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Module 16: Resource Development for Vehicle Inspection

Purpose:

To focus on resource development for vehicle inspections.

Learning Outcomes:

- Understand the need for co-ordination and co-operation between testing /licensing, field inspection and maintenance personnel for effective results;
- Understand the need for inter-jurisdictional reciprocity agreements;
- Describe the minimum requirements for inspection and maintenance personnel;
- Understand the need for certification of technicians;
- Understand the need for technician monitoring and inspection quality assurances; and
- Understand data collection and processing models

Contents:

- A. Compliance & Enforcement of Acts and Regulations
- B. Vehicle and Driver Distinctions
- C. Inspection and Maintenance Practices
- D. Certification
- E. Quality Assurance
- F. Data Collection & Processing Models
- G. Case Study

Format:

- 1. Slide Presentation**
- 2. Resource Development for Vehicle Inspection**
- 3. Video Presentation**
- 4. Internet Presentation**
- 5. RepairNet**
- 6. Case Study**

1. Compliance & Enforcement of Acts and Regulations

Motor Vehicle acts and regulations are developed to protect the occupants of motor vehicles **provided the vehicle owners and/or operators comply with the regulations.** Compliance and enforcement personnel have the responsibility of ensuring compliance with the regulations and any subsequent sanctions placed on the vehicles, owners and/or operators.

Co-ordination and co-operation between the various testing personnel, field inspectors and maintenance personnel is critical to ensure effective results. The integration of the various processes is also important in determining the responsibilities and accountabilities of each sector.

In some jurisdictions, these responsibilities and accountabilities are assigned to the position as functional descriptors for compliance and enforcement personnel. In British Columbia, compliance and enforcement personnel are designated as peace officers¹, which give them the authority to legally stop vehicles and conduct their inspections. As such, compliance and enforcement personnel are normally considered the final arbiters of vehicles passing or failing the random inspections.

Whenever there are any questions regarding the validity of an inspection, compliance and enforcement personnel always have to contend with the phrase “The vehicle met the standards when I inspected it.” This is especially true when there are subjective factors relating to dimensional values and tolerances and the final results are totally dependent on the inspector’s whims.

Compliance and enforcement personnel are critical to a successful and effective inspection and maintenance program because they are the integrators of the motor vehicle safety program. While it is very easy to apportion fault or blame during the initial phases of any violations against motor vehicle safety regulations, compliance and enforcement personnel must always subscribe to the principles of natural justice and administrative fairness.

The state government should consider developing inter-provincial reciprocity agreements on the applicability of sanctions for motor vehicles with safety defects and driver sanctions. The reciprocity agreements should:

- Identify critical inspection items required in all provinces;
- Identify “out-of-service” criteria;
- Identify point of service revenue collection from sanctions and provincial disbursements;
- Identify provincial requirements for additional inspections and sanctions;
- Identify maximum highway speeds for specific vehicle types; and
- Identify differences between state and provincial compliance and enforcement personnel and regulations;
- Identify the vehicle and driver information requirements;

- Recognition of repair technician and inspector certification.

The Canadian Council of Motor Transport Administrators (CCMTA) is a non-profit organization set up by the provincial, territorial and federal ministries of transportation to act as a neutral and independent co-ordinating body in all matters dealing with the administration, regulation and control of motor vehicle transportation and highway safety in Canada.

The objectives of the organization are to promote understanding and co-operation in matters relating to the regulation of all driver, vehicle, road safety and motor carrier issues. The organization comprises senior representatives from all provincial/territorial governments. The federal government has been a member since 1977.

The CCMTA reports to the Council of Ministers Responsible for Transportation and Highway Safety and is responsible for motor vehicle registration, driver licensing, road safety programs, motor carrier regulatory issues, compliance activities for commercial vehicles and drivers, and other transportation projects and agreements.²

The American Association of Motor Vehicle Administrators (AAMVA) is also a non-profit organization that promotes motor vehicle safety throughout North America. CCMTA members are also members of AAMVA.³

2. Vehicle and Operator Distinctions

Owning and operating a motor vehicle is a privilege and not a right. Vehicle owners are responsible for vehicle maintenance to meet the minimum requirements of motor vehicle safety. Motor vehicle operators have an obligation to obey the laws and regulations pertaining to good driver behaviour. Sanctions applied against a motor vehicle or an operator should be progressive, resulting in the removal of the motor vehicle from service or denying the operator the privilege. Compliance and enforcement personnel have to deal with the issues of motor vehicle roadworthiness and operator compliance. Outstanding deficiencies that compromise occupant safety and protection must be remedied immediately to minimize any risks to the occupants.

Motor vehicle manufacturers are required to manufacture vehicles that meet governmental regulations that protect the vehicle occupants. Motor vehicles that comply with the inspection requirements based on the inspection frequency should be readily recognizable by compliance and enforcement personnel. This could mean issuing a decal that is displayed in a prominent location. The decal should also contain minimum information such as inspector number and expiry date. Some jurisdictions require motor vehicles to pass an inspection as a condition of a change in ownership. This requirement provides the purchaser with some confidence that the vehicle they intend to purchase has met some minimum inspection requirement.

A driver's licence is issued to a person who has demonstrated their knowledge of the regulations and basic competence to operate a certain class of vehicle. Sanctions are placed on drivers who cannot or won't demonstrate their fitness to safely operate and control the specified class of vehicle within the prescribed regulatory framework.

Compliance and enforcement personnel require ready access to vehicle and driver information sources to determine if there are any pending sanctions against either the driver or vehicle.

3. Inspection and Maintenance Practices

It is important to recognize the differences between the inspection and maintenance processes. Motor vehicle safety inspections are conducted to identify any deficiencies that, if not corrected, can adversely affect occupant or pedestrian safety. These inspections can be performed in a centralized or de-centralized setting.

The maintenance and repair functions differ greatly from the inspection process in that the deficiencies must be corrected and any necessary adjustments performed to ensure the vehicle meets the inspection requirements. While it can be argued that there are similarities between the two processes, there are considerable differences in the skill sets required for each function

Technological advances and safety improvements in motor vehicles require repair technicians to have the knowledge of component operations, skills and ability to perform effective repairs and maintenance on the vehicles. Repair technicians also need to be familiar with manufacturer-specific systems operations. The knowledge and skills set for repair technicians can only be acquired over a period of time.

A typical inspector profile for an inspection-only facility includes basic equipment operation and administrative procedures, regulations and policy. Basic inspector training ranges from 12 hours to 40 hours depending on the inspection model.

A typical repair technician profile includes the completion of an apprenticeship program in either automotive service or commercial transport vehicles. Apprenticeship programs are used extensively in Australia, New Zealand, Canada, Germany and the UK as part of repair technician training. In Canada, an apprentice is indentured with an employer for four years. During this period, the apprentice gains hand-on field experience but is also required to attend intensive block programs at post secondary trades training colleges and institutes. Within Canada, the intensive block training differs in duration from province to province. For example, apprentices in Automotive Service and Commercial Transport are required to attend a six-week block program, while in Alberta, the block program is for an eight-week period.

A repair technician working in a test-and-repair facility is required to have additional inspection training, which could include administrative functions and operation of specific equipment.

4. Certification

Certification allows the oversight agency to monitor the performance of the inspectors, inspection centres, repair technicians and repair facilities. Periodic certification of all parties involved in the inspection and maintenance process is important to ensure compliance with program enhancements and introduction of new technology components and systems.

In Canada, the provinces of Ontario and British Columbia require repair technician certification for emissions repairs. British Columbia (BC) require all prospective emissions technicians to complete a training course and successfully challenge an examination for initial certification of three years. BC emissions technicians are also required to write recertification examinations prior to the expiry of their initial certification. Technicians who are not successful in their recertification examinations are required to successfully completing a Practical Training course before being eligible to write the examinations. The concept of fixed certification dates is to ensure technicians are examined on any new technology that is incorporated into vehicle manufacture.

Emissions repair technicians are monitored for their performances by evaluating the effectiveness of their repairs. This evaluation is based on a comparison between the initial inspection and retest results to determine if there are any emissions reductions and how effective were the repairs, when compared to the other similar vehicles. Similar performance monitoring tools can be developed for inspectors and repair technicians based on some other objective criteria.

5. Quality Assurance

Oversight agencies need to provide assurances to the general public that the inspections are performed to rigid standards and that there is total repeatability in the test results. The oversight agencies can achieve this by conducting overt and covert audits on the inspection and repair centres.

In a centralized environment, oversight agencies define the Acceptance Test Procedures process to demonstrate compliance with the design specifications for the inspection network. It is the inspection network contractor's responsibility to satisfactorily demonstrate to the oversight agencies the inspection network capabilities. Appropriate lockouts should be built into the system applications to ensure the inspection lane or centre is rendered inoperative if there are any instances of calibration non-compliance. Regular overt audits are conducted by the oversight agencies to monitor inspection staff training, cash handling procedures and equipment calibrations.

The de-centralized environment poses interesting challenges to the oversight agencies in that the inspection process is at the complete discretion of the inspector. Unscrupulous inspectors can submit a different vehicle for the test. The "clean piping" or "clean inspecting" of vehicles is a major source of fraud and bribery. Subjective criterion for pass or fail determination is also another example of system deficiencies. Oversight agencies normally commit substantial resources for covert audits as part of the overall quality assurance program. In some cases, certificates can be purchased in bars and other places where it is not necessary to produce the vehicle for inspection. This is an example of the blatant misuse of the system.

The de-centralized repair-only environment is prevalent throughout the world. The challenges posed by this concept include the regular upgrading of tools, equipment and reference materials for the vehicles within the fleet. Overt audits are effective in dealing with repair centres issues and should be conducted at least annually to confirm the presence of the equipment stated in the application.

6. Data Collection & Processing Models

An enterprise model identifies the business system requirements for data collection, data transformation and information dissemination. The amount of data required for a successful business enterprise, the collection methods at the point of service and any subsequent transformation of the data is immense and poses a daunting task. Most business enterprises believe that the development of a series of databases will solve all their needs.

Organizational effectiveness and efficiency can be gained partly through the collection and distribution of the correct information at the right time.

Meaningful information is derived from the transformation of data.

The most effective data collection method is at the point of service. Error traps, validation rules, concise data definitions and structures allow “clean” data to be electronically collected at the source. Data access permissions control the only authorized users to read and/or write the data.

Effective business enterprise models transform data from source to provide meaningful information. Enterprise information systems use data mining techniques to provide timely information to decision makers.

7. Case Study

The AirCare Program is an emissions inspection and maintenance program for the Lower Fraser Valley of British Columbia. There are approximately 1.2 million vehicles that are required to pass or conditionally pass an emissions inspection as a condition of insurance renewal.

The vehicles can be inspected at any one of the twelve inspection centres strategically located throughout the area. Vehicles that fail the inspections are required to have repairs performed before undergoing a reinspection. Only vehicles repaired at certified repair facilities are eligible for a conditional pass on retest.

Data for all eligible vehicles are supplied to Envirotest Canada, the contractor for the program, by the Insurance Corporation of British Columbia (ICBC) on a regular basis. All the inspection data is collected by the contractor in its databases and key data is electronically communicated to ICBC and the Program Administration Office (PAO) databases to facilitate insurance renewals.

All certified repair facilities are required to enter the repair data at source and electronically communicate this data to the contractor's databases via an Application Service Provider (ASP). The PAO regularly monitors the technician and repair facility performances via Technician and Facility Effectiveness Indices.

Sample Function Descriptions⁴

Classification (Job) Profile

JOB TITLE
INSPECTOR PORTABLE WEIGH SCALE
JOB CODE
2200
SUPERCEDES JOB/CODES

SALARY GROUP
10
CLASSIFICATION DATE
June 1, 1998

DIVISION
OPERATIONS

JOB STATUS
Bargaining Unit

PURPOSE

To monitor and inspect commercial vehicles, loads, licenses, insurance and drivers to ensure the protection of the highway system and public safety.

JOB REQUIREMENTS

Knowledge/Technical Skills

- of relevant acts, regulations, policies and procedures as they pertain to commercial transport compliance programs and enforcement activities
- of Commercial Vehicle Safety Alliance (CVSA) standards
- of mechanics to inspect commercial vehicles for mechanical defects and proper load securement
- of provincial geography and the highway system
- of corporate databases to retrieve and update information
- of cash handling procedures and revenue transactions and administration
- of metric and imperial measurement systems
- to operate a portable electronic weigh scale
- to operate an emergency equipped pursuit vehicle

Analytical/Problem Solving Skills

- to determine whether commercial vehicle weights, dimensions, configuration and mechanical condition comply with acts, regulations

and standards

- to determine whether commercial vehicle and driver documentation complies with acts, regulations and standards
- to determine whether vehicles are operating within permit conditions
- to determine appropriate action in cases of non-compliance
- to determine whether to stop a vehicle for inspection
- to perform mathematical calculations related to vehicle configurations, weights, dimensions and fees

Communication/Interpersonal Skills

- to deal with upset, angry or abusive clients while acting in an enforcement capacity
- to advise drivers of options when issuing violation tickets and notice and orders
- to respond to various enquiries regarding commercial transport inspection and licensing

Organizational Skills

- to plan own schedule to ensure adequate service for assigned geographical area
- to perform work using accepted procedures, techniques, terminology and equipment
- to maintain well organized records

Physical/Concentration Ability

- to climb on and crawl under vehicles during inspections
- to lift, push and pull the various equipment used during vehicle inspections
- to safely drive a patrol vehicle while visually monitoring moving commercial vehicles for defects or infractions
- to use visual and non-visual senses during vehicle inspections
- to be alert to surroundings to ensure safety of self and others
- to be alert while driving in all weather and road conditions

Work Environment

- exposure to all weather conditions when inspecting vehicles
- exposure to vehicle fumes and harmful material and fluids when inspecting vehicles
- exposure to moving vehicles and equipment when inspecting vehicles
- some safety precautions required when dealing with hostile, verbally abusive clients
- involves working alone at isolated locations
- requires use of personal protective equipment as outlined by Occupational Health & Safety

Must meet the provincially legislated requirements of the Criminal Records Review Act.

The above requirements are acquired through completion of the Commercial Transport Inspector Trainee Program, a few years experience as a Commercial Transport Inspector and additional training in emergency vehicle operation.

Licensing/Accreditation - Due to the specific nature of the work, the following must be held:

- valid BC driver's licence
- Special Provincial Constable status
- Commercial Vehicle Safety Alliance Inspector Certificate

TYPICAL RESPONSIBILITIES

Performs all duties of the Commercial Transport Inspector and in addition, will typically be responsible for the following:

Portable Weigh Scale

Operates a portable weigh scale. Ensures scale is properly maintained and that appropriate records are kept.

Emergency Equipped Pursuit Vehicle

Operates an emergency equipped pursuit vehicle. Ensures vehicle is properly maintained and that appropriate records are kept.

Revenue Administration

Accounts for monies received. Secures cash and reconciles and resolves daily cash discrepancies. Completes and submits cash sheets. Arranges for cash to be safely delivered to the bank.

Performs other related duties that do not affect the nature of the job.

Classification (Job) Profile

JOB TITLE
COMMERCIAL TRANSPORT INSPECTOR
JOB CODE
2197
SUPERCEDES JOB/CODES

SALARY GROUP
9
CLASSIFICATION DATE
June 1, 1998

DIVISION
OPERATIONS

JOB STATUS
Bargaining Unit

PURPOSE

To monitor and inspect commercial vehicles, loads, licenses, insurance and drivers to ensure the protection of the highway system and public safety. Located at a permanent weigh scale.

JOB REQUIREMENTS

Knowledge/Technical Skills

- of relevant acts, regulations, policies and procedures as they pertain to commercial transport compliance programs and enforcement activities
- of Commercial Vehicle Safety Alliance (CVSA) standards
- of mechanics to inspect commercial vehicles for mechanical defects and proper load securement
- of provincial geography and the highway system
- of corporate databases to retrieve and update information
- of cash handling procedures
- of metric and imperial measurement systems
- to operate a permanent electronic weigh scale

Analytical/Problem Solving Skills

- to determine whether commercial vehicle weights, dimensions, configuration and mechanical condition comply with acts, regulations and standards
- to determine whether commercial vehicle and driver documentation complies with acts, regulations and standards

- to determine whether vehicles are operating within permit conditions
- to determine appropriate action in cases of non-compliance
- to perform mathematical calculations related to vehicle configurations, weights, dimensions and fees

Communication/Interpersonal Skills

- to deal with upset, angry or abusive clients while acting in an enforcement capacity
- to advise drivers of options when issuing violation tickets and notice and orders
- to respond to various enquiries regarding commercial transport inspection and licensing

Organizational Skills

- to perform work using accepted procedures, techniques, terminology and equipment
- to maintain well organized records

Physical/Concentration Ability

- to climb on and crawl under vehicles during inspections
- to lift, push and pull the various equipment used during vehicle inspections
- to visually monitor vehicles on the scale deck while performing one or more duties in the office
- to use visual and non-visual senses during vehicle inspections
- to be alert to surroundings when outside to ensure safety of self and others

Work Environment

- exposure to all weather conditions when inspecting vehicles
- exposure to vehicle fumes and harmful material and fluids when inspecting vehicles
- exposure to moving vehicles and equipment when inspecting vehicles
- some safety precautions required when dealing with hostile, verbally

abusive clients

- involves working alone at isolated locations
- requires use of personal protective equipment as outlined by Occupational Health & Safety

Must meet the provincially legislated requirements of the *Criminal Records Review Act*.

The above requirements are acquired through completion of the Commercial Transport Inspector Trainee Program.

Licensing/Accreditation

Due to the specific nature of the work, the following must be held:

- Special Provincial Constable status
- Commercial Vehicle Safety Alliance Inspector Certificate

TYPICAL RESPONSIBILITIES

Weighs and Visually Inspects Vehicles

Weighs and visually inspects commercial vehicles, looking for vehicle defects, licensing, load security, gross weights, axle weights and vehicle dimensions to ensure compliance with acts, regulations and safety standards.

Inspects Documentation of Drivers and Vehicles

Examines commercial vehicle licenses, insurance, and permits for compliance with applicable acts and regulations. Inspects driver licenses and logbooks.

Physically Inspects Vehicles

Inspects vehicles for mechanical defects through walkaround and complete underframe inspections. Performs all levels of CVSA inspections.

Issues Permits

Issues various permits including, within limits, those for oversize and overweight vehicles. Calculates and collects permit fees.

Enforcement

Determines whether to issue violation tickets and notice and orders. Determines whether to place vehicles or drivers out of service until problems have been remedied. Advises drivers of available options. Prosecutes disputed violation tickets in traffic court.

Provides Information

Provides information related to the operation of commercial vehicles in the province in response to various enquiries from the commercial transport industry and the public.

Performs other related duties that do not affect the nature of the job.

Classification (Job) Profile

JOB TITLE
AREA VEHICLE INSPECTOR
JOB CODE
2203
SUPERCEDES JOB/CODES

SALARY GROUP
11
CLASSIFICATION DATE
June 1, 1998

DIVISION
OPERATIONS

JOB STATUS
Bargaining Unit

PURPOSE

To conduct scheduled and random mechanical inspections of all classes of vehicles and to audit vehicle inspection and maintenance facilities to ensure compliance with vehicle inspection programs.

JOB REQUIREMENTS

Knowledge/Technical Skills

- of relevant acts, regulations, policies and procedures as they pertain to commercial transport compliance programs, enforcement activities and mechanical inspections of commercial vehicles
- of Commercial Vehicle Safety Alliance (CVSA) standards
- of mechanics to perform mechanical inspections of all classes of vehicles
- of provincial geography and the highway system
- of corporate databases to retrieve and update information
- of metric and imperial measurement systems
- to operate measuring and testing equipment used in mechanical vehicle inspections
- to operate an emergency equipped pursuit vehicle

Analytical/Problem Solving Skills

- to determine whether inspection and maintenance facilities comply with acts, regulations and standards
- to determine whether commercial vehicle mechanical conditions

comply with acts, regulations and standards

- to determine whether vehicles that fail to meet legislated or policy requirements should be allowed to continue to operate
- to determine appropriate action in cases of non-compliance

Communication/Interpersonal Skills

- to deal with upset, angry or abusive clients while performing audits and inspections and while acting in an enforcement capacity
- to complete audit reports on inspection and maintenance facilities
- to provide information to the industry and the public regarding commercial transport inspection and school bus safety

Organizational Skills

- to perform work using accepted procedures, techniques, terminology and equipment
- to maintain well organized records

Physical/Concentration Skills

- to climb on and crawl under vehicles during inspections
- to lift, push and pull the various equipment used during vehicle inspections
- to safely drive a patrol vehicle while visually monitoring commercial vehicles for defects or infractions
- to be alert to surroundings to ensure safety of self and others
- to be alert while driving in all weather and road conditions
- to be alert while driving in pursuit of other vehicles

Work Environment

- exposure to all weather conditions when inspecting vehicles
- exposure to vehicle fumes and harmful material and fluids when inspecting vehicles
- exposure to moving vehicles and equipment when inspecting vehicles
- some safety precautions required when dealing with hostile, verbally

abusive clients

- involves working alone at isolated locations
- requires use of personal protective equipment as outlined by Occupational Health & Safety

Must meet the provincially legislated requirements of the Criminal Records Review Act.

The above requirements would typically be acquired through completion of high school and several years experience as a qualified mechanic, with additional training and certifications related to commercial transport inspection and enforcement including emergency vehicle operation.

Licensing/Accreditation - Due to the specific nature of the work, the following must be held:

- certified journeyman mechanic
- valid class 3 BC driver's licence with air brake endorsement
- Special Provincial Constable status
- Commercial Vehicle Safety Alliance Inspector Certificate

TYPICAL RESPONSIBILITIES

Mechanical Inspections of Vehicles

Conducts scheduled and random mechanical inspections of vehicles. Works in co-operation with enforcement agencies, at road checks, or on own initiative. Inspects vehicles and specifically checks for mechanical defects. Inspects vehicles at accident scenes to identify mechanical defects that may have contributed to the accident. Inspects new school buses before these are put into service.

Enforcement

Determines whether vehicle that has failed to meet standards should be allowed to continue to operate. Determines if vehicle should be sent to an inspection facility for further inspection or repair. Condemns vehicles. Issues tickets, notice and orders. Advises vehicle operators of the time allowed for repairs and ensures that repairs have been made.

Inspection and Maintenance Facility Audits

Audits government authorized inspection and maintenance facilities and records to ensure program standards and procedures are being met. Checks inspection reports, decals, record keeping, physical facility and equipment.

Oversees the inspection of vehicles at facilities. May recall and re-inspect a previously inspected vehicle. Writes audit reports outlining recommended decisions regarding facility.

Provides Information

Responds to enquiries from the commercial transport industry and the public regarding the safe operation of commercial vehicles in the province.

Emergency Equipped Pursuit Vehicle

Operates an emergency equipped pursuit vehicle. Ensures vehicle is properly maintained and that appropriate records are kept.

Performs other related duties that do not affect the nature of the job.

Bibliography

1. Motor Vehicle Act Regulations, Province of British Columbia; Division 25, Part 4, 25.15; Queen's Printer, 1999.
2. Commercial Vehicle Inspections in Canada, CCMTA, Third Edition, December 2000.
3. American Association of Motor Vehicle Administrators
4. Position Descriptions for Portable Weigh Scale Attendant, Commercial Vehicle Inspector and Area Vehicle Inspector from Insurance Corporation of British Columbia.
5. Sample Position Description for Emissions inspection from Envirotest Canada.