

# Exhaust Gas Diagnostics

## Analyzer & Diagnostic Software

**OBDII is great, but not the “Fix All” for diagnosing performance, drivability and catalytic converter issues.**



**ANSED Software  
Makes it Easy!**

### **KANE AUTOplus Gas Analyzer**

- Tests HC, O2, CO, CO2, NOX and Lambda
- All readings LIVE, not calculated
- Self-calibrating, no cal-gas required
- Dyno not required for NOx testing

### **KANE LIVE Graphing Software**

- Display LIVE readings on PC
- Bluetooth or USB cable
- Save data to PC

### **ANSED Exhaust Gas Diagnostics Software**

- Effective interpretation of exhaust gas readings
- Offers problem identification and potential solutions
- Diagnose no-code drivability & performance issues
- Insure catalytic converter related repairs are complete
- Print test results reports: pre- and post-repair
- Verify vehicle running at max efficiency after repairs and prevent comebacks

# Exhaust Gas Diagnostics Kit

The process of diagnosing general performance, drivability, no code and catalytic converter issues can be complex and frustrating. Modern OBDII systems may miss problems too small or infrequent to set a code. In seconds, the Exhaust Gas Analyzer will detect problems too marginal to be detected by an onboard computer or a scan tool.

Experienced technicians agree that a Gas Analyzer is an integral part of their diagnostic toolbox. One quick test of the exhaust gases emitted from the tailpipe helps reduce diagnostic time, verify repairs are complete, reduce comebacks, and increase overall profitability and customer satisfaction.

With **ANSED Exhaust Gas Diagnostics System** there are no more charts and graphs, no more black magic calculations. The **ANSED Exhaust Gas Diagnostics Software** interprets the exhaust gases and their interactions, and provides a top-down list of suggested problems and solutions in order of probability.

And, the **KANE LIVE Graphing Software** allows LIVE detailed monitoring of the gas readings on your PC.

The ANSED Exhaust Gas Diagnostics System is the most complete and comprehensive solution on the market today.

## Key Features

- **QVGA Display**
  - Large (3" x 2.2") and easy to read
- **Ergonomic Design Keypad**
  - Simple and easy to use
- **Bluetooth™ or USB Cable**
  - Links analyzer easily to PC to use with KANE LIVE Graphing Software
- **Variable Pump Speed**
  - Allows for adjustment of the pump speed, which can then improve battery life
- **Hi-Speed Print Capability**
  - KMIRP2 high speed printer with rechargeable batteries
- **Hi-Temp Probe**
  - EPAUTO7 with Neoprene tubing



*AUTOplus 5 Gas Analyzer*

## Key Benefits

- **Gas Analyzer is completely portable**
  - Easy to hold in hand
  - Sample exhaust gas in the shop or on a road test
  - NOx testing without a dynamometer
- **Low cost to operate and maintain**
  - Operates off internal re-chargeable battery
  - Self-calibrating, no cal-gas required
  - Water trap and filter visible
- **Fast diagnostic times**
  - All readings LIVE "real-time"
  - not calculated



*Optional Printer (KMIRP2)*

# Diagnostic Software



Health Note: Smith Auto Service, 3500 Route 20, Yonkers, NY 10551, Phone: 914 938 1234, URL: www.smithautoservice.com

Analysis date: 30 Sep 2014 22:21  
Technician: Chris Jones Jr  
Workshop Reference #: 2200000

**Customer Information**

Customer Name: George Jenkins	Vehicle Year: 1999
License Plate #: 4SC123D	Fuel Type: Gasoline
Vehicle Make: Suzuki	Vehicle Mileage: 20000 miles
Vehicle Model: LS	Exhaust Type: Single Exhaust System

**Test Results**

HC	5	OK
CO	0.76	MARGINAL
O2	0.50	OK
CO2	10.00	FAIL
Lambda	1.017	LEAN

**Analysis**

Note: The following recommendations are listed in the order of probability as to the cause of the failure. Once you have completed an item listed, take a new gas sample and re enter the data in the program to verify that you have found and corrected the problem. It may not be necessary to complete any remaining items.

1. Likely Cause: The gas analyzer sample appears to be diluted with fresh air. Make sure the exhaust probe is fully inserted in the tailpipe. Also, check the gas analyzer for a leak in the hose or sampling system. Perform the Automatic Leak Test of the sample probe and gas analyzer per the instruction manual.

Option 2: Exhaust system damage. Inspect the exhaust system for leaks or damage such as cracked pipes.

Option 3: Restricted catalytic converter or exhaust system. Using the O2 sensor ports, test for back pressure before AND after the catalytic converter. High back pressure after the catalytic converter indicates a restricted muffler or resonator or possibly collapsed exhaust pipe. High back pressure ahead of the catalytic converter indicates a possible restricted catalytic converter. Back pressure varies from application to application, but typically you should see 5 psi or less. On some applications however, back pressure as low as 2 psi could indicate a problem.

Option 4: Oversized exhaust system is installed on the vehicle. Confirm that inverted s-silencers, catalytic converters or tailpipes are not installed. Insufficient back pressure in these systems may cause a condition where the exhaust is unable to purge atmospheric oxygen. Another possible cause is a workshop exhaust ventilation system that is too powerful and is drawing oxygen near the analyzer probe. To overcome these problems you may need to purchase a longer probe that goes deeper into the tailpipe. Customer to return via Monday for service and repair.

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Powered by ANSED

Sample technician report

The **ANSED Exhaust Gas Diagnostics software** interprets the exhaust gas analyzer readings in seconds!

The software uses a floating matrix formula for each gas reading, coupled with other diagnostic variables, to enhance the accuracy. Several possible solutions, in order of probability, are suggested with the first one the likely cause in 80% of the situations.

## Key Benefits

- Instant exhaust gas analysis with an easy-to-read PASS/FAIL report.
- Provides a top-down list of probable causes and suggested service options.
- Pre-repair reports provide initial gas analysis for review.
  - Customer Report offers a “customer friendly analysis” of the exhaust diagnostic test.
  - Technician Report details the diagnostic test results and suggested procedures.
- Post-repair report verifies that repairs have been completed and the vehicle is running at maximum efficiency.
- All reports can be printed or saved for future reference.



The **KANE LIVE Graphing Software** is a great way to connect to the AUTOplus Gas Analyzer to view gas exhaust readings, all in "real-time" on your PC via Bluetooth™ or USB Cable.

Data is viewed either digitally or in graph form so you can easily track parameters over time as they change.

If required, the live data can be saved and stored on your PC. The software also allows for printing.

## Key Benefits

- Monitor individual exhaust gas readings digitally on a larger PC screen.
- Graphically display individual gas readings over time.
- Check individual exhaust gas readings for dropouts, spikes or irregularities in graphing mode.
- Save all information to PC for future reference.



## Accessories for AUTOplus Gas Analyzer

### EPAUTO7

Hi-Temp Probe w/13ft. Neoprene tubing. Probe insertion depth 7.9". Probe supplied in kit.

### EPAUTO8

Motorcycle Probe w/adjustable internal clamping mechanism. Hose is 4.8ft. and insertion depth is 9".

### EPAUTO9

Heavy Duty and Hi-Temp Probe. 19ft. hose w/OD coupling (200°F max) and stainless steel probe (1200°F max), with insertion depth of 12.6".

### CA10733/4

12v Charger. 7ft. length.

### PF2/10

Replacement filters for watertrap. Pack of 10.

### SM11629

Replacement watertrap.

### KMIRP2

Compact Hi-Speed Printer with rechargeable batteries. Paper is 2-1/4" wide. Unit measures 6" x 4".

### TP5

Replacement Printer Paper. Pack of 5 rolls.



## AUTOplus 5-Gas Analyzer

Parameter	Resolution	Accuracy	Range
Carbon Monoxide (Infrared)	CO	0.01%	+/- 5% of reading +/- 0.06% volume 0-10% Over-range 20%
Oxygen (Fuel Cell)	O2	0.01%	+/- 5% of reading +/- 0.1% volume 0-21% Over-range 25%
Hydrocarbon (Infrared)	HC	1 ppm	+/- 5% of reading +/- 12ppm volume 0-5000ppm Over-range: 10,000ppm
Carbon Dioxide (Infrared)	CO2	0.10%	+/- 5% of reading +/- 0.5% volume 0-16% Over-range: 25%
Nitric Oxide (Fuel Cell)	NOX	1 ppm	0-1500ppm +/-5% or 25ppm 0-1500ppm Over-range: 5000ppm
Lambda AFR (Petrol) (LPG)		0.001 0.01	0.8 – 1.2 11.76 – 17.64 12.48 – 18.72

Sensor response T95	Nominal 20 seconds
Warm up	Less than 2 minutes
Pre-programmed Fuels	Gasoline, LPG, Diesel and CNG
PC connection	Via Bluetooth or CL5 USB cable
Data-Logging	500 Tests
Languages	English, Spanish, French, German & Dutch
Dimensions	Weight Handset 2.2 Pounds 8.7" x 2.2" x 4.7"
Ambient Operating Range	41°F to 113°F/10% to 90% RH non-condensing
Storage temperature	32°F - 122°F
Battery Type	Rechargeable AA NiMh Battery Pack
Battery Charger	Input: 100-240V ~ 47-63Hz, Output: 12V DC
Analyzer battery run time	4+ hours from full charge with the pump running, 8+ hours with pump off. To charge, 6-8 hours.

**Note:** For continual use with a dynamometer, use the high temperature probe, EPAUTO9.



The KANE LIVE Graphing Software is available to download: [www.ANSEDdiagnostics.com](http://www.ANSEDdiagnostics.com)

### System Requirements

- A PC with Bluetooth capability required or you can use the CL5 USB cable, included in kit.
- PC must have OS Version:
  - Windows XP (sp3)
  - Windows Vista
  - Windows 7

### The ANSED/AUTOplus5 Diagnostic Kit includes:

- KANE AUTOplus 5 Gas Analyzer
- EPAUTO7 Hi-Temp Probe
- AC Charger
- 12V DC Charger
- Five (5) Replacement Filters
- User Manual & Quick Start Guide
- ANSED Exhaust Gas Diagnostics Software (setup & 1st year free)
- KANE Live Graphing Software
- CL5 USB Cable
- Shoulder Bag
- TOLL FREE Support Help Desk



The ANSED Software is accessible on the Internet via a browser: [www.ANSEDsoftware.com](http://www.ANSEDsoftware.com)

### System Requirements

To access and use the software, you will need the following:

- An Internet connection with at least a 512k connection speed. We recommend a minimum of 1 MB for best results.
- A web browser. The following browsers are supported:
  - CHROME, version 35.0 or later
  - FIREFOX, version 30.0 or later
  - INTERNET EXPLORER, version 10.0.6 or later
  - SAFARI, version 6.0.5 or later
- Other browsers are not supported by ANSED.

**For additional information and to place orders:**

Contact Todd Haner at **888-685-7287** or email [todd@ANSEDdiagnostics.com](mailto:todd@ANSEDdiagnostics.com)



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