

Part 6.0

**Status Report of
Canadian Provinces'
I/M Programs**

Introduction

On January 26, 1993, the Canadian Council of Ministers of the Environment (CCME) NO_x/VOC Office announced the formation of a Working Group to develop a National Code of Practice for light-duty vehicle I/M programs. This Code would facilitate the development of a uniform, consistent, and effective approach to I/M programs across the Country. The Code would not, however, serve as a mandate for the provinces. Since CCME and Environment Canada, the Canadian federal environment agency, do not have authority over provincial regulations, the Code would only act as guidance for those provinces that chose to adopt an I/M program.

Members of the Working Group included representatives from federal, provincial, and municipal governments, environmental groups, and industry. All of the provinces included in this status report are participants in the Working Group.

The first Working Group meeting was held in April 1993. In January 1994 the Working Group released the final revision of the Code of Practice. The Code was prepared based on Working Group member recommendations and the technical information contained in an associated background study entitled "Development of a Proposed Code of Practice for Motor Vehicle Emission Inspection and Maintenance Programs." The final revision was submitted to the National Air Issues Coordinating Committee, a subcommittee of the Canadian Council of Ministers, and received final approval. The Code of Practice has been available in print since November 1994.

The Code is to be re-evaluated by the Working Group every two years and be revised if necessary. The Working Group reviewed the Code in March 1997 and the final report should be published in the spring of 1998.

The following is a summary of CCME's "Environmental Code of Practice for Light Duty Motor Vehicle Emission Inspection and Maintenance Programs" (based on the March 1997 proposed changes):

I. Program Type

Centralized, test-only, contractor-run.

II. Test Frequency

Biennial.

III. Test Procedures

- A. IM240 test for 1988 MY and newer vehicles.
- B. ASM test for 1972-1987 MY vehicles.
- C. Two-speed idle test for 1971 MY and older vehicles.
- D. Non-intrusive evaporative system purge test for vehicles using a transient test.
- E. U.S. EPA non-intrusive evaporative system pressure test for vehicles using a transient test.

- F. U.S. EPA fuel inlet cap integrity test for all vehicles.
- G. OBD check for all vehicles equipped with OBD systems.
- H. Visual inspection of fuel inlet cap, catalytic converter, evaporative emissions control system, and malfunction indicator light (MIL) (on vehicles with OBD systems) for 1988 MY and newer vehicles.

IV. Vehicles Covered

- A. All vehicles four years old and older.
- B. All vehicles up to 4500 kg (approximately 10,000 lbs).
- C. All fuel types.
- D. All kit cars, custom vehicles, and antique cars that are licensed for frequent road operation.
- E. All four-wheel drive vehicles.

V. Emission Standards

- A. U.S. EPA cutpoints for IM240 test.
- B. British Columbia AirCare cutpoints for single ASM and idle tests.
- C. U.S. EPA cutpoints for dual ASM test.

VI. Administrative Elements**A. Waivers**

1. For all 1988 MY and newer vehicles: a \$500 (Canadian) repair cost waiver.
2. For all 1987 MY and older vehicles: a \$200 repair cost waiver. The Code further recommends that the cost limit should rise by \$100 for each year the I/M program is run until the \$500 limit is reached.
3. No waivers for tampered vehicles.
4. Aim for a repair cost waiver rate of less than three percent of failed vehicles.
5. Waivers should only be issued by I/M certified repair technicians at certified repair stations.

B. Test Fee

Similar to the U.S. EPA's estimate of \$17 (U.S.) per test.

C. Quality Control Measures

Quality assurance programs should include: accurate data collection, inspector training, test procedure auditing, inter-station precision and accuracy determinations, program data analysis, and repair effectiveness analysis and assessment.

D. Repair Technician Training/Certification

All I/M programs should include a repair technician training and certification program, as well as a repair facility certification program. Waivers should not be granted for self- and non-certified repairs.

VII. Key Contacts

Copies of the Code and background documents are available from:

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Province: Alberta

I. Summary

There is currently no I/M program operating in the Province. The SMOG FREE (Save Money On Gas From Reduced Exhaust Emissions) campaign which encourages motorists to have their cars tested was conducted most recently in Calgary in the spring of 1997 and in Edmonton in the fall of 1997. SMOG FREE is a voluntary, decentralized I/M program using a two-speed idle test.

II. Geographic Areas Covered

The Calgary and Edmonton urban areas.

III. Background

A. Legal Status

Adequate legal authority exists for an I/M program.

B. History

The Calgary SMOG FREE Association ran two three-month, pilot, voluntary I/M programs (the SMOG FREE campaign) in Calgary in the spring of 1993 and 1994. In early 1995, funding was secured to permit the ALA to implement its voluntary I/M program on an annual basis and the program was operated again in Calgary in the spring of 1995. In 1996, Calgary conducted a SMOG FREE campaign in the spring and Edmonton started its first campaign in the fall using grant money provided by Environment Canada/Health Canada.

As in the pilot programs, automotive service stations volunteer to pay the SMOG FREE program \$150 to participate (stations that are members of an automotive industry association pay \$100). For this fee the service stations receive positive advertisement and public relations plugs, in addition to increased business from vehicle owners who choose to get their vehicles tested and possibly repaired.

One-hundred-and-ten service stations participated in the 1993 program and 66 service centers participated in 1994. ALA gave two reasons for the drop in number of participating centers: 1) program funding was lower in 1994 (while an individual was hired in 1993 to recruit service centers to participate, only a letter offering participation was sent in 1994) and 2) in the second year of the pilot program, ALA decided to focus more on service centers that appeared more dedicated to participating.

ALA runs the SMOG FREE public relations campaign to induce vehicle owners to seek voluntary emissions inspections and repairs. During the campaign, officials distribute brochures describing the benefits of emissions inspections and repairs. In addition, vehicle owners receive "environmentally friendly" coupons, such as a \$10 coupon for emissions repair work. And if a vehicle passes the emissions test, the vehicle owner receives a sticker that reads, "I drive SMOG FREE."

It should be noted that automotive service stations are free to conduct vehicle emission tests year-round if a customer requests one; the SMOG FREE campaign was created to draw attention to the program so that more motorists will take their cars in to get tested.

Funding for the SMOG FREE program ended with the 1997 fall campaign in Edmonton. The Alberta Lung Association is currently seeking more funding to continue the SMOG FREE campaign in the future.

IV. Implementation Date

There is no future implementation date for an I/M program (mandatory or voluntary) in Alberta.

V. Program Design

Decentralized; test and repair; no mandated test frequency.

A. Test Procedures

1. An idle test and a high-speed (2500 rpm) test for all light-duty, gasoline-fueled vehicles.
2. No trucks or diesel-fueled vehicles are tested.

B. Number of Vehicles Projected to be Affected

Approximately 9,000 vehicles participated in the 1994 three-month program and about 13,000 vehicles participated in 1993. However, in 1996, only 2500 vehicles were tested in Calgary and 3500 vehicles in Edmonton. The reduction in participation is attributed partially to a reduction in participating service centers and also to a decline in motorist interest in the program.

C. Emission Standards

Environment Canada's recommended standards for HC and CO. However, the standards are not enforced (i.e., repairs are not required). ALA documented an 18-20% failure rate during the 1996 SMOG FREE campaign. ALA did not track the frequency or success of repairs.

D. Waiver

No cost waiver.

E. Test Fee

No test fee.

F. Quality Assurance/Quality Control

To be eligible to participate in the current I/M program, a station must have sent at least one of its technicians to a training course offered through either the Southern Alberta Institute of Technology or the Northern Alberta Institute of Technology.

G. Repair Technician Training/Certification Program

Three-hour mechanics training courses are offered through the Southern Alberta Institute of Technology and the Northern Alberta Institute of Technology. One-evening refresher courses are also offered.

VI. Key Contacts

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Province: British Columbia

I. Summary

B.C.'s I/M program is called AirCare and is currently in full operation.

II. Geographic Areas Covered

The Vancouver metropolitan area.

III. Background

A seven-year contract was awarded to an independent I/M contractor on September 1, 1992.

IV. Implementation Date

Full testing was implemented beginning on September 1, 1992. Inspection operations were disrupted in 1993 due to a strike by inspection station employees, but, following a resolution, the program resumed July 7, 1993. Another strike disrupted service from February 12 - July 22, 1996.

The Province periodically evaluates the program to determine whether it needs to be updated. To date, Provincial Officials have expressed only some dissatisfaction with the ASM test. If the Province concludes that a change in test procedure is necessary (e.g., implementation of the IM240 test), such change would most likely not go into effect until after the current I/M contract expires in September 1999.

V. Program Design

Centralized, contractor-run; test-only; annual inspections. The program has 12 inspection stations with 42 lanes. Provincial Officials estimate that average vehicle throughput is 15 vehicles per lane per hour and maximum throughput is about 25 vehicles.

A. Test Procedures

1. A steady-state loaded test (ASM2525) and a visual tamper check for all vehicles up to 5000 kg GVW, except for four-wheel drive vehicles.
2. An idle test and a visual tamper check for four-wheel drive vehicles.
3. All model year vehicles get tested, excluding current model year vehicles and vehicles registered as collector vehicles.
4. Diesel vehicles tested for opacity.
5. Some alternative-fueled vehicles (e.g., diesel, propane, and natural gas) get tested.

B. Number of Vehicles Affected

Approximately 1 million vehicles.

C. Emission Standards

A set of inspection cut-points for CO, HC, and NOx have been established based on the vehicle model year, the type of catalyst installed, and the engine size. The current failure rate is about 13% overall, while the failure rate for new technology vehicles is about 4%.

D. Waiver

A cost waiver of between \$250 and \$500 CDN, depending on the vehicle model year. Waiver rates can go up to \$1,000 for model years 1980 to 1992 and there is no waiver for model year 1993 and newer. Cost waivers are significantly higher (up to an unlimited cost) for vehicles that fail the emissions inspection due to tampering.

E. Test Fee

\$18 CDN including tax (about \$13 US).

F. Quality Assurance/Quality Control

The AirCare Administration Office, the Provincial agency charged with overseeing the I/M program, coordinates contractor activities and performs both covert and overt audits. In addition, all inspection information is computerized on a centralized network that AirCare officials inspect for abnormalities. To ensure that the quality of inspection equipment is maintained, the Province periodically audits procedures used to calibrate the dynamometers.

G. Repair Technician Training/Certification Program

B.C.'s I/M program provides for a voluntary certification program for both mechanics and repair stations.

1. Repair Technician Requirements

Mechanics can be certified by passing a written test which examines their knowledge of vehicle emission systems. Mechanics who fail the test can be retested after completing a 40 hour training course. In addition, there are Province-run workshops and a hotline for repair technicians. Mechanic certification is valid for a 3 year period. However, by monitoring mechanics' performance through a centralized computer network, mechanics can be decertified.

2. Repair Station Requirements

To be certified, a repair station is required to employ at least one certified mechanic. In addition, each station is required to have specific equipment. To monitor repair station performance, all repair information is entered into a central data base upon vehicle retest. The Province frequently monitors the performance of repair stations and

individual mechanics to determine the effectiveness of each mechanic's repair procedures.

VI. Key Contacts

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Province: New Brunswick

I. Summary

Currently, the only legislative requirement is an annual visual check of the emission control system for all vehicles. The New Brunswick Lung Association (NBLA) is conducting a study to evaluate possible I/M options for the Province. The NBLA study is funded through March 1998 by the Province's Environmental Trust Fund. Possible area of implementation would be the St. John-Moncton corridor. There are approximately 400,000 vehicles in the entire Province. If an I/M program is implemented, the program would most likely be mandatory for government vehicles and voluntary for privately-owned vehicles.

There have been seven voluntary emissions test clinics held over the last four years in St. John, Moncton, Edmundston, and Bathurst and three more clinics are planned in 1998. Vehicles that participate in the program are given idle tests and visual checks of the emission control system.

II. Key Contacts

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Province: Newfoundland

I. Summary

Newfoundland has canceled its safety inspection program and the accompanying visual emission control system (anti-tampering) inspection. No new vehicle inspection program is expected to be implemented at this time.

II. Key Contacts

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Province: Ontario

I. Summary

There is currently no I/M program in operation. A pilot I/M program was in operation from April 13, 1995 through October 31, 1996. (The pilot program was scheduled to end on April 30, 1996, but was extended for another six months to allow the Cabinet additional time to review the Province's initial report on the results of the pilot.)

In December 1997, the Ministry of the Environment requested proposals from management companies wishing to establish and administer Drive Clean, Ontario's proposed I/M program. Drive Clean was announced August 22, 1997 by Environment Minister Norm Sterling.

Since the exact nature of the new I/M program has not yet been decided, the pilot program is summarized below.

II. Geographic Areas Covered

Currently, the Metro Toronto area, with consideration being given to expanding the test area to include other parts of Southern Ontario (along the area known as the Windsor-Quebec Corridor).

III. Background

A. Legal Status

The Province has adequate authority to implement an I/M program. The regulations, however, will need to be updated before an official I/M program can be implemented. In addition, new legislation is needed to implement an effective enforcement mechanism.

B. History

On August 24, 1993, the Province issued a Request for Information (RFI) to seek a contractor to run a one-year pilot program based on the program described in the Cabinet Submission. In October 1994, the Province selected Protect Air to operate one inspection station in Toronto on a pilot basis. Provincial Officials worked on designing a permanent, mandatory I/M program during the operation of the pilot I/M program. Provincial Officials gathered data from the pilot testing to help in designing a future program.

Different types of tests were considered during the pilot program including an alternate pressure test with the IM240 and the application of RG240 in the repair facility allowing the repair technician to perform the retest. Other forms of testing are being explored for the final program (e.g., ASM).

IV. Implementation Date

The new program is expected to begin in late summer 1998, when all heavy-duty trucks and buses registered in Ontario will be required to complete an emissions test as part of the regular safety inspection. Heavy-duty vehicles will also be subject to random spot checks later in 1998. In the fall of 1998, Drive Clean will apply to cars and light-duty trucks registered or resold within the

Greater Toronto Area and Hamilton-Wentworth region. The program will be extended to 13 other urban areas with serious recurrent smog problems, from Peterborough to Windsor, in the year 2000, and to commuting zones around those areas in 2002.

V. Program Design

The one-and-a-half year pilot program was a voluntary, contractor-run program. The future I/M program will consider alternate means of delivery such as through private-sector garages (decentralized facilities) or a hybrid network. Testing will most likely be on a biennial basis.

A. Test Procedures

The pilot program included two IM240 lanes, as well as one remote sensing lane that was used as a pre-screening device. The remote sensing lane consisted of three remote sensing devices (Hughes' "Smog Dogs") located inside a converted indoor parking structure. The first RSD measured vehicle emissions during cruise condition, the second RSD measured emissions while the vehicle accelerated up a ramp, and the third RSD measured emissions as the vehicle descended the ramp. This 8-second remote sensing course was driven by a station technician with the vehicle owner sitting in the passenger seat. Following the remote sensing test, each vehicle then received an IM240 test to compare the results.

The RSDs measured for CO, HC, and NO_x. According to the data collected, the RSD CO readings were very accurate and consistent with the IM240 readings. However, the HC readings appeared much more scattered and the NO_x channel seemed only useful for the acceleration portion of the RSD test.

A major task for the pilot I/M program was to evaluate the effectiveness of a pre-screening device in identifying "super-clean" vehicles that would pass the IM240 test. Provincial Officials estimated that about 20% of all vehicles tested could skip an IM240 test based on their RSD readings.

1. The IM240 test and a controlled-mode pre-screening procedure (see description above of the pilot remote sensing devices) for all vehicles.
2. The pilot program tested all vehicles up to 5,000 kg GVW. A final program will most likely do the same.
3. The pilot program considered all model year vehicles. A final program will most likely have a rolling cut-off date.
4. A separate, voluntary heavy-duty diesel smoke testing program began in October 1994 and was operated in conjunction with the pilot program.

B. Number of Vehicles Projected to be Affected

From a target of 25,000 vehicles, the Province gathered approximately 14,000 test results from the pilot study. The future I/M program would include about 2.5 million vehicles tested per year.

C. Emission Standards

Initially, Ontario used U.S. EPA's phase-in standards for enhanced I/M. Using these standards, officials estimated that there was about a 30% failure rate. This failure rate was relatively high compared to U.S. programs because 1976-1987 model year vehicles in Canada were not built to meet U.S. emissions standards. Subsequently, the standards for pre-1988 model year vehicles were made less stringent. Officials observed a 20% failure rate after the change. Motorists who volunteered for testing during the pilot program were encouraged to seek repairs and return for a retest if their vehicles failed the initial inspection. Provincial Officials reported that some motorists did indeed return for a retest.

D. Waiver

None for the pilot program. There will be a cost waiver if a final program is implemented.

E. Test Fee

The pilot program had no test fee.

F. Quality Assurance/Quality Control

To be determined. The final program will most likely use U.S. EPA-recommended measures.

G. Repair Technician Training/Certification Program

Local repair technicians participated in IM240 and RG240 testing in order to become familiar with the tests and diagnostics. Provincial Officials hope to establish a formal training and certification program for a future I/M program.

VI. Key Contacts

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Province: Quebec

I. Summary

An I/M program is not currently in operation.

II. Geographic Areas Covered

The urban area of Montreal.

III. Background

A. Legal Status

To implement an I/M program, the Province needs approval from the Cabinet.

B. History

In September 1993, the Quebec I/M Management Committee held a public meeting to hear the views of stakeholder groups on the idea of an I/M program. In January 1995, the Committee completed a Cabinet Submission recommending an I/M program in Montreal. The Committee then met with the Minister of Environment to discuss the issue on February 28, 1995.

Provincial Officials hoped to receive final approval or disapproval from the Cabinet in Fall 1995, but no decision was made.

Currently, the Cabinet is assessing the financial, political, and public health impacts of an I/M program.

IV. Implementation Date

The Minister of Environment announced in January 1997 that the Province will implement a pilot I/M program similar to Ontario's starting in mid-1998. In addition, the Province is proposing for the first few months to run the program on a voluntary basis in order to collect data. Provincial Officials would use this data to determine the waiver limit, the emissions cut-points, and the model years covered.

V. Program Design

Considering centralized and test-only; biennial inspections.

A. Test Procedures

1. Considering IM240 testing for all vehicles up to 2700 kg GVW.
2. Model year vehicles to be determined.

B. Number of Vehicles Projected to be Affected

1.3 million LDVs in Montreal.

C. Emission Standards

To be determined. Will test for CO, HC, and NO_x.

D. Waiver

To be determined.

E. Test Fee

To be determined.

F. Quality Assurance/Quality Control

To be determined.

G. Repair Technician Training/Certification Program

Will have a mechanics training and certification program. Once the I/M program is approved, the Province's first step will be to launch a mechanics education and training program.

VI. Key Contacts

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