



SMOG CHECK ADVISORY

Official Publication of the California Department of Consumer Affairs/Bureau of Automotive Repair

November 1998

VEHICLE RETIREMENT PROGRAM BEGINS STATEWIDE

California's new Smog Check Vehicle Retirement Program (VRP), which provides owners the opportunity to voluntarily retire high-polluting vehicles that fail their biennial Smog Checks, officially begins statewide this November, and may already be operating in your area by the time you read this article.

If your customer fails his/her smog inspection, please advise him/her that eligible vehicle owners may receive up to \$450.00 to retire a high-polluting vehicle. To be eligible, the vehicle must meet the following criteria:

- Fail a Smog Check test within 90 days* of arrival at a BAR-approved dismantler, or have been issued a repair cost waiver or economic hardship extension in the previous biennial cycle.

**Exception: Vehicles that failed Smog Checks between June 8, 1998, and November 2, 1998, can participate in the VRP. (This exception sunsets on June 8, 1999.)*

- Be registered and continuously operable in California for the last two or more years prior to the failed vehicle inspection.
- Be a passenger car or light-to-medium-duty truck (maximum 8500 pounds Gross Vehicle Weight Rating (GVWR)).
- Pass a vehicle parts and functional test at the BAR-approved dismantler.

In addition, the vehicle's owner must do the following:

- Complete a Smog Check VRP application.
- Submit a valid California driver's license or identification card.
- Obtain a Revivable Junk Receipt and a one-day driving permit from the Department of Motor Vehicles (DMV).
- Submit a copy of the failed vehicle's Vehicle Inspection Report (VIR).

For more information, or to obtain a VRP application, please have your customer call the Bureau's Consumer Assistance and Referee Scheduling Center at 800-622-7733. ➔

LOW-INCOME REPAIR ASSISTANCE PROGRAM BEGINS IN SACRAMENTO

Using the services of Gold Shield Gross Polluter Certification (GPC) stations, BAR will begin offering up to \$450 for emissions-related repairs to help qualified, low-income consumers in the Sacramento metropolitan area this November. Statewide expansion is expected to be completed by next spring.

"The program works much like the existing economic hardship extension, although consumers are required to provide documentation that verifies their low-income status before any repairs are subsidized by the state," said

the program's manager, Kurt Heppler.

Low-income consumers must spend the first \$200 on emissions-related repairs before they obtain state assistance, and the help is **ONLY** available when vehicles fail a biennial inspection.

To be consistent, BAR has also lowered the repair cost limit from \$250 to \$200 for low-income consumers to obtain an economic hardship extension. Technicians are urged to watch for ET blasts for more information on the low-income repair-assistance program as it develops. ➔

Last in a Series

More CAT Diagnostic Tests

by Pat Larson

As stated in articles in the last two issues of the *Smog Check Advisory* on how to properly diagnose a problem with the catalytic converter (CAT), **it is critical** that all fuel management, ignition, and air injection systems perform at optimum levels prior to the CAT diagnosis being conducted.

The accuracy of the four- or five-gas test analyzer system (TAS) being used to conduct the tests is also critical. If the oxygen (O₂) sensor in the TAS is defective, it cannot perform an accurate diagnosis.

Look at the analyzer's ambient air oxygen reading. If it does not read between 19.8 and 20.8 percent, the O₂ is not accurate. To correct the inaccuracy, a technician can calibrate the analyzer or replace the O₂ sensor.

Next, measure the O₂ from the cal gas. It should read no more than 0.1 percent. If it reads more than 0.1 percent, the technician will need to ensure the accuracy of the carbon monoxide (CO), hydrocarbons (HC), and (CO₂) portion of the analyzer.

Here are the steps to conduct the final types of CAT tests:

METHOD NUMBER 3

The Rattle Test

STEPS

1. Using a rubber mallet, gently hit the bottom of the CAT, being careful not to damage the substrate, and listen closely.
2. Determine if it rattles or sounds hollow.
3. If it rattles, check for a broken substrate.

Continued on page 5



SNAPSHOT

Following are the combined Smog Check ASM and TSI Testing and Repair Cost Statistics for the months of August and September.

	AUGUST	SEPTEMBER
<i>Program Volume</i>		
Tests Conducted	905,907 *	888,541
Vehicles Tested	746,668	731,264
Vehicles Failed	65,307 (8.7%)	72,741 (9.9%)
Certificates Issued	667,224 (89.4%)	642,883 (87.9%)
<i>Type of Failure</i>		
Tailpipe:	33,186 (4.4%)	38,402 (5.3%)
Gross Polluters	18,063 (2.4%)**	18,829 (2.6%)
Visual	3,623 (0.5%)	4,141 (0.6%)
Functional	25,700 (3.4%)	29,625 (4.1%)
<i>Failure by Station Type</i>		
Test & Repair	33,003 (7.1%)	36,090 (8.0%)
GSGR	15,183 (8.9%)	17,042 (10.2%)
GPC	4,890 (8.2%)	5,916 (9.5%)
Test-Only	12,222 (25.4%)	13,681 (28.1%)
Other (fleets)	9 (3.4%)	12 (2.5%)
<i>Consumer Assistance/Referee Centers</i>		
Tests	1,864	1,774
Failures	943 (50.6%)	917 (51.7%)
Gross Polluter Tests	43	38
Gross Polluter Failures	7 (16.3%)	15 (39.5%)
Certificates Issued	1,196	1,141
Cost Waivers Issued	117	120
Hardship Extensions Issued	169	178
<i>Average Repair Costs</i>		
Vehicles Repaired	57,119	59,993
Average Cost (statewide)	\$ 97	\$ 98
Test & Repair Stations	\$ 88	\$ 88
GSGR Stations	\$ 101	\$ 101
GPC Stations	\$ 143	\$ 143

* Includes multiple tests on same vehicle.

** Subset of tailpipe failures.

FUEL CAP TESTING

Must Be Done According to Manual

Fuel cap testing must be conducted as outlined in the equipment manufacturer's manual provided with the tester.

Recently analyzed data collected from the Vehicle Information Database (VID) shows an unexpectedly high number of "non-applicable" or "no adapter available" entries for fuel cap tests.

In the July edition of the *Smog Check Advisory*, BAR authorized a "no adapter available" entry for 1977-93 Hondas with non-threaded gas caps, but for no other vehicles.

"There should be relatively few such entries, which leads us to believe that technicians may be confused about how to handle falsely failing results," said Garrett Torgerson of BAR's Engineering Branch. "If technicians suspect that a particular fuel cap adapter is producing falsely failing results, they should let us know."

Fuel cap testing problems or concerns should be referred to Derebrew Shankute in BAR's Engineering Branch at (916) 255-4262. Shankute will conduct research to determine if there is a compatibility problem that must be resolved with the fuel cap tester manufacturer. ➔

To Begin December 15 in Non-Enhanced Areas

Fuel cap testing in non-enhanced areas is expected to begin December 15, pending final approval of equipment regulations.

Details and updates about the start-up will be provided in ET blasts and published in the December *Smog Check Advisory*. They will also be included in the updated Smog Check Inspection Manual to be published shortly.

Stations in Basic and Change-of-Ownership areas must purchase updated software for each BAR-90 Test Analyzer System (TAS) and at least one fuel cap tester per station.

The tester does not connect to the BAR-90, but the technician will have to enter the results of fuel cap checks during the functional inspection of each vehicle. Calibration checks of the tester also will have to be entered into the TAS.

Currently, BAR-90 owners may choose from two BAR-certified brands of fuel cap testers (Stant and Waekon). However, some BAR-90 equipment manufacturers may offer a "package deal" that includes both the tester and software. ➔

ISSUES & ANSWERS

The Issues & Answers column is for readers to ask questions about topics that are of general interest to the auto repair industry and the Smog Check program. Answers to your questions will be researched and published here. You are encouraged to submit your questions to:

Smog Check Advisory
P.O. Box 188978
Sacramento, CA 95818

All questions must be accompanied by a name, address, and telephone number and will be verified before publication. Questions will be answered and published on a space-available basis. — The Editor

Q. When retesting a vehicle, is it necessary to do the fuel cap test again? May I just CANCEL it? I feel repeating it is just a waste of my time.

—Allen Reyes Palad, Los Angeles.

A. Sorry, Allen, in order to issue a certificate, all portions of an official inspection must be performed.

Clip and Copy Attached Certificate Order Form

A certificate order form for stations that purchase Smog Check certificates by mail from BAR's Cashiering Unit is attached on **page 6** of this *Smog Check Advisory*.

"We are discontinuing the process of mailing certificate order forms to stations," said Chris Edwards, Smog Check Operations Manager. "Stations should make copies of the order form attached to this issue of the *Smog Check Advisory* and use those copies to reorder their certificates."

Edwards said about 12 percent of stations currently order certificates by mail, and BAR had been sending a reorder form when filling the certificate order. ➔



Calendar of Coming Events

NOVEMBER 17, 1998

Workshop—Gold Shield/Test-Only Audit Results and BAR-97 Implementation
Edmund G. "Pat" Brown State Building Auditorium
505 Van Ness Ave., San Francisco
7:00 P.M. to 9:00 P.M.

NOVEMBER 18, 1998

Workshop—Gold Shield/Test-Only Audit Results and BAR-97 Implementation
Ronald Reagan State Building Auditorium
300 South Spring Street, Los Angeles
7:00 P.M. to 9:00 P.M.

NOVEMBER 19, 1998

Workshop—Gold Shield/Test-Only Audit Results and BAR-97 Implementation
San Diego County Board of Supervisors Administration Center
1600 Pacific Hwy., Room 310, San Diego
7:00 P.M. to 9:00 P.M.

DECEMBER 1, 1998

Workshop—Gold Shield Regulations
Department of Consumer Affairs
First Floor Hearing Room, Suite 1030
400 R Street, Sacramento
7:00 P.M. to 9:00 P.M.

More CAT Diagnostic Tests *Continued from page 1*

4. If it sounds hollow, check to see if the CAT is empty.
5. If the technician visually confirms that the substrate is broken, or the CAT is empty, it is necessary to replace the CAT.

METHOD NUMBER 4

Exhaust Oxygen Content Test

This procedure is slightly different for non-feedback systems, with and without air injection system, and for O₂ feedback systems. We have combined these systems in one method, using italics to denote differences. Use your four- or five-gas TAS to look at O₂ to determine if the CAT is using all available oxygen to convert CO and HC to CO₂ and H₂O.

STEPS

1. Ensure there are no exhaust leaks, and disable air injection system if so equipped.
2. Bring engine to operating temperature; verify closed loop, if feedback.
3. Check exhaust O₂ levels at 2000 RPM. If the oxygen drops to 0 percent, go to step 5. If it doesn't drop to 0 percent, check to see if there is any CO present in the sample. If so, the CAT may not be working. Go to step 5 for confirmation.

If there is no CO present in the sample, the mixture is too lean, go to step 4. *Note: If feedback system is keeping CO low, disconnect the oxygen sensor. If CO is still below 0.5 percent, go to step 4.*
4. Place the propane enrichment hose in the air cleaner inlet and slowly add propane at 2000 RPM until CO reaches about 0.5 percent. Check to see if the O₂ drops to 0 percent. At this point, the CAT should be using all of the available oxygen. If it is, go to step 5. If not, the CAT may not be working properly, which means the technician should go to step 5 to confirm.

5. When the O₂ reading is stable, snap the throttle open and return to idle. Watch to see when the CO peaks; the O₂ level should read no more than 1.2 percent.

If the O₂ remains below 1.2 percent, the CAT is okay, but if it rises above 1.2 percent, the CAT is getting weak. If it rises well over 1.2 percent, the CAT is not working effectively.

Of course, these are only approximate numbers. But if the readings are close, technicians should still run a different test for confirmation before condemning the CAT.

METHOD NUMBER 5

Temperature Increase Test

This last test is a commonly used one, although it should only be used as a preliminary sample. While it is a good, quick check on a good CAT, it should not be used to condemn a CAT.

STEPS

1. Run the engine until it is at normal operating temperature.
2. Precondition the CAT.
3. Turn off the engine and ground a plug wire.
Note 1: On dual converter vehicles, this will have to be performed on each bank.
Note 2: If this test is performed on an OBDII vehicle, the power train control module (PCM) will set an engine misfire Diagnostic Trouble Code (DTC).
4. Restart the engine and run it slightly above idle.
5. Take a temperature reading immediately ahead of the CAT.
6. Take a reading immediately after the CAT.

Although there are no absolute numbers or percentages for any or all vehicles, there should be an appreciable temperature rise. As technicians gain experience performing this test on vehicles with good, functional CATs,

they will develop a knowledge of normal temperature elevations.

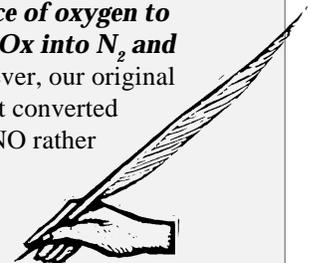
Note: If the temperature drops from the front reading to the rear reading, check to see if there is sufficient fuel being delivered in an unloaded condition or if there is an extremely rich condition. If the system is too lean, the CAT may not have sufficient fuel to light off. The rich condition can quench the CAT allowing the shell to work as a heat sink.

Pat Larson has been a BAR program representative since 1988. He is a member of BAR's Program Representative Advisory Committee, which is dedicated to providing repair and program advice to BAR management executives and Smog Check technicians and station owners. Any questions about the three-part series on CAT diagnosis may be directed to Pat Larson at (619) 439-5808. ➔



A CORRECTION

One of our sharp-eyed readers caught a typo in part one of our series on diagnosing the catalytic converter in the September edition and called to let us know. We should have said: "**The rhodium element only operates well in the absence of oxygen to convert NO_x into N₂ and O₂.**" However, our original story said it converted NO_x into NO rather than N₂. ➔





BUREAU OF AUTOMOTIVE REPAIR • DEPARTMENT OF CONSUMER AFFAIRS
400 R STREET, SUITE 2020
SACRAMENTO, CA 95814
ATTN: CASHIERING SERVICES (916) 322-7002

ORDER REQUEST

This form must be completed to process your request. All order requests will be processed in the order received. Please allow 3 days for mail delivery from Southern California.

SHOP NAME

STREET ADDRESS (United Parcel Service does not deliver to post office boxes.)

Form fields for CITY, STATE, ZIP, ARD LICENSE NUMBER, and (AREA CODE) PHONE NUMBER.

Table with columns: Item Description, IF NEEDED, SEE BACK FOR INFORMATION ON HOW TO FIND YOUR BAR-90 or BAR-97 I.D. #, QUANTITY, PRICE EACH, TOTAL. Includes items like SMOG CHECK CERTIFICATES, LAMP ADJUSTMENT CERTIFICATE, BRAKE ADJUSTMENT CERTIFICATE, etc.

Prices include tax and shipping charges. Purchase orders will not be accepted.

Note: Please allow 15 working days for delivery. All exceptions must be reported within 60 days.

AUTHORIZED SIGNATURE

IMPORTANT: The Smog Certificate ordering procedure now automatically recognizes the 1996 change from paper certificates to electronic transmission of certificates.

NOTE FOR ACH USERS: It is not necessary to use this order form if you have already signed up through your BAR-90 or BAR-97 unit to use the Automatic Clearing House (ACH) debit process.

REMEMBER: AS OF APRIL 15, 1998, YOUR AUTOMATIC DEBIT FOR NEW ORDERS WILL BE \$412.50 FOR THE BLOCK OF 50 CERTIFICATES.

INSTRUCTIONS FOR ORDERING SMOG CHECK CERTIFICATES

- A. Fill in the "BAR-90 or BAR-97 ID number" box on the order form. Enter the unit ID # for each BAR-90 or BAR-97 unit for which you want to order certificates.
• If you don't know the BAR-90 or BAR-97 ID number, it can be found on the BAR-90 or BAR-97 Status Screen.
• If you are ordering certificates for more than one Smog Check machine, enter each BAR-90 or BAR-97 ID number on a separate line.
B. Enter the "QUANTITY" of certification numbers (blocks of 50) ordered for each BAR-90 or BAR-97 unit.
C. Multiply "QUANTITY" times "PRICE EACH" (\$412.50 per block of 50) to determine the "TOTAL" cost.

Disciplinary Actions/ Smog Check Station Citations

There are no Disciplinary Actions or Citations to report in this edition.

Owners and Technicians Urged to Join Industry Associations

Listed below are some of the various auto repair and Smog Check industry associations and organizations that station owners and technicians may be interested in joining. "Shop owners and technicians should seriously consider joining one or more of these organizations, each of which offers a variety of benefits to its members," said BAR's Deputy Chief Patrick Dorais. "Membership gives individuals an opportunity to have some input into what happens to them in their professional development, provides access to and input on the legislative process, and promotes unity among the industry as a whole."

National Organizations

International Automotive Technicians' Network
700 East Lambert Road, Suite H
La Habra, CA 90631
(562) 691-4982 or <www.iatn.net>

Automotive Service Excellence (ASE)
13505 Dulles Technology Drive, Suite 2
Herndon, VA 20171-3421
(703) 713-3800 or <www.asecert.org>

Service Technicians Society (STS)
400 Commonwealth Drive
Warrendale, PA 15096
(724) 772-8548 or <www.sts.sae.org>

California Organizations

Automotive Repair Coalition
915 "L" Street, Suite 1000
Sacramento, CA 95814
(916) 444-9742

Automotive Service Councils of CA (ASC)
758 University Avenue
Sacramento, CA 95825
(916) 924-9054 or <www.asc.ca.com>

Automotive Trade Organizations of CA (AuTO-CA)
16750 Hale Avenue, Suite A
Irvine, CA 92606-5050
(714) 660-0907

California Automotive Wholesalers' Assn.
11160 Sun Center Drive
Rancho Cordova, CA 95670
(916) 635-9774 or <www.cawa.org>

CA Motor Car Dealers Association
420 Culver Blvd.
Playa Del Rey, CA 90293
(310) 306-6232 or <www.cmcd.com>

California Service Station and Automotive Repair Association (CSSARA)
1202 Grant Ave., Suite B1
Novato, CA 94945
(415) 892-1243 or <www.cssara.org>

CA Emission Testing Industries Association
1014 - 10th Street, Suite 300
Sacramento, CA 95814
(916) 448-6363

Independent Automobile Dealers Association of California (IADAC)
1900 Point West Way, Suite 144
Sacramento, CA 95815
(916) 924-5230

STS California Chapters

Los Angeles
Contact: Johnnie Richardson
(213) 292-4553

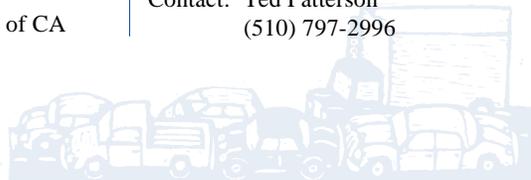
North Bay
Contact: Joe Lindland
(707) 584-4223

Orange County
Contact: Karen Puff
1-800-STS-9596

Sacramento
Contact: Larry Langham
(916) 731-3996

San Diego
Contact: Richard Toland
(619) 907-7424

Silicon Valley
Contact: Ted Patterson
(510) 797-2996



Little Scoops

- ▲ On October 16th, Governor Pete Wilson proclaimed October 27th "Automotive Career Education Day" in California. The Governor's proclamation mirrors the national celebration of Automotive Career Education Day and follows the very successful Labor Day conference in Anaheim entitled *Automotive Repair Leadership 2000: Strategies for Success*, which was organized by BAR. The Governor's proclamation noted that the automotive industry is one of the largest professional industries and that there is a critical shortfall of 60,000 trained repair technicians nationwide. BAR has led the nationwide effort to begin recruiting more young people into the automotive repair industry.
- ▲ More than 230 lanes at 150 Test-Only stations are operating statewide, which means BAR has reached the 15 percent capacity required as part of the Enhanced Smog Check Program.
- ▲ Regulations for several issues, including establishment of a low-income repair assistance program, and improved Gold Shield performance standards, are currently being developed, and owners and technicians are urged to check the BAR web page at <www.smogcheck.ca.gov> for the schedule of hearings that will be held to take public comment.
- ▲ Just to remind currently licensed technicians, it takes a *minimum* of 15 days from the time the instructor in a BAR-97 transition course sends final exam answer sheets to BAR's test vendor (PSI) to the time the Vehicle Information Database (VID) updates the BAR-97 Emissions Inspection System (EIS). This update then allows the technician to *legally* operate the BAR-97 (see August

Continued on back page



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BAR FIELD OFFICE PHONE NUMBERS

- Bakersfield (805) 833-6304 Riverside (909) 782-4250 Canoga Park (818) 596-4400 Sacramento (916) 255-4200 Culver City (310) 410-0024 San Jose (408) 277-1860 Fresno (209) 445-5015 South El Monte (818) 575-6934 Fullerton (714) 680-7851 Hayward (510) 785-1961 Oceanside (760) 439-0942 DCA Cashiering (916) 322-7002 DCA Licensing (916) 322-4010 ET Help Desk (916) 255-4476 MCI (800) 731-SMOG

(Then press 5 for technical support)

Consumer Assistance and Referee Center: (800) 622-7733

DCA HOTLINE: (800) 952-5210

Little Scoops continued from page 7

edition of the Smog Check Advisory). If a technician is not yet licensed, course documentation must accompany the license application.

- The technical problems that prevented wall licenses and badges from being completed and mailed have been corrected. As a result, the backlog of unmailed licenses and badges for both technicians and stations should be eliminated by mid-November. College of the Desert in Palm Desert and Rio Hondo Community College in Whittier have been added to the list of BAR's 39 Consumer Assistance and Referee Centers. Some technicians are confused about proper engine temperature prior to conducting an Acceleration Simula-

tion Mode (ASM) test. Just as it is in the BAR-90 program, the vehicle's engine needs to be at "operating temperature." This means that the radiator hoses (upper and lower) should be hot to the touch and pressurized, which indicates that coolant is flowing (i.e., the thermostat is open). However, it does not mean that technicians should run the engine until it is hot enough to light a cigarette off the catalytic converter. The BAR-97 Emissions Inspection System (EIS) drive cycle has a ramp-up time period in the 50/15 test to take care of catalyst warm-up.

- Another point of confusion for some technicians is placement of the BAR-approved cooling fan during an ASM test. Any time the ambient air temperature exceeds 72 degrees

Fahrenheit, the BAR-97 fan should be used. BAR-97 software will prompt technicians when it is warm enough to use the fan, which should be placed approximately 12 inches in front of the intake of the vehicle's cooling system (grille).

- Motorhomes and heavy-duty vehicles have been removed from the requirement to have an initial Smog Check performed at a Test-Only station for several reasons. These vehicles have low travel mileage and some Test-Only stations could not accommodate their size. Smog Check technicians may submit their license renewal applications to the Licensing Division up to six months before the license expires.