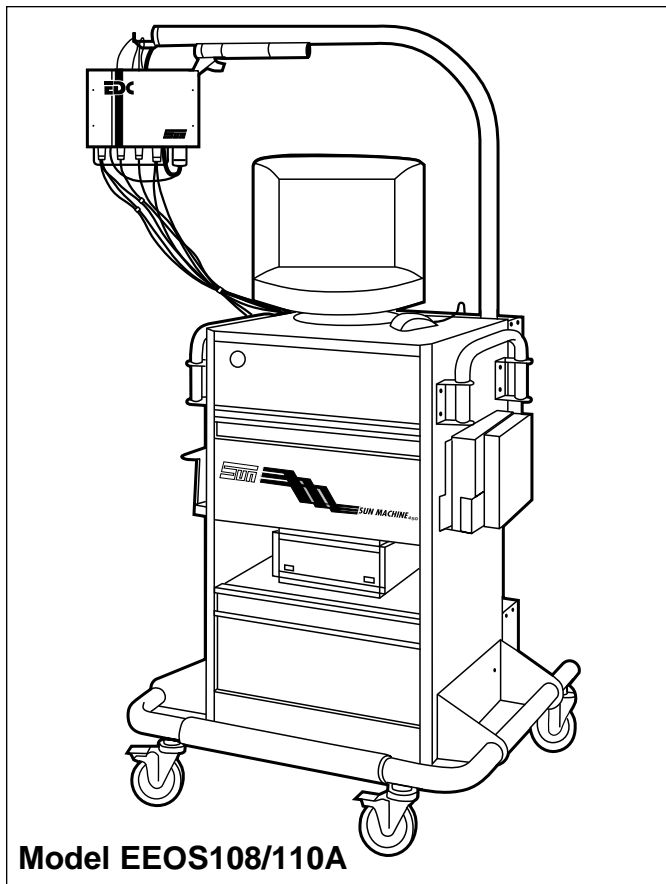


SUN® Machine 450 Bid Specification



Model EEOS108/110A

BASE UNIT

- **Processor:** 100 MHz PENTIUM®
- **Power Supply:** 230 watts
- **Memory:** 8 MB of RAM (expandable)
- **Floppy Drive:** Single, 3 1/2" 1.44 megabyte
- **Hard Drive:** 1 GB IDE minimum
- **CD-ROM Drive:** caddyless, 8X
- **Operating Systems:** MS-DOS 6.22; Microsoft® Windows™ 3.11 for Work Groups
- **Monitor:** SVGA with 2 MB video card (see base unit configurations)
- **Keyboard:** 101-key enhanced
- **Mouse:** three-button
- **Printer:** LED page printer
- **Emissions Module:** four-gas (NO ready)
- **Platform construction:** steel with tubular, welded steel base and drawer cabinet with 5" swiveling casters

ENVIRONMENTAL

- **Operating Temperature:** +41 to +105°F
- **Storage Temperature:** -20 to +130°F
- **Humidity:** 0 to 85% non-condensing

ELECTRICAL/MECHANICAL

- **Power:** 120 or 220 V AC, 60 Hz, 7 Amps
- **Weight:** 365 lbs.; shipping weight with monitor approximately 410 lbs.
- **Dimensions:** 75"H (incl. monitor and 5" casters) x 25 1/2"D x 25"W (38" inc. base)

Specifications are subject to change without notice

TEST FEATURES

FUNCTION

- Tests 2 and 4 stroke engines with 2, 3, 4, 5, 6, 8, 10 and 12 cylinders.
- Designed to diagnose performance problems in the starting, charging, emissions, fuel and compression/power contribution of most domestic and import vehicle engines.
- Generates diagnostic messages which indicate: likely problem(s); their probable cause(s); explanation(s); test recommendation(s); component repair/replacement recommendation(s); expected performance improvements.
- Vehicle-specific test results based on vehicle limits and diagnostics for most domestic and import vehicles. Updated yearly.

SOFTWARE FEATURES

- **Help:**
Screen-specific user help screens describe the test or function, how to access and perform the test, screen operation (settings, controls, etc.) and lead connections.
- **Data Display:**
Test results are displayed in columnar and graphic modes with out-of-limit indicators or high/low measurements, plus minimum data modes.
- **Data Storage:**
Test data can be stored to disk or analyzer hard drive.
- **Menu Test Selection:**
Access of system functions through pulldown menus.
- **Controls:**
Program selection via mouse, keyboard, or remote control; direct access to the help, engine setup, engine data and task-specific software via on-screen icon bar
- **Vehicle Identification:**
Description sequence used for Identification of the vehicle
- **Utilities:**
Leak check/gas bottle calibration; calculator; calendar; personalized business info/message for printed reports

TEST MODES

- **Complete Test**
Vehicle Set-up Screen: current vehicle specs with adjustable parameters: timing RPM, base timing, idle RPM, mag timing, fuel type, gasoline type, fuel delivery, power balance type.
Visual inspections: editable option boxes for components such as engine oil, tires, belts, etc.; color coded entries for good, system failure or repair suggested.
Hookup/Warm-up Screen: RPM and temperature gauges; go/no go color indicators for lead hookups including trigger, battery volts, coil +/-, secondary, timing, amp/clamp, oil temperature, vacuum and exhaust probe; polarity check procedure.
Cranking Test Screen: Countdown timer; measurements include RPM, kV, volts, amps, vacuum, temperature, HC.
High Cruise Test Screen: RPM gauge; measurements include volts, amps, peak amps, ripple, vacuum, temperature, HC, CO, O₂, CO₂, A/F ratio
Low Cruise Test Screen: RPM gauge; measurements include volts, amps, peak amps, vacuum, ripple, temperature, HC, CO, O₂, CO₂, A/F ratio
Idle Test Screen: RPM gauge; measurements include volts, amps, peak amps, ripple, vacuum, temperature, HC, CO, O₂, CO₂, A/F ratio.
Base Timing Screen: RPM gauge; measurement of timing and engine temperature.
kV Test Screens: kV measurements per cylinder include kV duration, firing kV, spark kV, kV change and oscillations, including power, added, wasted modes for distributorless ignitions.

SUN® Machine 450 Bid Specification

Power Balance Screen: RPM gauge. Non-intrusive rapid power balance for distributorless ignitions; shorting power balance for conventional engines.

Review Test: Review of data from the most recent Complete Test in memory; allows individual tests to be rerun without loss of diagnostics

Diagnostics: diagnostic summary and individual diagnostic messages by starting, charging, ignition, fuel, compression and cooling systems.

Print Functions:

Test Data Report: comprehensive summary of Complete Test data, with results displayed between minimum/maximum limits and out-of-spec indicators.

Tech Diagnostics: report with engine system diagnostic summary; diagnostic messages with test/repair recommendations.

Customer Diagnostics: report with engine system diagnostic summary; diagnostic guide to engine systems; diagnostic messages with test/repair explanations, recommendations and after-repair benefits.

Inspection Report: report of good/bad status of items checked on the Complete Test visual inspections screen.

Data Review:

Test data screens from the Complete Test available individually after each test.

Data Store: tests can be saved to disk or hard drive for retrieval.

- **Custom Tests:**

Individual cranking, low cruise, high cruise, idle, timing, kV and power balance tests from the Complete Test sequence can be selected and performed automatically in any desired order. Diagnostics are available on data collected.

- **Pinpoint Tests:**

Engine Data:

Live engine data based on current analyzer hardware configuration.

Emissions Digital:

Live HC, CO, CO₂, O₂, optional NO readings, with RPM and vacuum; AFR or LAMBDA measurement.

Emissions Graph:

5-minute graph of exhaust gases with digital readings; RPM, AFR or lambda measurements.

Idle Stability:

Per cylinder RPM deviation as a dynamic bar graph.

Dynamic kV:

Live firing kV, spark kV, spark duration and kV change readings.

Power, added and wasted display modes available for DIS.

Cylinder Shorting Test:

Shorts out cylinders individually or groups for power contribution (non-DIS systems).

Multimeter:

High impedance measurements of DC volts, ohms, frequency, duty cycle, continuity and amps.

Pattern viewer: view user stored patterns

- **Signals:** sec (power, added, wasted for DI); primary; pinpt 1, pinpt 2, aux, amps, battery, vacuum
- **Patterns:** parade, parade 5 milliseconds (ms), cyl, cyl 5 ms, raster 5 ms
- **Scale ranges:** 5-10-25-50-100-250-500 ms; 1-5-10-20 sec (seconds); 1-2-5-10-25-50-100-250-500 V(volts); 5-10-25-50 "Hg; 10-15-25-50 kV (kilovolts); aux 1-2-5-10 volts; amps 50,100, 1000 amps; battery volts 5,10,25 volts
- **Setup Options:** grid, gas, mark, cylinder anchor, dwell, auto freeze, vacuum, vacuum source, frequency, duty cycle

EMISSIONS MODULE

FUNCTIONS

- Four-gas (HC,CO,O₂ CO₂) bench with five-gas (Nitric oxide) optional
- Method of detection: non-dispersive infrared
- System response time: 8 seconds to 90% of full scale for each range
- Conforms to BAR 90 accuracy standards

BASE UNIT CONFIGURATIONS

- **EEOS108A14** SM 450 with 14" monitor & 110V power
- **EEOS108A15** SM 450 with 15" monitor & 110V power
- **EEOS110A14** SM 450 with 14" monitor & 220V power
- **EEOS110A15** SM 450 with 15" monitor & 220V power

STANDARD ACCESSORIES

- **EAK0066C02** Electronic Data Collection System with engine test leads
- **EAK0078C00AF** Wireless remote control

OPTIONAL ACCESSORIES

- **EAK0075C00AF** Fax/modem
- **EAK0076C00AF** 2nd CD-ROM drive (8X)
- **EAK0074C00AF** Simu-tech pod holder
- **EAK0084C00AF** EDC pod holder
- **EAK0079C00AF** Test lead boom
- **EAK0077C00AF** 12V DC receptacle
- **EAK0070C00AF** Five-gas (NO)
- **EAK0069C00AF** LONworks card and cables
- **EEMS 107A** Air Kare™ 1000 I/M
- **EEMS 108A** Air Kare™ 2000 I/M
- **6004-0407** Oil temperature probe

SAFETY INFORMATION

- Products may have inherent risk to the user.
- Read, understand and follow all safety messages on the product, user manual and vehicle to be serviced before operating Sun Machine 450.
- *Improper use may result in injury.*

SUN SCOPE

- **Scope Selections:**

Ignition scope: primary and secondary patterns

Lab scope: dual channel (pinpoint 1 &2)

Multifunction scope: ignition/lab scope combination

Sensor/component tests: menu of pre-scaled scope selections

Alternator ripple: display alternator pattern

O₂ sensor activity: automated O₂ sensor test measurements including average, maximum and minimum voltages; crossovers; rise time

Optional Vacuum probe: display per cylinder vacuum waveform

Optional Low amps probe: display low amps waveform (1-10 amps)

Optional Power balance probe: display per cylinder RPM change



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SM 500 Bid Specification



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