



Commercial Transport Truck Operator –
OCCUPATIONAL LEVEL TRAINING
Knowledge Content Inventory



APRIL 2024

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BACKGROUND

Trucking HR Canada (THRC) publishes a National Occupational Standard for Commercial Transport Truck Operators (NOS-O). The NOS-O defines the knowledge, skills, and abilities ("competencies") required for this occupation.

This document is a supplemental resource to the NOS-O. For the full suite of supplemental resources, visit **truckinghr.com**.

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PURPOSE OF THIS GUIDE

This document is based on the National Occupational Standard for Commercial Transport Truck Operator (NOS-O). It is an inventory of the **knowledge** drivers should acquire by the end of an occupational level training program (also known as finishing or onboarding programs).

WHO CAN USE THIS GUIDE

This guide is intended for training developers and training providers.

HOW TO USE THE GUIDE

This is a supplement to the NOS-O. To use, review the 19 blocks of knowledge competencies to inform your OLT program and supporting resources (e.g. knowledge exams) to ensure drivers are acquiring the knowledge they need to be safe and effective employees.

If you have questions or are interested in more information, contact THRC at info@truckinghr.com



INTRODUCTION

Occupational level training (OLT) programs across the trucking and logistics industry vary in scope, duration, and structure to serve the unique needs of each workplace and the varying degrees of driver responsibility. Differences in operating demands, commodities, routes, company objectives, and availability of resources require each workplace to deliver OLT in a unique manner.

To ensure that all commercial transport truck operators have the knowledge, skills, and abilities they need in order to be competent in the occupation, Trucking HR Canada (THRC) has identified the competencies they need to acquire regardless of workplace.

There are just over 500 competencies that have been identified as required for the occupation of Commercial Transport Truck Operator. See *Appendix A for a full description of A Truck Driver's Training Stages*.

DOCUMENT'S STRUCTURE

As categorized in the NOS-O, the types of practical skills drivers should acquire has been broken into three types:

- **Supportive:** Interpersonal, workplace and other non-driving knowledge that are often described as “soft skills”.
- **Functional:** Non-driving job functions and equipment operations.
- **Driving:** The driving-specific knowledge which applies to a straight truck, tractor-trailer, or both.

This information is further categorized into 19 Blocks, with category titles and numbers that link directly to the NOS-O so that it can be easily referenced.



KNOWLEDGE CONTENT

ELEMENT 1 SUPPORTIVE COMPETENCIES

- BLOCK 1** Understand the Workplace

- BLOCK 2** Relate and Interact in the Workplace

- BLOCK 3** Maintain Health, Wellness, and Relationships

- BLOCK 4** Understand Basic Regulatory Requirements

- BLOCK 5** Communicate in the Workplace

- BLOCK 6** Use Workplace Documents

- BLOCK 7** Complete Numeracy Tasks

- BLOCK 8** Operate Computer and Electronic Devices

ELEMENT 2 FUNCTIONAL COMPETENCIES

- BLOCK 9** Plan Work, Plan Trips, and Solve Problems

- BLOCK 10** Prevent Loss and Maintain Secure Facilities

- BLOCK 11** Support Inspection and Maintenance Programs

- BLOCK 12** Conduct Daily Vehicle Inspections

- BLOCK 13** Comply with Hours-of-Service Regulations

- BLOCK 14** Operate Vehicle Air Brake Systems

- BLOCK 15** Secure Cargo for Transport

- BLOCK 16** Operate Commercial Vehicle Systems and Features

- BLOCK 17** Maintain Situational Awareness

ELEMENT 3 DRIVING COMPETENCIES

- BLOCK 18** Prepare and Start to Drive

- BLOCK 19** Handle Emergency Incidents



ELEMENT 1 SUPPORTIVE COMPETENCIES

1. Understand the Workplace

Train and assess drivers to ensure they understand:

- 1** Employers must comply with government regulations and standards that apply to occupational health and safety, employment, transportation, and business operations. Examples of these regulations include: the Canada Labour Code, National Safety Code, Transportation of Dangerous Goods Act, provincial Occupational Health and Safety Acts, etc.
- 2** Workers must comply with government regulations and standards that apply to worker obligations, rights, and responsibilities; employment; health and safety; labour agreements; etc.
- 3** Gaining and sustaining employment may require security screening and background checks; regular appraisals and performance reviews; pre-employment, periodic, or post-incident drug and alcohol testing; etc. Workers may also need to acknowledge that they understand and accept workplace standards and policies.
- 4** Gaining and sustaining employment will generally require medical clearance based on a specific type of driver's licence and may also involve a physical assessment or fitness screening.
- 5** Some medical conditions — heart conditions, epilepsy, some types of diabetes, etc. — may prohibit a driver from holding specific types of commercial driver's licences.
- 6** Expectations of worker performance are usually defined through workplace practices, procedures, and policies that may include corrective action processes, consequences for failing to adhere to requirements, and steps that can lead to dismissal.
- 7** Specific workplace practices, procedures, and policies vary in scope and application, and may be written or unwritten.
- 8** Workers are sometimes expected to rely heavily on their personal knowledge of regulatory or compliance requirements.
- 9** Workers must identify workplace hazards according to workplace practices, procedures, and policies and hazards which are communicated through Workplace Hazardous Materials Information System (WHMIS), labels and Safety Data Sheets (SDS) used in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) for workplace chemicals.
- 10** Some cargo is defined through regulations as “dangerous goods.” This cargo can only be handled and transported by workers who have been specifically trained and certified. All workers must recognize the symbols and methods used to identify “dangerous goods.”
- 11** Workers must develop a clear understanding of workplace practices, procedures, and policies and take steps to recognize and resolve situations in which their understanding is unclear.

2. Relate and Interact in the Workplace

Train and assess drivers to ensure they understand:

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|-----------|---|
| 3 | Interactions involving spoken words include specific words as well as the accompanying tone of voice, context, gestures, and body language. |
| 4 | Interactions can consist entirely of gestures and body language, without exchanging spoken words. |
| 5 | Actions and statements can be misinterpreted and even considered offensive by individuals who have different cultural experiences, beliefs, or backgrounds. |
| 6 | The types of avoidable actions, behaviours, or attitudes that can cause workplace conflict include disrespect, disagreement, discrimination, harassment, racism, intolerance, being judgmental, being violent, being outspoken, being overbearing, showing favoritism, making ignorant statements, etc. |
| 7 | The value of greeting a person or group before interacting on any issue. |
| 8 | Teamwork in the workplace supports the success of the employer and workers. |
| 10 | Regulations require employers and workers to provide a workplace in which everyone feels secure and free of unnecessary conflict. |
| 11 | Deliberate will and action in every interaction are needed to avoid conflict. |
| 13 | Employers and workers must be sensitive to cultural diversity and realize that cultural differences require a gentle and careful reaction when encountering any misunderstanding. |
| 14 | Personal appearance and behaviour can affect an employer's corporate image. |

3. Maintain Health, Wellness, and Relationships

Train and assess drivers to ensure they understand:

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| 1 | Some types of driving require significant amounts of time away from home. This schedule can cause work-related and personal stress and can affect family relationships. |
| 2 | Lifestyle and dietary factors can influence fatigue, performance, physical fitness, and agility. |
| 3 | Each worker's emotional state will affect their tolerance for dealing with stress, the decisions they make, and their ability to do a job properly. Workers should assess their emotional state before deciding if they are ready to drive. |
| 4 | The effects of alcohol, over-the-counter drugs, prescription drugs, legal and/or illegal drugs can continue before, during, and after work, and there can also be consequences for using these substances. |
| 5 | Drivers may be required to enter a drug and alcohol testing program. |
| 6 | The need to develop personal strategies to recognize and alleviate the causes and symptoms of stress that may affect performance at work. |
| 7 | The need to develop personal strategies to recognize and combat fatigue. |

8	The importance of carefully planning work and knowing when and where breaks can be taken.
9	The importance of procedures and proactive techniques such as stretching and proper lifting methods to prevent workplace injuries.
10	The importance of planning suitable sleep and other breaks to avoid fatigue while completing driving responsibilities.
11	The importance of addressing occupational factors which contribute to health-related challenges such as obstructive sleep apnea, back strain, injuries caused by slips, trips, and falls, etc.
12	The importance of practicing techniques for remaining physically, mentally, and emotionally “fit for work.”
13	The importance of utilizing personal hygiene habits that positively affect workplace relationships.
14	Mental health is an issue that can affect a person's readiness and ability to drive safely, and to seek help if needed.
15	The importance of identifying signs of poor mental health.
16	Ways to access mental health resources in the workplace and/or through public services.

4. Understand Basic Regulatory Requirements

Train and assess drivers to ensure they understand:

1	The National Occupation Standard is a model for Canadian jurisdictions to regulate the safe operation of commercial vehicles.
2	Legislation and regulations may affect operations within each jurisdiction. The applicable rules can vary, even during the same workday, depending on where a driver is working.
3	Commercial vehicles are generally defined by weight. Individual Canadian jurisdictions can set unique weight thresholds.
4	Different classes of driver's licences apply to different types of vehicles. Required licence classes vary between Canadian jurisdictions.
5	A driver's licence may require specific endorsements for certain types of commercial vehicles and operations.
6	Personal driving history can affect the status of a worker's commercial licence and ability to drive commercial vehicles.
7	Government agencies develop and retain records of driver incidents and infractions.
8	Government agencies develop and retain records of commercial motor carrier incidents and infractions.
9	Medical condition and history affect the type of licence a driver can hold.
10	Regulations apply to the movement of vehicles on all public roads and highways.
11	Regulations apply to the mechanical condition of commercial vehicles.

12	Regulations apply to the allowable weights and dimensions of commercial vehicles.
13	Regulations apply to the securing of cargo transported by commercial vehicles.
14	Regulations apply to the air brake systems used on commercial vehicles.
15	Regulations apply to the daily inspection of commercial vehicles.
16	Regulations apply to the transport of materials and products that are defined as “dangerous goods.”
17	Regulations apply to the hours a person is permitted to drive a commercial vehicle, be on duty, and be off duty.
18	Electronic devices are mandatory for monitoring, recording, and reporting the work activities of commercial vehicle drivers.
19	Commercial vehicles may be restricted from operating on certain routes or at certain times due to their weight, licence, size, or commodity being transported.

5. Communicate on the Workplace

Train and assess drivers to ensure they understand:

1	The importance of receiving, understanding, and following written and verbal instructions from supervisors, dispatchers, and other workplace staff.
2	The importance of complying with workplace practices, procedures and policies that may include methods that workers must adopt for effectively and professionally interacting with people including police, enforcement personnel, the media, public, other motorists, etc.
3	The importance of seeking clarification whenever they are uncertain about instructions, expectations, procedures, or policies.
4	The importance of adopting and consistently following standard workplace protocols when using written or digital communication and recording systems, devices, and documents, as well as other new technology.
5	The importance of speaking clearly and professionally to fellow workers, supervisors, dispatchers, and workplace operation staff.
6	The importance of speaking clearly and professionally to staff at shipper and customer locations.
7	The importance of listening to and conveying messages from shippers and customers.
8	The importance of receiving and conveying negative messages and/or complaints in a polite and professional manner and using methods to de-escalate difficult or hostile situations.
9	The importance of avoiding revealing sensitive information about their operation, vehicle, trips, routes, or cargo.
10	The importance of following regulations when communicating with police, enforcement officers, and emergency responders.



6. Use Workplace Documents

Train and assess drivers to ensure they understand:

- 1** The importance and meaning of written company practices, procedures, policies, messages, bulletins, and other workplace communications, and understand how to comply with the content.
- 2** The importance of legibly completing all workplace forms needed to establish and sustain employment.
- 3** The importance and meaning of job task analyses and workplace hazard assessments.
- 4** The importance of seeking clarification and assistance when they do not fully understand any written workplace documents.
- 5** The meaning of messages and symbols on cargo packaging and cargo documents such as waybills, packing lists, delivery documents, instructions, workplace hazard information, etc.
- 6** The importance of identifying the purpose, importance, and proper condition of vehicle-related documents such as registration, insurance, program registry, fuel tax reporting, permits, etc.
- 7** The importance of composing and delivering written information and messages relating to workplace activities.
- 8** The importance of accessing information and reference tables such as those related to vehicle weights and dimensions.
- 9** The importance of legibly completing work activity reports, daily logs, records of duty status and/or cycle tracking records for Hours-of-Service regulations compliance.
- 10** The importance of legibly recording information onto, tracking, and managing cargo-related documents such as waybills.
- 11** The importance of accessing written workplace information such as practice, procedure, and policy documents related to cargo securement, job task analysis, hazard assessment, etc.

7. Complete Numeracy Tasks

Train and assess drivers to ensure they understand:

- 1** How to calculate route and trip distances.
- 2** The importance of estimating fuel consumption rates and estimate how far a vehicle can travel on a particular quantity of fuel.
- 3** How to calculate actual and allowable axle weights.
- 4** Basic vehicle dimension and axle spacing requirements and how to complete necessary calculations to confirm compliance with vehicle requirements such as “bridge formulas,” etc.
- 5** How to calculate trip durations to determine arrival times and plan departure times.



6	How to calculate and record information needed for fuel tax reports.
7	How to calculate and record cargo weight when necessary.
8	How to convert imperial and metric measurements using tables, mathematical formulas, or conversion programs.

8. Operate Computer And Electronic Devices

Train and assess drivers to ensure they understand:

1	How to use a calculator or computer when necessary.
2	How to use a hand-held electronic or communication device only when and where permitted.
3	How to use a mobile (cellular) telephone.
4	How to use workplace-specific electronic tools such as communication, tracking, and video event recording devices, customer-specific data-entry devices, etc.
5	How to complete basic data-entry, form-filling, and online search tasks.
6	How to record work activities using an electronic logging device according to workplace and manufacturer procedures.



ELEMENT 2 FUNCTIONAL COMPETENCIES

9. Plan Work, Plan Trips, and Solve Problems

Train and assess drivers to ensure they understand:

1	The importance of avoiding travel to an unfamiliar location without first confirming facilities and preferred routes.
2	How to use digital maps and route information resources according to workplace requirements.
3	How to access reliable information and utilize technology and apps (e.g. 511) for commercial vehicle routes, road construction, road closures, height clearances, weight restrictions, permit requirements, etc.
4	How to prepare a route plan, or identify and accept a predetermined route plan, that correctly considers vehicle size and weight.
5	How to identify special requirements relating to the vehicle, load, routing, or commodity.
6	How to access reliable information about weather and road conditions, before and during a trip.
7	How to adjust trip plans or work plans when encountering unanticipated changes.
8	How to plan each trip to ensure compliance with Hours-of-Service regulations. (See 13)
9	How to identify, locate, and access service facilities, rest areas, and emergency refuge locations as necessary.
10	How to use some basic hand tools.
11	How to identify and locate suitable fuel sources and purchase fuel according to workplace practice, procedures, and policies.
12	When and how to carry required emergency equipment on or inside the vehicle and understand how and when to use the equipment.
13	Workplace risks and hazards and when and how to properly wear or otherwise use appropriate Personal Protective Equipment.
14	When and how to operate basic emergency equipment such as a fire extinguisher, safety warnings (triangles, flares), spill kits, etc.
15	How to locate emergency contact information.
16	When and how to adjust the vehicle's fifth wheel setting, axle position, or suspension system as necessary and according to workplace direction.
17	When and how to carry necessary first aid supplies and understand personal limitations in administering first aid.

19	How to operate cargo access doors in a safe manner and protect against potential falling cargo when opening doors.
21	How to proceed appropriately through construction zones and detours.
22	How to identify and prepare for common problems and challenges, such as packing cold weather attire and equipment when necessary.
23	How to follow workplace requirements for cargo-handling and use of specialized equipment needed for the cargo being transported.
24	How to confirm that cargo matches related documents and identify any areas requiring clarification, changes, adjustment, or planning.
25	How to carefully track cargo and related documents during each trip, identifying discrepancies between cargo documents and the cargo being transported.
26	How to calculate changing cargo weight when needed, verify compliance with vehicle weight regulations, and identify how changing weight can change vehicle handling.
27	Their personal capabilities to assist another driver, motorist, or member of the public during an emergency or whenever there is an obvious urgent need for such assistance, and follow workplace practices, procedures, and policies.
28	How to deal with an emergency, breakdown, or immobilizing situation within personal limitations, and follow workplace practices, procedures, and policies.
29	How to use towing, recovery, police, and emergency services when a vehicle is disabled or immobilized, and follow workplace practices, procedures, and policies.
30	How to contact emergency service as soon as it appears necessary for themselves, a fellow worker, motorist, or any member of the public.
31	Their obligations in regulations and/or company practices, procedures, and policies with respect to dealing with a build-up of snow or ice on their vehicle(s) and the need to take appropriate corrective action.

10. Prevent Loss and Maintain Secure Facilities

Train and assess drivers to ensure they understand:

1	Required practices, procedures, and policies when accessing workplace, shipper, and customer facilities, and restricted areas.
2	How to seek appropriate help when accessing an unfamiliar location or facility.
3	How to handle and load cargo carefully, and confirm that all cargo is properly packaged, unitized, arranged, and secured inside facilities and vehicles.
4	How to follow workplace practices, procedures, and policies when releasing sensitive information about an operation, vehicle, trips, routes, or cargo.



5	How to use appropriate Personal Protective Equipment properly and as required, inside or outside of every workplace, shipper facility, and customer facility.
6	How to use cargo seals, pin locks, and similar vehicle security devices according to company practices, procedures, and policies.
7	How to operate cargo handling equipment in the proper manner, and only when fully trained and authorized.
8	How to follow all workplace, shipper and receiver practices, procedures, and policies that involve issues such as parking locations and methods, facility security, securing and accessing vehicles, and securing valuables including cash etc.

11. Support Inspection and Maintenance Program

Train and assess drivers to ensure they understand:

1	That every workplace must establish a system, and keep a written record, for periodically inspecting and maintaining vehicles.
2	That every commercial vehicle must meet prescribed performance standards while operating on a highway.
3	The importance of enforcement and audit programs to ensure that inspection and maintenance is adequate.
4	How to conduct required daily inspections using supplied forms and schedules (<i>See 12 – Conduct Daily Vehicle Inspections</i>)
5	How to inspect the condition of vehicles and operating components according to workplace practice, procedures, and policies.
6	How to use appropriate Personal Protective Equipment during maintenance and inspection activities according to workplace practice, procedures, and policies.
7	How to confirm that every commercial vehicle being operated displays valid evidence that regulatory periodic inspections and workplace-specific inspections have been conducted.
8	How to check the level of operating fluids including fuel, engine oil, engine coolant, power steering oil, windshield washer, diesel exhaust fluid (DEF), etc. and top up when necessary.
9	How to regularly check basic vehicle components, such as drive belts, hoses, tires, etc.
10	How to complete minor vehicle repairs such as minor electrical connection problem; replace lamp, gladhand seal or wiper blade; reset circuit breaker, etc., according to workplace requirements.
11	How to coordinate vehicle repairs that take place away from company facilities, complete required reports, and follow related procedures according to workplace practice, procedures, and policies.
12	How to practice engine warm-up and cool-down procedures that are appropriate for conditions, following manufacturer recommendations, and in accordance with workplace practice, procedures, and policies.
13	The sounds and other signs that a vehicle is operating in an abnormal manner.

14	How to identify defective conditions and damage on most vehicle components and systems, according to company practices, procedures, and policies.
15	How to report vehicle damage, defects, completed repairs, and any other condition that may require maintenance, correction, or review.
16	How to adhere to workplace practices, procedures, and policies about vehicle condition, cleanliness, and corporate image.

12. Conduct Daily Vehicle Inspections

Train and assess drivers to ensure they understand:

1	They are responsible for the safe condition of each commercial vehicle they operate.
2	Schedule 1 of National Safety Code Standard 13 (NSC 13) lists all minor and major defects the driver is expected to identify.
3	NSC 13 Schedule 1 includes the most common defects a driver may encounter.
5	A driver must identify when a minor or major defect listed in NSC 13 Schedule 1 is present on their vehicle.
6	A driver must properly complete and sign written or electronic daily inspection reports that declare the vehicle's condition.
7	A driver must continuously monitor vehicle condition according to NSC 13 Schedule 1 while driving or otherwise being responsible for the vehicle and update the inspection report as required.
8	How to record on an inspection report every minor defect found during an inspection or while operating a vehicle, and report the minor defect according to workplace practices, procedures, and policies There are legal requirements and obligations, and severe consequences for operating a vehicle with an OOS defect.
9	There are legal requirements and obligations to immediately record on an inspection document and report every major defect found during an inspection, or while operating a vehicle, and immediately stop operating the vehicle.
10	A driver must maintain a vehicle's out-of-service status whenever a major defect is identified, until the condition is corrected.
11	A driver must conduct regular enroute and post-trip vehicle inspections according to workplace practice, procedures, and policies.
12	A driver must adhere to regulations and company practices, procedures and policies whenever accepting an inspection report from another worker.
13	A driver must carry a valid inspection report for each vehicle currently being operated and a copy of NSC 13 Schedule 1 and produce these items when required by an enforcement officer.



13. Comply With Hours-Of-Service Regulations

Train and assess drivers to ensure they understand:

- 1** That Hours-of-Service regulations apply to operating any commercial vehicle.
- 2** They are on-duty when driving, in care and control of a vehicle, and performing other types of work.
- 3** How to calculate when they can begin to drive, and how many hours are available for driving.
- 4** In normal conditions they must take 10 hours off-duty each day and have one 24-hour period off-duty within the previous 14 days.
- 5** They cannot drive any further when any one of the on-duty limits is reached.
- 6** A commercial vehicle may be operated for personal use, and for up to 75 km in a day when the vehicle is empty and no trailer is being towed, no work of any sort is being done for a motor carrier, and the starting and ending odometer readings are recorded in the driver's daily log.
- 7** They must not drive a commercial vehicle after being on-duty for 14 hours in a day.
- 8** They must not drive a commercial vehicle after accumulating 13 hours of driving in a day.
- 9** A work shift begins when they return to on-duty, after being off-duty for at least 8 consecutive hours.
- 10** They are still considered to be on the previous work shift when returning to on-duty after less than 8 hours off-duty, and they may be prohibited from driving.
- 11** They must not drive a commercial vehicle any longer when 16 hours have elapsed since their work shift began.
- 12** A 7-day cycle is called "Cycle 1" and allows a driver to be on-duty for 70 hours in a 7-day period.
- 13** A 14-day cycle is called "Cycle 2" and allows a driver to be on-duty for 120 hours in a 14-day period.
- 14** A new cycle can start only after taking the required minimum number of hours off-duty (called a "reset").
- 15** Resetting Cycle 1 requires at least 36 hours off duty.
- 16** Resetting Cycle 2 requires at least 72 hours off duty.
- 17** Up to 2 hours of the required minimum daily off-duty time can be deferred from one day to the next if the deferred time is properly added to the correct portion of off-duty time in the following day.
- 18** When specifically defined adverse driving conditions are encountered, driving up to 2 hours beyond the daily limit is permitted, when remaining within the 16-hour work shift rule.
- 19** When adverse conditions cause a driver to be on-duty longer than is normally permitted, the off-duty period on the following day must be increased by a similar amount.
- 20** They must maintain and carry a daily log whenever they operate beyond 160 km of their home terminal, return to a location other than their home terminal at the end of the day, or work for an employer who does not maintain a record of the driver's duty status.

21	They must track their status within each day as defined on the daily log, and track the duty status within their work shift, which can start at any time of day.
22	The “day” shown on a daily log is a 24-hour period which generally begins at midnight but can start at any time set by an employer.
23	The “home terminal” is determined by the employer and is normally associated with the location where a worker begins to drive a commercial vehicle.
24	Know that, when operating a commercial vehicle for which a daily log must be carried, a driver must carry logs which show the previous 14 days of duty status.
25	Driver’s daily logs may also need to be retained for tax purposes such as meal deductions, etc.
26	How to maintain a complete, legible, and accurate driver’s daily log (in a written or electronic format) that fully complies with the regulations.
27	They must carry daily logs that apply to the preceding 14 days whenever operating a commercial vehicle requiring the driver to carry a log.
28	They must retain and submit daily logs as required by the regulations and according to workplace practices, procedures, and policies.
29	A driver may be exempt from the requirements to complete and carry a daily log when they drive within a radius of 160 km from their home terminal, return to their home terminal at the end of the day, and work for an employer who maintains a record of their duty status.
30	A record of each driver’s duty status must track the driver’s activities within each day, within the work shift, and within a duty cycle.
31	A driver using a record of duty status instead of a daily log must still comply with all driving restrictions.
32	How proper use of the sleeper berth allows the off-duty period to be split.
33	How off-duty periods can be split into shorter periods in certain conditions.
34	That Canadian HOS requirements differ from those in the U.S.
35	How to adhere to differing requirements when crossing an international border.

14. Operate Vehicle Air Brake Systems

Train and assess drivers to ensure they understand:

- 1** The basic operating principles of air brakes.
- 2** The general function of supply, service, parking/emergency, and trailer sub-systems and related components.
- 3** The visual characteristics, external components, and basic function of common types of foundation brakes.



4	How speed, weight, vehicle specifications, and downhill grades affect vehicle braking.
5	Conditions such as brake fade and brake lag.
6	How to identify common brake types and components.
7	How to identify damaged, missing, or malfunctioning foundation brake components.
8	How to identify cracked, loose, missing, or contaminated brake lining, improper drum contact, or lining that is less than the required thickness.
9	How to identify audible air leaks and visible evidence of cracks and non-manufactured holes in brake chambers.
10	How to identify mismatched brake chamber size and/or slack adjuster length on axles.
11	How to identify cracked and/or broken brake drums or rotors.
12	How to identify leaks, damage, deterioration, and improper fittings on readily visible brake hoses and air lines.
13	How to identify a loose, cut, or frayed compressor drive belt.
14	How to identify insecure air compressor mounts, brackets, or fasteners.
15	Check the air brake system for audible air leaks.
16	How to test the low air pressure warning device.
17	How to measure air pressure build-up time.
18	How to identify air compressor governor cut-out and cut-in pressure settings.
19	How to test the air loss rate of an air brake system.
20	How to test the tractor (towing vehicle) protection valve.
21	How to test automatic application of the trailer spring (parking/emergency) brakes.
22	How to test spring (parking/emergency) brakes.
23	How to test the function and condition of air tank drain valves.
24	How to test and identify insecurely mounted air tanks.
25	How to test spring brake operation.
26	The importance of proper brake pushrod stroke.
27	How to measure brake pushrod stroke.
28	That only qualified individuals may repair brakes.



15. Secure Cargo for Transport

Train and assess drivers to ensure they understand:

- 1** That every commercial vehicle transporting cargo must have the cargo secured according to the regulations (*National Safety Code Standard 10*).
- 2** The requirement to secure cargo includes any material, equipment, or other loose article carried on the vehicle including dunnage, blocking, tarps, tools, equipment, spare materials, etc.
- 3** All cargo must be secured so that it cannot fall off the vehicle or in any way be lost.
- 4** Articles of cargo must be secured to prevent forward, rearward, and sideways movement, and in some cases must also be secured to prevent upward movement.
- 5** All cargo must be secured so that it cannot shift in a way that can affect a vehicle's stability or maneuverability in a negative way.
- 6** Cargo must be loaded in such a way that it does not interfere with the driver's ability to drive the vehicle safely and does not impede vehicle entry or exit.
- 7** How to properly inspect the security of the cargo.
- 8** Articles of cargo are generally secured against the vehicle's structure and by using devices such as tiedowns, blocking, and bracing.
- 9** Any cargo securing method or device must be the proper type, and must be properly used, strong enough, and in good condition.
- 10** Devices used to secure cargo are generally rated for their strength and that most cargo requires a minimum number of tiedowns with working load limit ratings.
- 11** Cargo tiedowns are specifically designed and rated for such use, must have a means to be tightened, and must be used according to the manufacturer instructions.
- 12** Tiedown ratings are determined by manufacturers, expressed as a "working load limit" (WLL), and marked on the tiedowns.
- 13** The combined strength of individual tiedowns used together to restrain cargo is called the "aggregate working load limit."
- 14** Friction between cargo and vehicle surfaces, and friction between different articles of cargo that are in contact, helps to keep some types of cargo secure.
- 15** The size, shape, and weight of cargo generally dictates the required number, strength, and placement of tiedowns.
- 16** The aggregate working load limit of tiedowns used to secure cargo must equal at least 50% of the cargo weight.
- 17** Cargo fully enclosed within a vehicle structure will not generally require tiedowns, but may require blocking, bracing, or devices to increase friction between the vehicle and cargo.

18	Individual pieces of cargo will, in some cases, need to be “unitized” into larger units of cargo.
19	They are not required to inspect cargo if a vehicle has been sealed to prevent access and they have been instructed by their employer not to remove the seal.
20	Certain commodities require specific securing methods, devices, and equipment to comply with specific regulatory requirements.
21	Cargo that can be secured according to general regulatory requirements, and identify that specific securement methods are required for certain cargo including logs, dressed lumber and similar building materials, metal coils, paper rolls, concrete pipe, inter-modal containers, automobiles, light trucks and vans, heavy vehicles equipment and machinery, flattened or crushed cars, roll-on/roll-off and hook-lift containers, boulders, etc.
22	How to inspect cargo and methods used to secure the cargo before driving to confirm everything is properly secured to comply with regulations, and according to workplace practices, procedures, and policies.
23	How to inspect cargo and related articles at specific intervals during the trip to ensure everything remains properly secured to comply with regulations and according to workplace practices, procedures, and policies.
24	How to confirm proper methods and devices have been used to secure cargo, are in good condition, and are in the proper locations.
25	How to inspect the condition and integrity of tiedown devices and adjust tiedowns as necessary to keep cargo secure during transport.
26	How to ensure that, in cases where cargo needs to be unitized, individual articles of cargo remain adequately secured into larger articles of cargo.
27	How to ensure that cargo secured to the vehicle structure is properly distributed and arranged, and that any required blocking, bracing, or friction mat is adequate, properly positioned, and securely in place.
28	How to follow the specific cargo securing practices, procedures, and policies of the workplace, shipper and/or receivers.

16. Operate Commercial Vehicle Systems and Features

Train and assess drivers to ensure they understand:

1	The general layout of a typical commercial vehicle engine compartment, how to identify important service items, and locate operating fluid check points.
2	The general layout and function of major body, frame, and external vehicle components and systems.
3	How to locate fuel tanks and filler caps and practice proper fueling methods.
4	The correct operating fluids required for a vehicle and how to properly refill and maintain fluid levels.
5	The differences between single, tandem, tridem, and other multi-axle configurations.

6	The operation of typical manual, automated, and automatic commercial vehicle transmissions, controls, shift patterns, and clutches.
7	The basic types, features, and function of tires and wheels.
8	The physical features and operation of common types of suspension systems.
9	How to identify and read the instrument panel indicators displaying important vehicle operating information, warnings, and safety system status.
11	The basic operation of a differential and inter-axle differential used in tandem drive axles.
12	How to operate a differential lock or inter-axle differential lock.
13	How to operate engine brake or retarders and understand how and when to appropriately use these systems to control vehicle speed.
14	The physical features, indicators, warnings, and the basic operation of hydraulic brake systems.
15	The physical features and basic operation of drum and disc brake systems.
16	How steering control is lost when tires skid during heavy brake use or when braking with poor traction.
17	Anti-lock Brake Systems (ABS) keep wheels from locking but may not shorten vehicle stopping distance.
18	How stability control systems operate and affect vehicle operation.
23	The basic operation of portable or on-board cargo heating equipment.
24	How to identify and operate different types of trailer coupling devices.
25	How to proficiently alter the position of a fifth wheel to alter vehicle dimensions or distribute vehicle and/or cargo weight according to workplace requirements when involved in tractor-trailer operation.
26	How to proficiently reposition trailer axles to alter vehicle dimensions, or to distribute vehicle and/or cargo weight according to workplace requirements when involved in tractor-trailer operation.
27	How to adjust rear-view mirrors to maximize the view and effectively remove or minimize a vehicle's blind spots.
28	The basic operation of collision avoidance systems.
30	The nature and content of vehicle owner and operator manuals and how to locate the manuals as needed.

17. Maintain Situational Awareness

Train and assess drivers to ensure they understand:

- 1** Workplace hazards and risks and recognize that such hazards and risks can change.
- 2** The role and importance of workplace practices, procedures, and policies which are used to manage hazards and risks.



3	How to locate and understand workplace practices, procedures, and policies which are used to manage hazards and risks.
4	How to review and understand documented job task analyses and hazard assessments.
5	The importance of being aware of the presence of other motorists, pedestrians, cyclists, and slow-moving vehicles which share the road with commercial vehicles.
6	The importance of watching for wildlife or livestock which can enter the space around a vehicle, particularly on routes known for collisions involving animals.
7	The importance of setting up mirrors to minimize a vehicle's blind spots.
8	The importance of completing a hazard assessment whenever entering an unplanned, unfamiliar, or altered workplace.
9	The importance of monitoring and adhering to highway speed advisories.
10	The importance of monitoring anticipated weather and road conditions before and during each trip.
11	The importance of remain highly alert while driving.
12	The importance of regularly and systematically scanning exterior conditions by looking ahead and using mirrors.
13	The importance of regularly and systematically scanning vehicle conditions by monitoring instruments and gauges.
14	The importance of monitoring the movement and actions of other motorists while passing or being passed.
15	The visual cues and other signs of potentially hazardous traffic situations.
16	How to practice methods to de-escalate any situation that could cause anger, hostility, or danger.
17	How and when to exit the vehicle to inspect clearances and identify potential obstructions.
18	How to secure a vehicle properly before exiting.
19	The importance of securing a vehicle properly before exiting.



ELEMENT 3 DRIVING COMPETENCIES

18. Prepare and Start To Drive

Train and assess drivers to ensure they understand:

- | | |
|-----------|--|
| 18 | The importance of proper start-up and/or warm-up procedures. |
| 19 | How to set up and operate onboard communication systems and electronic logging devices |
| 20 | The importance of scanning all controls and instruments before driving. |
| 21 | The importance of starting the engine while monitoring the instrument panel and indicator lamps, listening for normal vehicle sounds, and avoiding unnecessary idling. |

25. Handle Emergency Incidents

Train and assess drivers to ensure they understand:

- | | |
|-----------|--|
| 1 | The types of incidents that must be reported to employers, police, and other reporting agencies. |
| 2 | Workplace practices, procedures, and policies relating to obligations and limitations in administering first aid. |
| 3 | How to conduct themselves according to workplace practices, procedures, and policies regarding collisions, close calls, injuries, or other similar incidents in any emergency situation, and when speaking to police, media, other motorists and the public. |
| 4 | Follow workplace practices, procedures, and policies when engaging emergency support such as towing and recovery service, vehicle repair, breakdown, tire repair, etc. |
| 5 | Comply with regulations and workplace practices, procedures, and policies when using warning devices and other emergency equipment. |
| 6 | Identify the importance of helping victims of human trafficking. |
| 7 | Identify the indicators that human trafficking may be occurring. |
| 8 | Identify calling a human trafficking hotline as the best way to report human trafficking. |
| 9 | Identify the hand signal used by a person communicating their need for help. |
| 10 | Identify calling 911 as the way to report a crime in progress. |

11

Identify a person displaying any of the following signs or behaviours as a possible victim of human trafficking.

- a lack of knowledge of their whereabouts
- no control of their ID/passport
- restricted or controlled communication (not permitted to speak for themselves)
- inability to come and go unrestricted
- descriptions of having a quota or having a pimp/daddy
- signs of branding or tattooing of a trafficker's name
- experience being dropped off and picked up approximately 15-20 minutes later using a van, RV, or vehicle with multiple persons and in an area mostly frequented by men
- signs of physical bruising or other visible trauma



APPENDIX A – COMMERCIAL TRANSPORT TRUCK OPERATOR - TRAINING STAGES

Success in the truck driver occupation requires a person to acquire a unique set of competencies. Drivers acquire these competencies in two major stages.

During **Stage 1**, drivers work to obtain all the competencies outlined in the National Occupational Standards (NOS).

During this stage, they acquire these competencies in two phases:

- **Entry-Level Training (MELT/ ELT) Phase:** In this phase, an individual begins acquiring enough of the NOS-O competencies to obtain a commercial driver licence (CDL) and begin working as a commercial transport truck operator.
- **Occupational Level Training (OLT) Phase:** In this phase, an individual applies NOS-O competencies in real-life situations as a commercial transport truck operator to fully acquire those competencies. This phase of competency development is often referred to as “driver finishing” and takes place after the ELT phase.

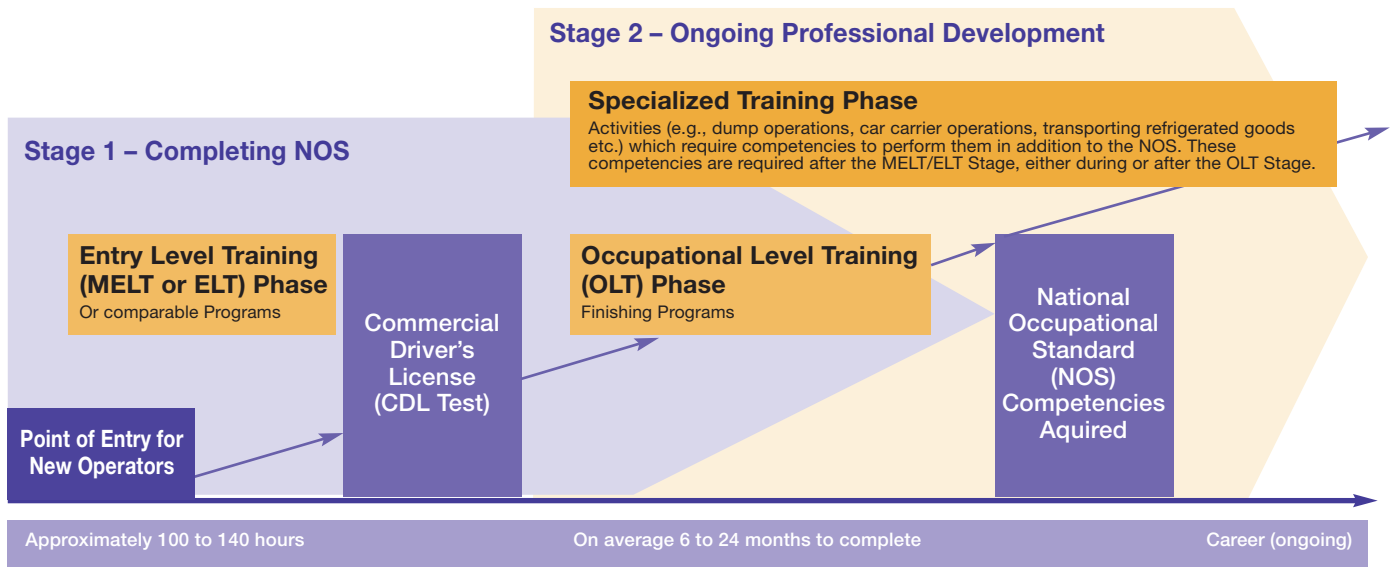
These two phases are generally detached from one another, but in some jurisdictions the training is combined and administered through a single program. Where the phases are separate, traditional truck driving schools almost exclusively deliver the first phase, while workplaces offer the second.

Stage 2 extends through the entire length of a commercial transport truck operator's career. During this stage, operators develop professionally above and beyond the competencies outlined in the NOS-O and often acquire supplementary knowledge relating to various commodities, operation settings, routes, etc.

See Graph #1 – Commercial Transport Truck Operator – Training Stages.



GRAPH #1 - Commercial Transport Truck Operator – Training Stages





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