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## **Operation Air Brake**

### **Selective Traffic Enforcement Program (STEP) Air Brake Campaign**

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#### **Abstract**

Poor brake adjustment and brake defects constitute over 50% of safety defects that result in heavy vehicles being taken off the road by commercial vehicle enforcement officers.

The Commercial Vehicle Safety Alliance (CVSA) has introduced a North American air brake safety campaign entitled "Operation Air Brake". The campaign focuses on drivers of large trucks, using a variety of methods to ensure that they keep their brakes properly adjusted and defect free. The campaign uses a co-ordinated program of enforcement, promotional materials and awareness activities.

In the two years that the campaign has operated, a significant reduction in the number of brake defects and brake adjustment problems has been realized. At the end of the 1998 campaign (Sept. 98 check), the "out-of-service" rate (the rate at which vehicles are removed from the road) was 11.6 % for brake adjustment and 6.8% for brake components (total of 18.4%). The check in October, 1999 resulted in an OOS rate of 9.1% for brake adjustment and 4.0% for brake defects (total of 13.1%). This represents a 22% reduction in the OOS rate for brake adjustment and a 41% reduction in the OOS rate for brake defects.

Plans for the 2000 campaign have been finalized and it is expected that this program will run for several years across North America. In conjunction with the campaign, CVSA is hosting a brake safety conference in September 2000, in Toronto.

## 1.0 INTRODUCTION

Air brakes out of adjustment (and brake system defects) constitute the major defect type that results in vehicle being taken out of service (over 50%). Poorly adjusted or defective air brakes reduce the braking capacity for large vehicles and further inhibit their stopping distance, which under ideal conditions is already twice as far as that for cars and other smaller vehicles. This increases the risk to other users of the road and the driver (or his/her passengers) of the vehicle itself.

The driver in a matter of a few minutes can easily adjust air brakes equipped with manual slack adjusters or check for other brake defects. It is the opinion of professionals in the enforcement, regulatory and training business, that the primary cause for drivers not adjusting brakes is not lack of education, but rather attitude. In other words, drivers generally know how to adjust air brakes, but many simply choose not to do so.

*Note: In some jurisdictions drivers are not permitted to adjust brakes unless they are certified to do so.*

There had not been a significant change in the rate of vehicles taken out of service for poor brake adjustment or other brake defects. Traditional enforcement methods, through CVSA inspections by themselves, didn't seem to have an impact on this trend, even though this function is successful in removing dangerous vehicles off the road.

In order to reduce the out of service rate for brake defects, a more comprehensive campaign is needed. The Selective Traffic Enforcement Program (STEP) model has been used successfully in other areas of traffic concerns (most notably seat belt usage), and a campaign using this model will be effective in addressing the issue of brake defects. The campaign is titled "Operation Air Brake". The campaign was adopted by Region V of CVSA (Canadian jurisdictions) as part of its strategy to reduce the out of service rate on vehicles.

The program showed some promising results in Canada and based on the success of the campaign in 1998, CVSA made this a continent wide initiative in 1999. The CVSA executive committee endorsed the program and directed that it be the centerpiece of the 1999 International Highway Transportation Safety Week (IHTSW) activities.

## 2.0 THE CAMPAIGN

### 2.1 Purpose

- To promote and reinforce the need for drivers to check and adjust or have adjusted, where necessary, air-brake systems on the vehicles they are driving. Also to establish with drivers the seriousness of operating a heavy vehicle with inadequate brakes.

## Industry Involvement

The motor carrier industry, through its associations/lobby groups, were encouraged to partner in this campaign.

Industry partners were expected to keep confidential any information that would compromise the success of the program, (such as the dates for the brake check days).

## 3. Campaign Components

The campaign is comprised of three major components. In order for the campaign to be successful, each component must be co-ordinated with the other components to maximize the effectiveness of the program.

### **3.1 Enforcement**

#### a) *Brake Check Day* – Spring (early May)

A Level 4, CVSA “special” inspection, focusing on brakes, was held to benchmark the level of brake defects resulting in out of service situations. The following is the criteria for the inspection:

- The brake check day was unannounced.
- The check was to be 16 hours in length (within a 24-hour period).
- The focus of the inspection was brake adjustment/defects.
- Inspection items were driver license, registration, low air warning device, brake adjustment, audible air leaks and brake linings/drums. Obvious serious defects in other areas (such as wheel problems) were handled if observed, however to the greatest extent possible inspectors were to refrain from doing “complete” level 1 inspections.
- Locations for the inspections were to be chosen by the jurisdiction using the following criteria:
  - Safety of officers (site suitable for large inspection)
  - Conducive to handling potentially large numbers of out of service
  - Interacting with drivers who tend to use bypass routes to avoid scales or enforcement activities on major highways.
- Trucks were selected randomly (i.e. next available inspection team takes the next available truck) for inspection. Vehicles with a current CVSA decal were NOT excluded from inspection.
- No CVSA decals were issued.

#### b) *Roadcheck/International Highway Transportation Safety Week (IHTSW)* - June

- the 72 hour inspection blitz, was the kickoff for the awareness campaign in Canada. During these activities officers discussed the importance of air brake adjustment and checked for other brake defects with drivers. A strict enforcement and application of OOS rules for brake defects was adhered to. Promotional materials (as described below) were given to drivers to reinforce the message.

b) *Brake Check Day – Early Fall (Sept)*

Unlike the check in spring, this brake check was announced and given a very high profile. It was 24 hours in length. This activity was as much an awareness activity as enforcement tool. As far as the check itself, the same methodology as the spring check day (i.e. Level 4 inspections) was used as well as the same statistic collection sheet. Locations did not necessarily have to be the same as the spring check day, however should be at high profile locations (i.e. close to major centres), with adequate room for visitors.

c) *Brake Check Day – Late Fall (Oct)*

Another unannounced, 16 hour, CVSA Level 4 inspection was held to monitor air brake adjustment as compared against the benchmark in May. As much as possible the same locations and criteria (as was used in the May activity) were used for this inspection. The same stat collection sheet was used.

d) *Enforcement Officer – General Duties*

The success of the campaign is significantly dependent on support from enforcement officers. They have the greatest interaction with drivers of heavy trucks and buses on the road. Officers in a jurisdiction must “buy-in” to the campaign and take every opportunity to uncover brake defects in their day to day enforcement activities.

### 2.3.2 Promotional Items

1) *Key Chain*

- Some jurisdictions produced, at their cost, a “Brake Checker” key chain based on the design currently being used in Saskatchewan (in the shape of a slack adjuster, which is 2 inches long and 1 inch wide). The key chains were manufactured at a reasonable cost (approx. \$1.00 each).
- The primary function of the key chain was to act as a reminder to the driver to check their air brakes regularly. As well drivers can use the chain to measure push rod travel either “pulled” by hand (1 inch max. travel) or “applied” (2 inch max. travel).
- The intended recipients of the key chain were drivers of air brake equipped vehicles.
- Jurisdictions may add other messages to the key chain.

2) *Pamphlet*

- A pamphlet on air brakes, entitled “Stopping Safely” (produced by Truck Safety Productions) has been widely distributed. The message is aimed at carriers and drivers stressing the importance of checking and adjusting air brakes.

### 3) *Other items*

- Jurisdictions were encouraged to develop any other items, which could be used to support the campaign. Some examples are;
  - Signs at weigh scales which convey the "Have you checked your brakes today?" message
  - Ball caps with the Operation Air Brake message for inspectors during the brake check days and Roadcheck
  - Coffee cups bearing the message for give away.
  - Pocket calendars with proper air brake adjustment levels on the reverse
  - Other pamphlets regarding air brakes (i.e. B.C.'s "Within and Inch of Your Life")
  - Approach brake manufacturers for materials to distribute.
  - A series of brake seminars, co-ordinated with brake manufacturers at truck shows. (The Canadian Trucking Alliance co-ordinated an activity like this at their 1998 Truck Safety Show in Toronto. Brake manufacturers were very receptive to the idea and contributed staff and material.)

### 3.3 Awareness Activities

Participating jurisdictions were asked to take every opportunity to "spread the message" of operations air brake. This included attending functions, public safety fairs or holding special activities. Some examples are:

#### 1) *Brake Check Days* – Spring and late fall unannounced

- Although these two dates are unannounced and are primarily enforcement oriented, they provided a good opportunity to use promotional items (key chain and pamphlet) to reinforce the brake message. Officers discussed air brake adjustment/components and their importance during the check days.

#### 2) *Roadcheck/IHTSW* - June

- As mentioned above, Roadcheck/IHTSW "officially" kicked off the awareness campaign. Besides being a major enforcement blitz all over North America, it was an ideal opportunity to interact with drivers to stress the importance of air brake adjustment (see "enforcement" above) using the promotional materials mentioned above.

#### 3) *Brake Check Day* – Early fall - announced

- Like Roadcheck/IHTSW this activity is intended to have high visibility. Media were contacted and provided information packages. Industry representatives, local politicians, lobby groups and any other interested parties were invited to attend at one of the locations.

#### 4) *Provincial/State/National Truck Rodeos/Truck Safety Activities*

- Booths/displays on air brakes were set up at the provincial, state or national truck rodeos or any truck safety activities. In one jurisdiction a draw for a brake buddy(s) was held if the driver can show that he/she knew how to adjust air brakes. The key chains and pamphlets were also handed out.

#### 5) *Driver Appreciation Day*

- Some jurisdictions held driver appreciation days at local truck stops or other locations where drivers congregate. It included buying coffee for the day, having staff available to sit down and interact with drivers, handing out the promotional materials from the campaign, with place mats that were produced with the operation air brake message. In Canada some jurisdictions (Ontario, New Brunswick) had their Ministers award certificates to drivers passing inspections.

#### 6) *General Duties – Enforcement Officers*

- As stated above enforcement officers had a critical role to play in Operation Air Brake. Officers, during their regular shifts, were encouraged to take every opportunity to discuss air brake issues with drivers and to hand out the promotional items.

## 2.4 Media

- Although the May and October brake check days were unannounced it is possible that the media would hear of the activity and look to the jurisdiction for information. A question and answer document/media package was developed to assist jurisdictions in answering the media.
- The Roadcheck/IHTSW, and early spring brake check day (announced), press releases included information about Operation Air Brake.
- Jurisdictions took the opportunity to have media spots for Operation Air Brake activities to promote the campaign throughout the summer.

## 2.5 Funding

All jurisdictions were generally responsible for their own costs. In 1998 Transport Canada and FHWA funded the production of the pamphlet. In 1999 and 2000, each jurisdiction funded the pamphlets. There is an opportunity to approach private industry (i.e. one of the major brake manufacturers) to sponsor an activity or promotional item. In return they could display their logo as the sponsor at the activity or on the item.

## 2.6 Reporting

- Jurisdictions were asked to file the following reports no later than two weeks following completion of activities;
  - a) Stat collection sheets immediately following the May, early fall, and late fall brake check days.

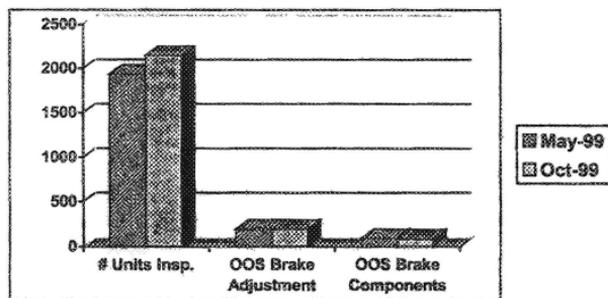
- b) A report after the late fall brake check day which outlines
- Activities
  - Promotional items
  - Things that went well and things that didn't go so well

NOTE: If a jurisdiction came up with a good idea that was having good success they were asked to share it with the other jurisdictions during the campaign.

### 3.0 CAMPAIGN RESULTS

As previously mentioned, three blitzes were held in 1999, May 6, September 8 and October 6. The May and October blitzes were unannounced, whereas the September check was well advertised and of longer duration (24 hours).

Figure 1 - Comparison of OOS May to October

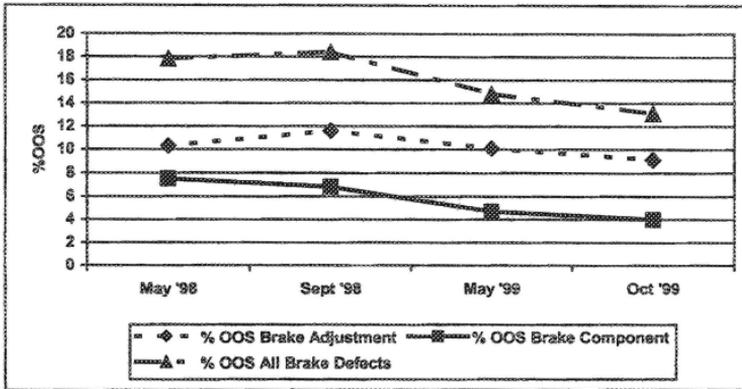


There were no U.S. jurisdictions participating in the May check, however 5 participated in September and 12 US States and Puerto Rico participated in October. Unfortunately two states, Connecticut and New Mexico, did not supply enough information for their statistics to be used. The Yukon was unable to participate in the October check due to other commitments.

In 1999 the Project Group decided to record separate statistics for manual slack adjusters vs. automatic slack adjusters to see if the rates of out of adjustment were significantly different. As expected the rates for out of adjustment for automatic slack adjusters was approximately half that of manual slack adjusters. In October, the percentage of brakes out of adjustment was 5.7% (8.9% manual slack, 3.3% automatic slack).

At the end of the 1998 campaign (Sept. 98 check), the OOS rate was 11.6 % for brake adjustment and 6.8% for brake components (total of 18.4%). The check in October, 1999 resulted in an out-of-service (OOS) rate of 9.1% for brake adjustment and 4.0% for brake defects (total of 13.1%). This represents a 22% reduction in the OOS rate for brake adjustment and a 41% reduction in the OOS rate for brake defects. This is a promising trend downwards for these defect types. For comparison, only the Canadian results were used. The first time involvement of several U.S. states and Puerto Rico in 1999 has expectedly raised the OOS rate a couple of percentage points. However it is expected that we will see results in the U.S. when more states (and perhaps Mexico) participate and the campaign becomes better known throughout North America.

Figure 2 – OOS Rates



## 4.0 FUTURE PLANS

As indicated by the statistics Operation Air Brake has established itself as a successful model for lowering the incidents of improper brake adjustment and critical brake defects. CVSA International has endorsed the program and plans for 2000 have been completed. It is expected that Operation Air Brake will run several years (typical of STEP programs) to further improve the brake situation in heavy vehicles.

As part of the overall strategy, CVSA is hosting a brake Safety Conference, in Toronto, September 14 – 16, 2000. The Conference will bring together enforcement, manufacturers, academics, drivers, carriers, and regulators, to identify and provide strategies to address, the brake adjustment and defect concerns.

Technical assistance in running of the campaign is available from:

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