter: 7", 500 microamp, D'Arsonval, diode protected.

Ohms Supply: Fully electronic with no battery requirement.

Mechanical Description: Rugged black vinyl clad steel with aluminum panel 9" x 7½" x 6", 6 pounds.

Power: 105 - 130 volts, 50-60Hz AC, convertible to 220VAC.

High Voltage Probe: 39 A 30, extends 300 volt range to 30 KV. (not supplied)\$12.00

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore
TF26 TOUCHTONE CRICKET TRANSISTOR TESTER

- ✓ Complete in-circuit pushbutton test in one simple operation.
- ✓ No setup data or technical knowledge required. Just hook up the leads any way you want and push the buttons for a simple GOOD-BAD readout.
- ✓ Checks them all - both NPN and PNP transistors, both N-channel and P-channel FET's, in or out of circuit, with the same simple test.
- ✓ Sensitive out of circuit leakage test in microamps to back you up.



Hop through solid state circuits in seconds.



\$140

PATENT PENDING

Transistor gain test: In or out of circuit GOOD - BAD test for either bipolar transistors or field effect transistors. Simply connect the leads, any way you wish, and push the buttons. The Cricket will read GOOD on the meter and "chirp" with a built in audible tone when the correct button is pushed on a good transistor. (No chirp indicates bad transistor.)

Leakage Test: Sensitive DC out-of-circuit leakage test in microamps to back you up for I_{cbo} in transistors and I_{gss} in FET's.

Test Specifications: $V_{ce} = +5$ volts DC, $V_{be} = 3$ volts p-p, Zero reference, 2KHz frequency.

Damage Proof: Low-level test signals are completely safe - even for those delicate rf transistors.

Meter: 4 1/2", 100 microamp, D'Arsonval meter movement with specially-designed jewel pivot meter movement for shock protection. Sliding meter cover for protection of meter glass.

Spring loaded connectors: Large, easy to use, sure-clamp hook connectors.

Mechanical description: Rugged acrylic and vinyl clad steel case.

Size: 10" x 5 1/2" x 3 1/2"

Weight: 4 pounds

Power: 105-125 volts, 50-60Hz AC

Low Power Consumption: Typically less than 5W

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore TF166 AUTOMATIC TRANSISTOR ANALYZER

- ✓ Automatic push-button operation. All you do is select the button and push it.
- ✓ Automatically reads good or bad, as well as beta gain.
- ✓ Now, checks over 20,000 transistors and FET's in circuit or out of circuit.
- ✓ No setup book required but included for reference if desired.

A complete transistor analyzer - in or out of circuit.



\$190

PATENT PENDING

Transistor Tests: In or out of circuit for gain. Out of circuit for leakage tests only. Gain measured as good or bad or in Beta. Leakage (I_{cbo}) measured in microamps.

Field Effect Transistor Tests: In or out of circuit for gain. Out of circuit for leakage tests only. Gain measured as good or bad or in G_m (transconductance). Leakage (I_{gss}) measured in microamps.

I_{dss} Zero Bias Test: Measured in milliamps for industrial culling and power amplifier matching.

Damage Proof: Guaranteed not to damage transistor, circuit, or tester at any time when used in circuit on AC.

DC Out of Circuit Test: Erratic tests, or transistors that have a built-in diode in them, should be checked out of circuit on DC only for greatest reliability. Simply double check a transistor before you replace it on DC out of circuit and these will all be caught. These are only a few out of 20,000 and are generally in the RF circuits.

Meter: Large 7", 100 microamp, D'Arsonval.

Mechanical Description: Rugged black vinyl case with aluminum panel. 9 1/2" x 7 1/2" x 6", 8 1/2 pounds.

Power: 105-130 volts, 50-60Hz AC.

Low Power Consumption: 15 watts.

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore

TC162 MIGHTY MITE TUBE TESTER

- It checks them all, large and small, domestic or foreign: over 3,000 tubes total.
- Finds those tough dogs others miss—with 100 megohm grid leakage sensitivity.
- Stethoscopic shorts test that tests each element individually against the others.
- Over 70,000 Mighty Mites sold to date.

*Find those tough dogs others miss -
with 100 megohm grid leakage sensitivity.*



\$120

Cathode emission: Tested at full rated cathode current of the tube under test.

Grid Leakage Sensitivity: 100 megohms or a half microamp.

Shorts Test: Individually made, one element against all other tube elements in the tube.

Tubes tested: Over 3000 in all.

Circuitry: All Solid State.

Pin Eliminator Switches: Added as extra test to eliminate tied-in connections in tubes so the tube can be tested. All returned to original position by one return switch.

Mechanical Description: Black vinyl-clad steel case with aluminum panel and trim. 10" x 9" x 4", 9 pounds.

Power: 105-130 volts, 50-60Hz AC, 32 watts.

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore

MU150 MUTUAL CONDUCTANCE TUBE TESTER

- It checks all tubes, foreign and domestic, for true mutual conductance with an exclusive 5,000 hertz square wave test.
- Fast, too, as it becomes a rapid Mighty Mite tester if you use the first three switches only.
- The only complete mutual conductance tester on the market. There aren't any others. The MU150 has outlasted them all.



It's the only complete tube analyzer on the market.



\$290

Mutual conductance test: 5,000 hertz square wave under actual amplifying conditions. The tube is harnessed up in the circuit, unlike other testers that are vanishing from the market that use the tube to do its own rectification.

Cathode emission check: Checks tubes under full rated current as indicated in tube manuals. A must for power tubes where emission is more important than amplification.

Leakage Sensitivity: 100 megohms or .5 micro-amp.

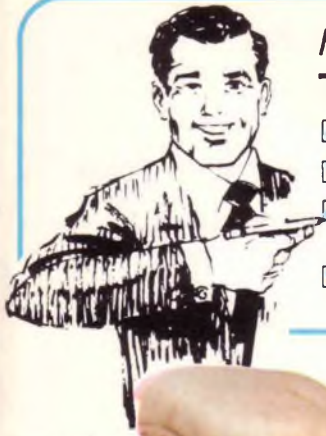
Shorts Test: Stethoscopic test. Each element is checked against every other element.

Life Test: Interrupted filament to determine intermittents and temperature sensitive failures.

Mechanical Description: Handsome vinyl-clad steel case with chrome panel and trim. 18" x 14" x 5", 18 pounds.

Power: 105-125 volts, 50-60Hz AC.

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore
TC28 HYBRIDER TUBE AND TRANSISTOR TESTER

- ☑ It's an amplifier checker for tube, solid state and hybrid circuits.
- ☑ It's a Mighty Mite that checks over 3000 tubes, foreign and domestic.
- ☑ It's the miraculous new Cricket for in and out of circuit transistor and FET testing—without a setup book.
- ☑ Be totally equipped—not half equipped—with the only amplifier checker that equips you for all tube, solid state and hybrid amplifying circuits.



The only hybrid amplifier checker on the market today for tube, solid state and hybrid circuits.

\$220

PATENT PENDING

Devices Tested: Tubes, transistors, diodes and single-gate FET's.

Tube Tests: Cathode emission test at full rated cathode current. Grid leakage sensitivity to 100 megohms. Individual shorts test for each pin read right on the meter, with individual pin elimination switches to eliminate tied-in connections in the tube.

Transistor Tests: Gain (in or out of circuit): same pushbutton test for GOOD—BAD reading on any bipolar transistor or Field Effect Transistor, in or out of circuit. $V_{ce} = 5$ volts, $V_{be} = 3$ volts peak to peak, zero reference, 2KHz frequency.

Leakage: (out of circuit only) 5VDC applied voltage. Meter indicates 0-3000 microamps leakage current for I_{cbo} in transistors and I_{gss} in FET's.

Mechanical Description: Black vinyl clad steel case with aluminum panel and trim.

Circuitry: All solid state, with computer-logic integrated circuits.

Meter: 6" x 3 3/4" D'Arsonval, 100 microamp.

Size: 14 3/4" x 4 1/2" x 12"

Weight: 13 3/4 pounds

Power: 105-130 volts, 50-60Hz AC

SPECIFICATIONS



SS137 SWEEP CIRCUIT ANALYZER FS134 FIELD STRENGTH METER

Special testers



\$125



\$250

SS137 SWEEP CIRCUIT ANALYZER

Here is a special tester that will pay for itself many times over. Every time that you run into a tough dog TV receiver, you suspicion sweep troubles. The SS137 will isolate your trouble in a hurry. Here is what it does.

Horizontal Oscillator: Substitutes directly for any TV horizontal oscillator right up to the control grid of the output tube.

Vertical Oscillator: Direct substitute for any vertical oscillator.

Horizontal Yoke: Substitutes directly for any black and white or color receiver horizontal deflection yoke. Takes the mystery out of this component. Restoration of high voltage means the yoke was faulty.

Flyback dynamic test: Checks the power transfer of the output tube to the good yoke substituted to determine capability of horizontal output transformer. Calibrated in degrees of deflection of CRT.

Vertical output signal: Direct substitute.

High voltage and current tests: To determine capability of output tube and return of high voltage with normal load of CRT.

FS134 FIELD STRENGTH METER

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 distribution 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.

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore

CR161 CATHODE RAY TUBE TESTER: THE AUTO TRACKER

CR 161

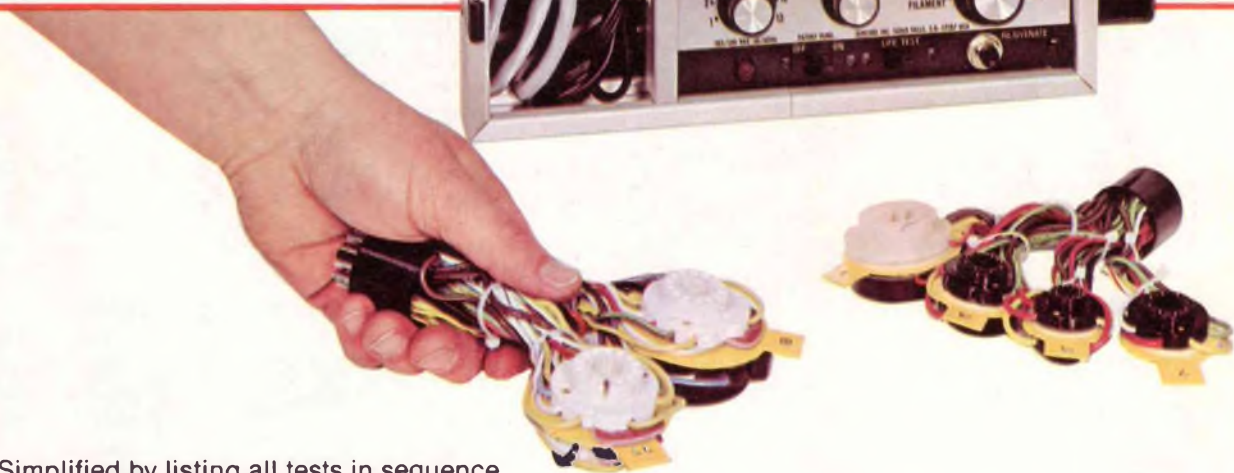


- ✓ Patented automatic tracking test for color CRT's; simply push the button and the computer memory circuit will do the rest.
- ✓ Plug-in adapters mean easier operation and replacement if they should become worn or lost. Also prevents obsolescence.
- ✓ Only CRT tester that tests Black and White, Tri-Color CRT's and the Japanese single gun Trinitron with the same simplified patented test.

*tests all CRTs
with one simple
automatic
patented readout*

\$150

PATENTED



Operation: Simplified by listing all tests in sequence around the function switch. Instructions are included but not really needed.

Filament Set: New feature enables the most accurate test, as low or high line voltage can give erroneous readings and cause you to reject a good CRT. Filament set controls mean that you are lab accurate.

Gun Balance: The guns are balanced according to industry standards, just like the G2 controls are set in the TV receiver. A must for proper tracking test.

Automatic Tracking: A patented feature that provides for charging up a memory bank during the emission test and comparing the charges to each other on an industry-accepted 1.5 to 1 ratio. If there is more than 1.5 to 1 difference, the meter will read "bad tracking." No time-consuming logging of figures and making engineering comparisons.

Safe Rejuvenation: Restores life to those CRT's that become weak. Choice of three R-C timed voltages makes rejuvenation safe and easy for all tubes.

Sockets: All plug-in and replaceable. RCA 110 degree CRT socket (part no. 39A65) and new RCA in line picture tube socket (part no. 39A67) available from Sencore service departments for \$10.00. Trinitron 17" single gun socket (part no. 39A66) available for \$5.00. Package will include the new setup information.

Mechanical Description: Rugged black vinyl-clad steel case with aluminum divider and panel. 10" x 9" x 4", 11 pounds.

Meter: 3 1/2 inch, 500 microamp, D'Arsonval.

Power: 105-130 volts, 50-60Hz AC.

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore

CR168 BIG MACK AUTOMATIC CRT TESTER

- ✓ Now the only tester that tests them all including the newest RCA 110 Degree Color tube and 17" Japanese Trinitron.
- ✓ It's Automatic Tracking: You can't make a mistake in calculations and replace a good expensive color CRT.
- ✓ You can show your customer exactly what is wrong with the color CRT, step by step, with the function control. Every reading is on the large 7-inch meter. No more hard-to-read lights to confuse your customer. It's a tube salesman.
- ✓ Safe, timed rejuvenation brings those weak tubes back to life.



It's your number one customer convincer. Big Mack is there to help you make that big sale.

\$225



PATENTED

Operation: Simplified. You don't even need an instruction book, just follow the function control. Big Mack will convince your customer that "she" needs a new color tube.

Filament Set: Insures against high or low line voltage giving false readings. Set on meter for greatest accuracy.

Shorts Test: Read on meter for the first time. You can show your customers heater to cathode or cathode to control grid shorts so they know the difference when an isolation transformer won't fix the trouble.

Gun Balance: TV set is simulated for most accurate test. G2 controls are set before any tests are made.

Automatic Tracking: You don't even have to push the button on Big Mack. Simply read tracking on the big meter after making emission tests. Only Sencore has this feature because it is patented.

The Big Mack even goes a step further; you don't have to go back and charge the memory bank on

emission if you should get a phone call in the middle of the check, just push the button and the memory will restore test.

Safe Rejuvenation: Restores life to those old CRT's that become weak. Choice of three RC timed voltages makes rejuvenation safe and easy for all tubes.

Sockets: All smaller, neater plug-ins that fit right in a special compartment in the cover. Extremely neat, and less costly for replacement as they cover only one CRT category on the Big Mack. Includes RCA 110° socket, new thin neck, in line color tube socket, (skt No. 14, available May 1, 1974). and the 17" Trinitron socket.

Meter: Large 7-inch, D'Arsonval meter that you or your customer can read at a distance.

Mechanical Description: Black vinyl on steel with aluminum panel and divider. Removable cover for ease of testing. Large storage compartment for those extras. 10" x 9" x 5", 12 pounds.

Power: 105-130 volts, 50-60Hz AC.

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore

CG25 "LITTLE HUEY" DIGITAL COLOR BAR GENERATOR

- Positive digital locking insures stable patterns on every set.
- You can show your customer rock solid patterns, proper convergence and correct colors.
- Most complete small color bar generator on the market with channel tuning and color adjust level; just like the high priced spread.
- All digital CMOS IC chips means no timers and never any downtime. It's the latest thing going. Low power drain for long battery life. Turns itself off with automatic timing if you should forget.
- Space saving IC's allow additional room for output cable and batteries in rear. Prevents that tangled mess in your tube caddy.

Only digital IC generator on the market under \$100.



\$99



CMOS IC's for low power drain and long battery life.

Color Bars: RCA licensed 10 bars across entire color spectrum.

Horizontal Bars: 14 bars, digital controlled.

Vertical Bars: 10 vertical bars, digital controlled.

Crosshatch: 10 vertical and 14 horizontal, digital controlled.

Dots: 140 small adjustable dots, digital controlled.

Extremely Low Drain: New CMOS IC's means shelf life for batteries.

RF Output: Adjustable, covers low VHF channels 2-6.

Mechanical Description: Unbreakable grey acrylic case. 6" x 4 1/4" x 2 1/2", 2 pounds.

Battery: Eveready E164 mercury or equivalent.

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore

CG169 DELUXE COLOR KING COLOR BAR GENERATOR

- If you want the best, you'll want the 100 percent digital timed Color King.
- It just can't bounce . . . no way . . . produces rock solid patterns or your money quickly refunded.
- 75 ohm output for MATV, CATV systems, with 300 ohm balun for conventional antenna inputs.
- Only generator with temperature control. Prevents humidity build-up while in the trunk in Florida and RF drift or electrolytic freeze in the Klondike.
- Special convergence patterns: moveable single dot and single cross makes convergence and centering a snap.

it's the industry's only all-channel all-weather color generator



~~\$180~~

CG169

225⁰⁰

Color Bars: RCA licensed 10 color bars across entire color spectrum.

Horizontal Bars: 14 horizontal bars, all digital controlled.

Vertical Bars: 10 vertical bars, digital controlled.

Crosshatch: 10 vertical and 14 horizontal bars all digital controlled.

Dots: 140 small adjustable dots, digital controlled.

Single Fixed Dot: For centering and static convergence.

Single Fixed Cross: For centering and static convergence.

Moveable Cross: For dynamic convergence.

Moveable Dot: For dynamic convergence.

Both UHF and VHF Channels: Produces TV VHF and UHF channels for complete tuner testing. Only color

generator that covers them all. You won't send back a set that won't work on a channel that you haven't checked it on.

Impedance Matching: 75 ohm output equips you for checking any component in MATV, CATV systems. Use the 300 ohm matching balun for conventional antenna inputs.

RF Attenuation: Simulates fringe conditions and checks color assurance in the shop for these areas. Especially checks color killer action for fringe reception. Only the Color King has it.

Power: 105-130 volts AC, 50 watts.

Mechanical Description: Black vinyl covered steel case with rich aluminum paneling.

Accessories Included with Unit: 39G72 Matching Transformer (Replacement Price) \$5.00

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore

SM158 SPEED ALIGNER SWEEP AND MARKER GENERATOR

- ✓ Fast hookup to prevent error; just two cables in and out.
- ✓ All crystal controlled markers. You just push the button. You can't make a mistake.
- ✓ 4 RF channels. Competition has only 2. You don't want to make a mistake if the incoming channel is overriding. You'll want a spare, both high and low channels.
- ✓ Lowest priced Sweep and Marker that you can buy through a distributor.



the industry's easiest-to-use sweep and marker

\$275
~~275~~

275⁰⁰



Sweep Output: Chroma, IF or RF, with front panel fine tuning.

Sweep Width: 15 Megahertz with base line.

Marker Amplitude: Unlimited. You can boost the markers right off the screen with no circuit upset. They are tiltable, too, if you are in a trap and wish to see them better.

Marker Frequencies: 39.75, 41.25, 41.67, 42.17, 42.67, 44.25, 45.75, 47.25 for IF alignment. 3.08, 3.58, 4.08 and 4.5MHz for chroma. Just push the button.

RF Channels: 3, 4, 10 and 13. Two reserve channels, one high, one low.

Marker Injection System: Post injection. You never upset the curve with marker height.

Power: 105-125 volts, 50-60Hz AC.

Mechanical Description: Black vinyl steel case with brushed steel panel. 7" x 11" x 6", 9 pounds.

Accessories Supplied With Unit: 39G22A Matching Pad (Replacement Price) \$5.95
39G23 Detector Cable (Replacement Price) \$7.95

Voltage Quadrupler Probe: For Zenith receivers to take the response of the first IF output. Special order from service department.

Part number 39G26 \$10.00

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore

UPS164 UNIVERSAL POWER SUPPLY

- ☑ Provides all voltages needed to service every TV module and keep the repair business with the independent. A must for the future.
- ☑ One high quality, regulated, low ripple supply for every servicing need.
- ☑ Monitors voltage and current at all times to speed service or design.
- ☑ Money saving current limiting on all outputs—it can even take a dead short.

The most rugged, protected power supply on the market - both voltage and current regulated.

\$240



Voltage: 6 Volts to 20 amperes fixed. 12 Volts to 10 amperes fixed. 0 to 35 volts variable to 2 amperes.

Current Adjust: 0 to 2 amps adjustable to any in-between level by Maximum Current Set control. Protects supply and circuit under test.

Ripple: Less than .018 percent on 0 to 35 volt range. .2 volts peak to peak, no load, on high current ranges.

Degree of regulation: .15 volt per amp change.

Battery charger: Taper charger. Fully, charged battery: 7.5 volts output on 6-volt battery; 15 volts output on 12-volt battery. Maximum charge cur-

rent: 20 amps on 6-volt position; 10 amps on 12-volt position.

Meters: Voltage: switched for either supply at 3 percent accuracy. Current: switched for either supply at 3 percent accuracy. Type: 3½" moving coil, D'Arsonval.

Protection: 100 percent current protected. A short can be placed on output terminals for an extended period of time at any setting and no harm can be done.

Mechanical Description: Rugged black vinyl-clad steel case with aluminum panel, 10"x 13½"x 9½", 23 pounds.

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore

PS148 DUAL PURPOSE OSCILLOSCOPE/VECTORSCOPE

- ✓ Lowest priced broad band, general purpose color scope on the market today. Wide band but high sensitivity. You can see the output of a TV tuner directly.
- ✓ 7,000 volt input protection. Other scopes on the market have only 600 volts.
- ✓ It's a vectorscope too at no extra cost.



it's a workhorse



\$295

Vertical Input Sensitivity: 17 millivolts per inch deflection.

Vertical Amplifier Response: 10 Hertz to 6 Megahertz within 6DB.

Vertical Input Breakdown: 7,000 volts with low cap probe. 600 volts without probe.

Horizontal Sweep Frequencies: 5 Hertz to 500 Kilohertz in five overlapping ranges.

Synchronization: Positive, semi-triggered.

Vectorscope: Converts to vectorscope with switch and input connections in rear.

External Inputs: Sync, sweep, Z axis and direct connections to deflection plates.

Power: 105-125 volts, 50-60Hz AC, 47 watts.

Mechanical Description: Five-inch reserve brightness, sharp focus tube, completely shielded. Black vinyl-clad steel case with brushed steel panel. 11" x 9" x 15 1/2", 22 pounds.

Accessories: Direct Lo-Cap Probe: 39G11 (supplied with unit) (Replacement Price) \$9.95
Demodulator Probe: 39G3 ordered from factory service department. (not supplied) \$5.75

SPECIFICATIONS

here is your checklist of why our customers buy the Sencore
**PS29 MINUTEMAN AUTOMATIC TRIGGERED
 PUSHBUTTON OSCILLOSCOPE**

- ✓ It's the only completely automatic triggered, pushbutton oscilloscope on the market today for all color TV and video servicing.
- ✓ Every color and video servicing signal available with the push of a button . . . TV Vertical, TV Horizontal, 3.58 color, 5X Expand, 60Hz Line Sweep and Vector Mode.
- ✓ Automatic triggering with guaranteed solid sync (backed by TV sync separators) for rock solid waveforms—you simply push a button.
- ✓ It's a complete general purpose scope too for any signal from DC to 10MHz.



The first and only completely automatic triggered scope for any color TV and video service.

\$495

(NOT AVAILABLE UNTIL SEPT. 1, 1974)

Exclusive Front Panel, Pushbutton Video Functions.

TV Vertical and TV Horizontal: With built-in TV sync separator. Accuracy: 3%.

3.58MHz Color: For fast positive sync on any color signal.

60Hz Line Sweep: Automatically locks in for response curves in sweep alignment work. Front panel phase adjust control synchronizes scope to sweep generator for exact phasing.

Vector: Used with external input (B-Y), plus regular vertical input (R-Y). Full front end amplification. Ranges: 2 volts per cm or 20 volts per cm.

External input impedance: 1 megohm shunted by 40 pf. Horizontal Bandwidth: 1MHz within -3DB. Less than 1% phase shift.

Sweep Expand: 5 times. Accuracy: 5%.

Graticules: Lighted 10 X 10 cm grid and 30° vector grid with automatic lighting in vector mode.

Power: 105-130 VAC, 50-60Hz, 60 watts.

Accessories: Lo-Cap Probe: 39G80, 10 X probe with 5KV rating. (included with unit) Demodulator Probe: 39G81 (not supplied) BNC to Phono Connector: 39G47 (not supplied).

Vertical Input: Sensitivity: .01 volt per centimeter of deflection. Accuracy: 3%.

Vertical Amplifier Frequency Response: DC to 8MHz within 3DB; -4DB at 10MHz, usable to 15MHz.

Vertical Amplifier Breakdown Voltage: 5000 volts AC, 1000 volts DC with low cap probe.

Horizontal Sweep Speed: Triggered: 0.2 microseconds per cm to 0.1 sec per cm in 18 overlapping calibrated ranges. Accuracy: 3%.

Triggering: Completely automatic solid triggering for any signal above .5 cm display. Automatic baseline in absence of input signal.

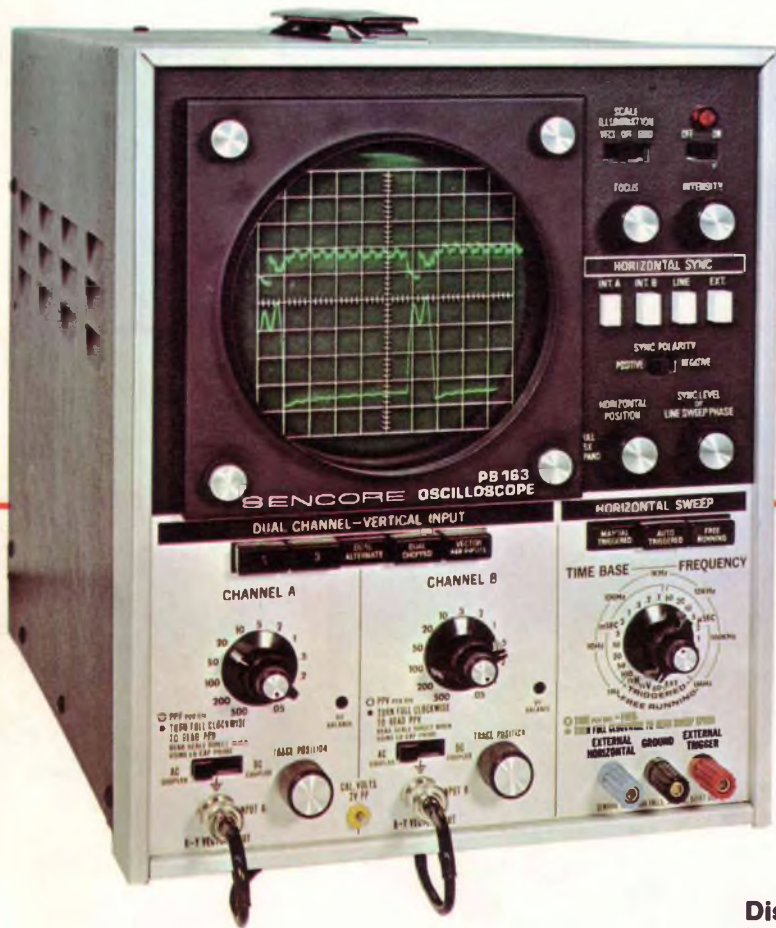
Source Selection: Internal, external, line, positive or negative polarity.

SPECIFICATIONS



here is your checklist of why our customers buy the Sencore
**PS163 DUAL TRACE TRIGGERED ALL SOLID STATE
 OSCILLOSCOPE**

- ✓ Phase-locked matched channels allow you to compare simultaneous waveforms within 1% laboratory accuracy.
- ✓ Makes you the envy of your technical friends when they know you are equipped for every job with the best.
- ✓ It's a triggered scope with absolute positive sync, backed by TV sync separators.
- ✓ It's wide band with high sensitivity on both channels with exclusive 5,000 volt input protection.
- ✓ It's AC or DC coupled, depending on the job.



*Big performance with
 1% phase-locked
 waveforms at
 1/3 the cost
 of others.*

\$695
 (INCLUDES
 BOTH LO-CAP
 PROBES)



Vertical Input (both amplifiers): Sensitivity: .005 volt per centimeter of deflection. Accuracy: 2 percent.

Vertical Amplifier Frequency Response (both amplifiers): DC to 8 Megahertz within 3DB. Usable to 15MHz.

Vertical Amplifier Breakdown Voltage (both channels): 5,000 volts AC, 1000 volts DC with low cap probe.

Horizontal Sweep Speed: Triggered: .1 microsecond per cm to .1 second per cm in 19 overlapping ranges. Free Running: 1 Hertz to 1 Megahertz, overlapping. Accuracy: 2 percent.

Synchronization: Free Running, manual or automatic triggered. Synchronized to either input, line or external.

Vertical Input Calibrator: Built-in for both channels.

Display Capability: Either channel, alternating between channels or chopped mode of switching between channels.

Vectorscope: Direct from front of scope. High sensitivity: .005 volt per cm to 50V per cm direct. .05V per cm to 500V per cm using low cap probe. Frequency response: -3 DB from 0 to 7MHz.

Power: 105-130 volts, 50-60Hz AC, 60 watts. Solid state, regulated, instant-on.

Mechanical Description: Black vinyl case with aluminum panel and trim. 12" x 10" x 15", 30 pounds.

Accessories: Lo-Cap Probe: 39G34, 10X probe with 5KV rating (supplied with unit)

Demodulator Probe: 39G41 (not supplied with unit — order from factory service department) BNC to Phono Connector: 39G47 connector for use in connecting PS163 to SM158 Sweep/Marker Generator. (not supplied with unit — order from factory service department)

SPECIFICATIONS

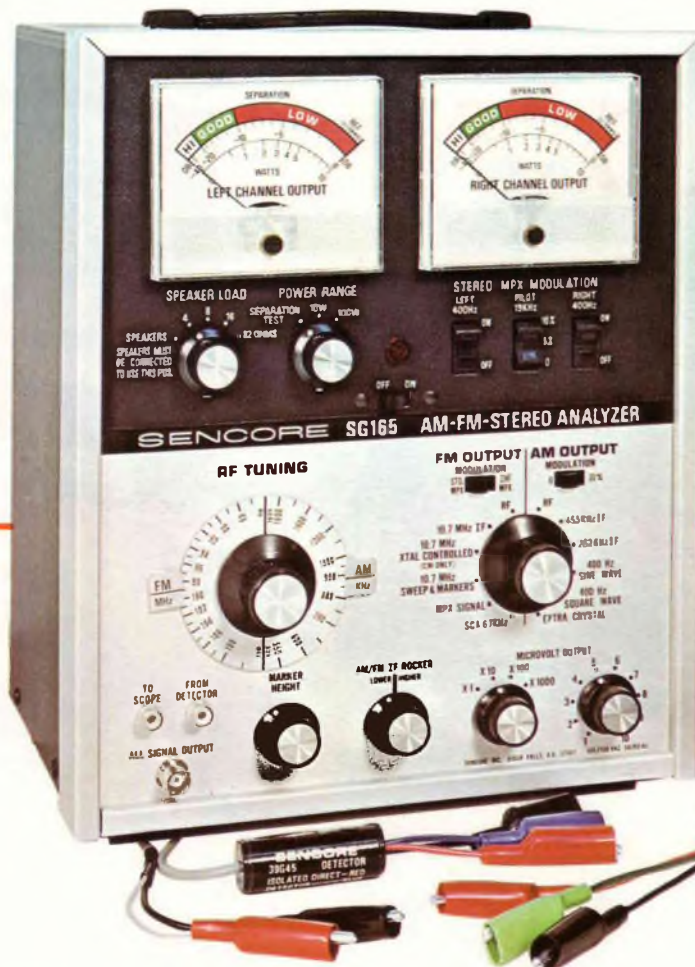


here is your checklist of why our customers buy the Sencore

SG165 AM-FM STEREO ANALYZER

- ✓ The 12 signals that you need to completely service every stage of even the largest, highest priced stereo unit. It's a money maker.
- ✓ Checks every stage from antenna to speaker, including the speaker.
- ✓ Sweep and marker for alignment and IF band width check.
- ✓ Conventional stereo signal or new institute of high fidelity (IHF) modulation level. Virtually obsolesces every other stereo tester on the market.
- ✓ Patent applied for phase-locked subcarrier.

It's the only complete stereo analyzer with specs better than your FM station.



\$495

PATENT PENDING

FM RF Coverage: 87 to 109 Megahertz; unmodulated, MPX or 400 Hz sine modulation.

AM RF Coverage: 525 to 1625 Kiloherzt; unmodulated or 400 Hz sine modulation.

FM IF Coverage: 10.7 Megahertz crystal controlled CW, MPX or 400 Hz sine modulation.

AM IF Coverage: 262 or 455 Kiloherzt; unmodulated or 400 Hz sine modulation.

FM IF Sweep: 10.7 MHz fixed with markers at 10.7, 10.6, and 10.8 MHz.

Marker Injection: Post injection method with two simple leads; from detector and to scope.

Multiplex Signal: FCC regular stereo or IHF (institute of high fidelity) modulation with phase-locked 19KHz and 38KHz subcarrier.

Subscription Signal: 67 Kiloherzt SCA signal for setting traps.

Audio Signals: 400 Hz square and sine for final amplifier distortion test.

Meters: 3 1/2" D'Arsonval calibrated from 0 to -40db, 0 to 10 watts, and 0 to 100 watts.

Outputs: RF, IF, MPX, Sweep and Audio all one common cable.

Speaker Dummy Loads: Speaker direct, 4, 8, 16 and 32 ohms switchable for receiver being tested. Up to 100 watts for testing purposes.

Mechanical Description: Black vinyl-clad steel with high quality aluminum panel and trim. 10" x 13 1/2" x 9 1/2", 16 pounds.

Accessories Supplied With Unit: Matching Pad and Lead Assembly (39G43) (Replacement Price) \$15.50. Detector Cable and Lead Assembly (39G45) (Replacement Price) \$5.00. Auto Radio Adapter (39G53) (Replacement Price) \$3.00.

SPECIFICATIONS

RC24 RC SUBSTITUTOR "PARTS PAK"

- ✓ Cleans up those messy loose resistors and capacitors in your caddy and puts it all into one small, neat, hand-sized unit.
- ✓ Now updated for solid state service with 1000 mfd electrolytic.
- ✓ Full protection for parts, circuit and you with double surge protection circuit.

it's a tube caddy janitor



\$38



Resistors: 24 overlapping values from 10 ohms to 5.6 megohms. 1 watt to 10K, 1/2 watt over 10K.
Capacitors: 9 overlapping values from 100 pf to .5 mfd at 600 volts.
Electrolytics: Single 10 mfd, single 100 mfd at 450 volts and 1000 mfd at 75 volts.
Mechanical Description: Just the size of two 5U4 cartons. Acrylic non-breakable case. 1 pound.

SPECIFICATIONS

RC167 RC SUBSTITUTOR "THE SUBSTITUTOR"

- ✓ Exclusive parts in a drawer to help you save time and leg strain.
- ✓ Full range of resistors, power resistors, capacitors, electrolytics, and rectifiers at your finger tips.
- ✓ Now updated for solid state service with up to 2000 mfd electrolytics.
- ✓ Double protection for circuit, parts, and you with exclusive surge protector.

it's a leg saver



\$90



Resistors: 24 overlapping values from 10 ohms to 5.6 megohms. 1 watt up to 10K, 1/2 watt over 10K.
Capacitors: 10 overlapping capacitors from 100 pf to .5 mfd at 600 volts.

Electrolytics: 2 mfd, 5 mfd, 10 mfd, 20 mfd, 50 mfd, 100 mfd, 200 mfd at 450 volts. 500 mfd, 1000 mfd and 2000 mfd at 75 volts.

Rectifiers: Universal selenium and silicon rectifier substitutes, 1/2 ampere forward; 800 PIV.

Protection: Surge protector switch places resistance in series with electrolytics and then removes it when placed in circuit (automatically) so that the electrolytic cannot be heated and there will be no arc or spark. A warning light next to the switch will light in any 75 volts position if the applied voltage is over 75 volts so that you do not push the switch and apply the voltage.

Mechanical Description: Black vinyl with aluminum paneling. Gimble mounts allow for four way installation on bench. Parts drawer is reversible to fit any mounting. Compartments for resistors, capacitors, power resistors and rectifiers. 7 1/2" x 11" x 5", 7 pounds.

SPECIFICATIONS

Here are three top Sencore money making, time saving electronic tools.



money maker



PM157 POWER MONITOR

AC Voltmeter from 65 to 135 volts. Calibrated at 115 volts for more accuracy than VOM.

AC Ammeter up to 10 Amps. Check fuse and circuit breaker currents in a flash.

AC Wattmeter up to 1150 watts. A real trouble shooter.

DC Ammeter up to 10 Amps.

Fuse Resistor Checker with special scales for each resistor.

Make All Tests with interrupted line cord or test leads.

Fully Protected against shock hazard to appliance, instrument and operator.

Mechanical Description: Rugged vinyl-clad steel case with brushed steel panel, 6½" x 6" x 5", 5 pounds.

\$75

money maker



BE156 7-IN-1 DC BIAS SUPPLY

Now, align any TV set, black and white, color 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.

\$29.95

FC 149 money maker

FC147 FILAMENT CHECKER

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", one pound.

12.95

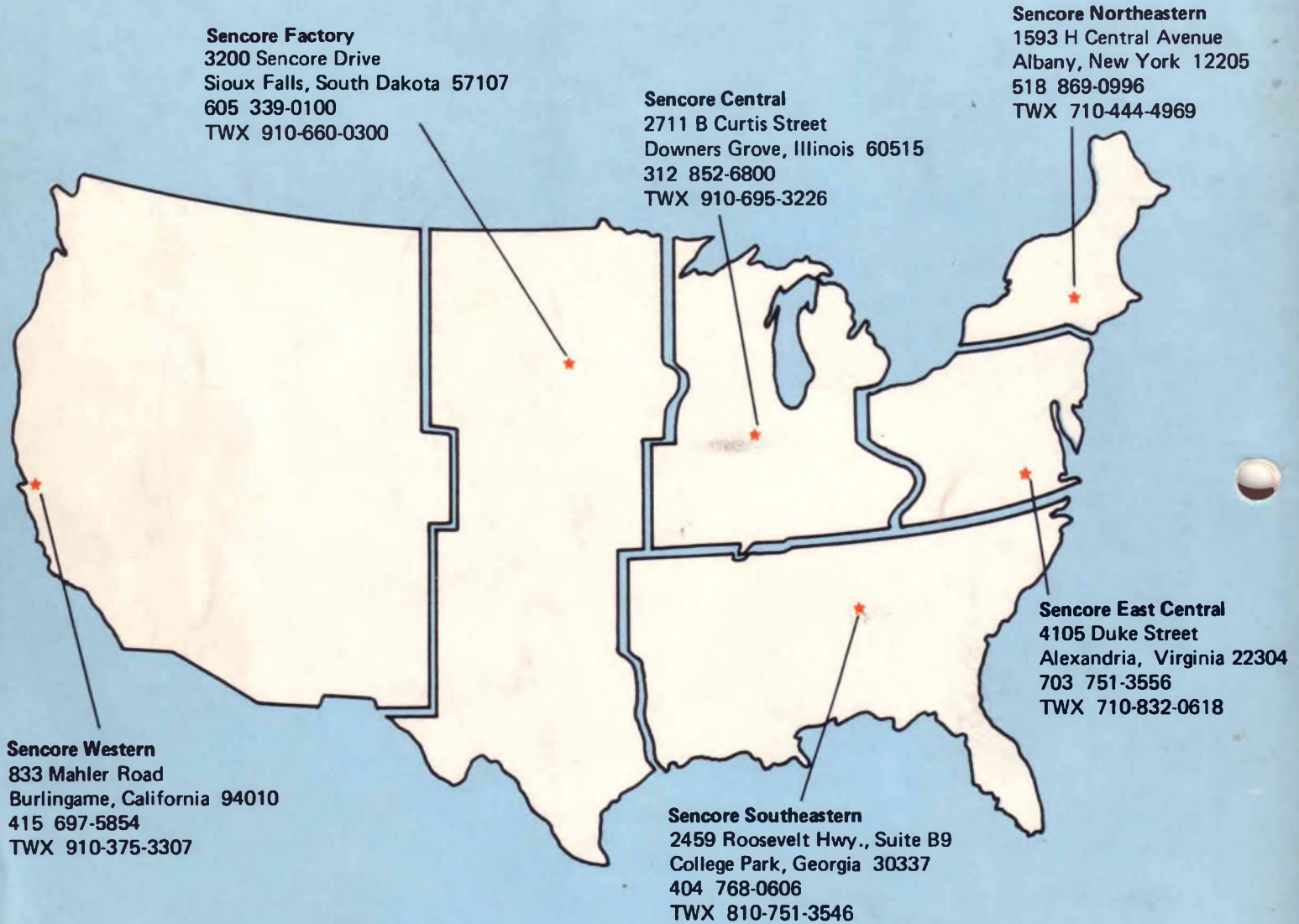
\$7.95



SENCORE IS DEDICATED TO SERVICE

SIX FACTORY SERVICE CENTERS TO SERVE YOU BETTER

Each of our service centers is there to serve your every need. Each is fully equipped with parts, instruction books and other service data, is staffed with a field engineer on duty to help you with your technical problems, a service department for instant service, (should you need it), and a customer service gal to be sure your requests are followed through. Each station is TWX connected to the main factory in Sioux Falls. Call when you need help or have a question. You will get the right answer.



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