



Amusement Device Mechanic Inflatable

(Under Ontario Regulation 187/03,
Technical Standards & Safety Act, 2000)

In-School Curriculum Standard

June 2013

www.tssa.org

(Uncontrolled document if printed)



PREFACE

This Amusement Devices Mechanic Curriculum Training Standard has been developed in keeping with the Common Format Guidelines prescribed by the Technical Standards and Safety Authority (TSSA) in conjunction with the Amusement Devices Training and Certification Advisory Board (TCAB). The Curriculum Standard reflects the content necessary for appropriate progression through each level of the Amusement Devices Mechanic in-school program.

For easy reference, a time allocation has been included for each respective reportable subject and units, along with a breakdown of theory and application in the delivery of the performance objectives.

The continual introduction of innovative techniques and more complex equipment is resulting in increasing demands for Amusement Devices Mechanics who are not only skilled in the practical aspects of the trade, but who also have a sound theoretical knowledge of the testing, diagnosing and servicing requirements. The Curriculum Standard has been developed to provide this theoretical knowledge and to offer some practical applications to complement the on-the-job work experience of the Amusement Devices Mechanic.

The Curriculum Standard has been designed to give the instructor every opportunity for flexibility and innovation without significant departures from content. Since the scope of the prescribed Curriculum Standard is quite extensive, the Mechanic-In-Training will be expected to reinforce the acquired knowledge through regular independent out-of-classroom assignments.

The Curriculum Standard includes specific references to on-the-job training. While on-the-job training has been linked to the respective in-school learning outcomes and learning content objectives, employers should not assume complete coverage in all aspects of the modules. The in-school delivery focuses primarily on the knowledge required and fundamental skills that support the respective objectives outlined in the workplace training. Employers are expected to complete the delivery of these objectives by ensuring the prescribed in-school knowledge is applied to the practical learning experiences in the work setting.

Regular evaluation of a Mechanic-In-Training's learning achievements must be performed in both theory and practical applications throughout the program.

Participation by Stakeholders

TSSA, working in collaboration with the Amusement Devices TCAB and industry members participated in the development of this curriculum guideline.



Table of Contents

Amusement Device Mechanic Inflatable	1
PREFACE	2
Summary of Total Program In-School Training Hours	4
Module 1: Legislation and Standards	5
Module 2: Safety	8
Module 3: Basic Electricity	10
Module 4: Maintenance and Record Keeping	12
Module 5: Operation, Testing, Inspections and Set-Up	14
Module 6: Knowledge Verification	18



Summary of Total Program In-School Training Hours

Reportable Subjects	Total	Theory	Application
1. Legislation and Standards	4.5	4.5	0
2. Safety	1.75	1.5	0.25
3. Basic Electricity	2.0	1.5	0.5
4. Maintenance and Record Keeping	5.25	3.5	1.75
5. Operation, Testing, Inspections and Set-Up	7.5	4.0	3.5
6. Knowledge Verification			
Total	<u>21.0</u>	15.0	6.0



Module 1: Legislation and Standards
Duration: 4.5 Total Hours
 Theory: 4.5 Hours Application: 0 Hours

General Learning Outcome:

Upon successful completion of this reportable subject, the Mechanic-In-Training is able to practice and identify key competencies relating to and in accordance with government safety regulations, specifications and approved industry standards.

1.1 – Technical Standards and Safety Act

[1.0/0]

Define the relevant information and specific details concerning:

- 1.1.1 Overview of the TSS Act and Regulations
- 1.1.2 Directors and Inspectors
- 1.1.3 Powers of Inspectors and Investigators
- 1.1.4 Authorizations
- 1.1.5 Safety and Compliance Orders
- 1.1.6 Orders and Regulations
- 1.1.7 Offences

1.2 – Ontario Regulation 221/01 Amusement Devices

[1.0/0]

Define the relevant information and specific details concerning:

- 1.2.1 License to Carry on Business
- 1.2.2 Insurance
 - 1.2.2.1 Mandatory Insurance
 - 1.2.2.2 Industry Best Practices
 - a) Premium costs
 - b) Deductibles
 - c) Claims
- 1.2.3 Permit to Operate and Amusement Device
- 1.2.4 Operating Schedules
- 1.2.5 Conditions for Permits
- 1.2.6 Technical Dossiers
- 1.2.7 Alterations
- 1.2.8 Erection and Maintenance



- 1.2.9 Operation of Amusement Devices
- 1.2.10 Duty of License Holders and Log Books
- 1.2.11 Attendants and Operators
- 1.2.12 Inspections
- 1.2.13 Reporting of Incidents

1.3 – Ontario Regulation 187/03 Certification and Training of Amusement Device Mechanics

[0.25/0]

Define the relevant information and specific details concerning:

- 1.3.1 Certificates and Requirements for Compliance
- 1.3.2 Renewal of Certificates
- 1.3.3 Term of Certificates, Immediate suspension and revocation
- 1.3.4 Types of Certificates
- 1.3.5 Change of Address

1.4 – CSA Z267

[0.5/0]

Define the relevant information and specific details concerning Section 5.4.6: Air Supported Structures

- 1.4.1 Flame Resistant Materials
- 1.4.2 Hold-down provisions
- 1.4.3 Operation and Attendants
- 1.4.4 Emergency exits and lighting
- 1.4.5 Power failures
- 1.4.5.1 General Content Review of the CSA Z267

1.5 – Amusement Devices Code Adoption Document

[0.5/0]

Define the relevant information and specific details concerning:

- 1.5.1 Part 1: General Definitions and Exceptions
- 1.5.2 Part 2: General Technical Requirements
- 1.5.3 Manufacturer Safety Bulletins
- 1.5.4 Director's Orders

1.6 – Other Codes and Standards

[0.75/0]

Define the relevant information and specific details concerning:



- 1.6.1 Canadian Electrical Code
 - 1.6.1.1 General Overview of the CEC
 - 1.6.1.2 Grounding
 - 1.6.1.3 Power lines
 - 1.6.1.4 Connections
 - 1.6.1.5 Equipment Certification
- 1.6.2 NFPA 701
 - 1.6.2.1 General Overview of the NFPA 701
 - 1.6.2.2 Testing Certificates
- 1.6.3 NFPA 705
 - 1.6.3.1 General Overview of the NFPA 705
- 1.6.4 Flame Resistance CAN/ULC-S109 Flame Tests of Flame-Resistant Fabrics and Films
 - 1.6.4.1 Certificates

- 1.7 – Reference Material
 - 1.7.1 Technical Standards and Safety Act, 2000
 - 1.7.2 Ontario Regulation 221/01
 - 1.7.3 Ontario Regulation 187/03
 - 1.7.4 CSA Z267
 - 1.7.5 Amusement Device Code Adoption Document
 - 1.7.6 Canadian Electrical Code
 - 1.7.7 National Fire Protection Association 701
 - 1.7.8 National Fire Protection Association 705
 - 1.7.9 CAN/ULC-S109 Flame Tests of Flame-Resistant Fabrics and Films



Module 2: Safety

Duration: 1.75 Total Hours

Theory: 1.5 Hours Application: 0.25 Hours

General Learning Outcome:

Upon successful completion of this reportable subject, the Mechanic-In-Training is able to practice workplace safety in accordance with government safety regulations, specifications and approved industry standards.

2.1 – Safety Regulations and Information

[0.5/0]

Define the relevant information to inflatable device operators with respect to:

- 2.1.1 Ministry of Labour (MOL)
- 2.1.2 Occupational Health and Safety Act (OHSA)
- 2.1.3 Workplace Hazardous Materials Information System (WHMIS)
- 2.1.4 Workplace Safety and Insurance Board (WSIB)

2.2 – Personal Protective Equipment

[0.25/0]

Define the fundamentals of personal protective equipment (PPE):

- 2.2.1 Types of PPE available and the associated hazards
- 2.2.2 Importance of Responsibilities of employers and employees on work sites
- 2.2.3 Care, inspection, storage and retirement criteria
- 2.2.4 Occupational Health and Safety Act

2.3 – Identify Safety Hazards

[0.25/0.25]

Define the fundamentals of identifying safety hazards:

- 2.3.1 Job Hazard Analysis
- 2.3.2 Fire Safety Procedures
- 2.3.3 Handling and Storing of Hazardous Materials

2.4 – Industry Best Practices

[0.5/0]

Define the relevant information and specifics concerning:

- 2.4.1 Purchasing an Inflatable



- 2.4.1.1 Device types to avoid
 - 2.4.1.2 Exempt devices
 - 2.4.1.3 Purchasing/Sourcing Inflatable Devices
 - 2.4.1.4 Fire Rating
 - 2.4.1.5 Approved and unapproved blowers
-
- 2.5 – Reference Material
 - 2.5.1 Ontario Health and Safety Act
 - 2.5.2 Workplace Hazardous Materials Information System



Module 3: Basic Electricity
Duration: 2 Total Hours
 Theory: 1.5 Hours Application: 0.5 Hours

General Learning Outcome:

Upon successful completion of this reportable subject, the Mechanic-In-Training is able to practice electrical safety in accordance with government safety regulations, specifications and approved industry standards.

3.1 – CSA/Z267

[0.25/0]

Define the relevant information and specific details concerning Section 5.5: Electrical Components

3.1.1 Compliance with the Standard

3.1.2 Emergency Control

3.1.3 Grounding

3.1.4 Exterior Lighting

3.2 – Electrical Inspections

[0.5/0.5]

Define the fundamentals of Electrical Inspections:

3.2.1 Blower use and set up considerations

3.2.2 Blower mechanical inspection

3.2.3 Blower electrical inspection

3.2.4 Generators: clearances, maintenance and operating considerations

3.2.5 Set up considerations: Clearances to power lines etc.

3.3 – Troubleshoot Electrical and Operating Components

[0.25/0]

Define the fundamentals of electrical and operating components:

3.3.1 Selecting and properly using the applicable tools and equipment when necessary

3.4 – Electrical Repair and Replacement Criteria

[0.25/0]

Determine repair and replacement by:

3.4.1 Consulting and applying original equipment manufacturer manuals

3.4.2 Incorporating safety of the public into the decision making process



3.4.3 Appropriately monitoring and recording problems

3.5 – Extension Cords

[0.25/0]

Define the relevant information and specific details concerning:

3.5.1 Usage limitations and safety considerations regarding gauge, length, rating etc.

3.5.2 Minimum acceptable requirements for extension cords (SJTW)

3.5.3 Uninterrupted Power Supply and Alarms

3.6 – Reference Materials

3.6.1 CSA/Z267

3.6.2 Applicable Original Equipment Manufacturer Manuals



Module 4: Maintenance and Record Keeping
Duration: 5.25 Total Hours
Theory: 3.5 Hours Application: 1.75 Hours

General Learning Outcome:

Upon successful completion of this reportable subject, the Mechanic-In-Training is able to conduct maintenance and record keeping in accordance with government safety regulations, specifications and approved industry standards.

4.1 – Daily Inspections

[0.5/0.5]

Define the relevant information and specifics concerning:

- 4.1.1 Daily Inspections
- 4.1.2 Inspection Checklists – types, intervals, record keeping
- 4.1.3 Who can conduct inspections
- 4.1.4 Who can repair/maintain
- 4.1.5 Who decides when something is safe to use by the public

4.2 – Log Books

[1.0/0.25]

Define the relevant information and specifics concerning:

- 4.2.1 Creation of Log Books
- 4.2.2 Ride Defects – tracking and mitigation
- 4.2.3 Inspection Checklists
- 4.2.4 Importance of maintaining clear, accurate documentation
- 4.2.5 Regulatory requirements for log books (location)

4.3 – Incident Reporting

[1.0/0.5]

Define the relevant information and specifics concerning:

- 4.3.1 Incident Reporting
- 4.3.2 Types of incidents and injury severity and responsibility of the owner/mechanic
- 4.3.3 How to report an Incident to TSSA
- 4.3.4 Reporting requirements and time frame Director's Order 531/09
- 4.3.5 Ontario Regulation 221/01, section 13
- 4.3.6 Ontario Regulation 221/01, section 17



4.3.7 Occupational Health and Safety Act – Critical Injury

4.4 Maintenance

[0.25/0]

Define the relevant information and specifics concerning:

4.4.1 Storage of devices

4.4.2 Device cleaning

4.4.3 Repair

4.5 Repair

[0.25/0]

Define the relevant information and specifics concerning:

4.5.1 Device repairs by the owner/operator

4.5.2 Patching

4.5.3 Repairs completed and verified by ADM-I certificate holder before operation

4.6 – Record Keeping

[0.5/0.5]

Define the relevant information and specifics concerning:

4.6.1 Legalities relating to clear concise record keeping

4.6.2 Clear and concise records of Incidents

4.6.3 Clear concise records of training for operators and attendants

4.6.4 The required information to be contained in the Log Book mandated by the authority having jurisdiction

4.7 Reference Material

4.7.1 Ontario Regulation 221/01

4.7.2 Director's Order 531/09

4.7.3 TSSA Incident Reporting Form

4.7.4 Occupational Health and Safety Act



Module 5: Operation, Testing, Inspections and Set-Up
Duration: 7.5 Total Hours
 Theory: 4.0 Hours Application: 3.5 Hours

General Learning Outcome:

Upon successful completion of this reportable subject, the Mechanic-In-Training is able to operate, test, inspect and set-up Inflatable Devices in accordance with government safety regulations, specifications and approved industry standards.

5.1 – Operators and Attendants

[1.0/0.5]

Define the relevant information and specifics concerning:

- 5.1.1 Training of Operators and Attendants
 - 5.1.1.1 Operators responsibilities
 - 5.1.1.2 Attendants responsibilities
 - 5.1.1.3 Specialized training for unique devices (i.e. inflatable waterslides, etc.)
- 5.1.2 Technical Dossier and operator/attendant/patron ratios
- 5.1.3 Height/Weight/Age, etc. restrictions
- 5.1.4 Device Capacity
- 5.1.5 Other information found in the technical dossier
- 5.1.6 Unsafe behavior
- 5.1.7 Controlling patrons and device line ups
 - 5.1.7.1 Enforcement of Operating Procedures
- 5.1.8 Emergency Procedures
 - 5.1.8.1 Device Deflation

5.2 – Site Selection

[0.25/0.25]

Define the relevant information and specifics concerning:

- 5.2.1 Site inspections
- 5.2.2 Device erection considerations including but not limited to clearances, obstructions, vehicular traffic, ground conditions and staking requirements

5.3 – Device Inflation

[1.0/0.25]

Define the relevant information and specifics concerning:



- 5.3.1 Indoor vs. outdoor use
 - 5.3.1.1 Environmental considerations such as effects of sun/wind/water etc.
- 5.3.2 Inflation tubes and zippers
- 5.3.3 Blower selection, safety and set up
 - 5.3.3.1 Power sources
 - 5.3.3.2 Independent power sources (industry best practice; when required)
 - 5.3.3.3 Ground Fault Interrupter
 - 5.3.3.4 Potential hazards

5.4 – Staking and Anchoring

[0.5/1.0]

Define the relevant information and specifics concerning:

- 5.4.1 Staking per the Technical Dossier
- 5.4.2 Different types of staking and anchoring methods
- 5.4.3 Tethers
- 5.4.4 Hazards of staking and anchoring
 - 5.4.4.1 Obtaining proper utility locates when staking and anchoring, utilization of Ontario One Call
 - 5.4.4.2 Protection of patrons
- 5.4.5 Ballasts and weights: acceptable types and use
- 5.4.6 Prohibited Staking and Anchoring methods

5.5 – Signage

[0.25/0]

Define the relevant information and specifics concerning:

- 5.5.1 TSSA Amusement Device Permits
- 5.5.2 TSSA Amusement Device Metal Tags
- 5.5.3 Mandatory signage
- 5.5.4 Clear and concise rules
- 5.5.5 Height/Weight/Age, etc. restrictions
- 5.5.6 Device Capacity
- 5.5.7 Other information found in the Technical Dossier

5.6 – Pre-Operational Inspection

[0.25/0.5]

Define the relevant information and specifics concerning:

- 5.6.1 Inspecting device fabric for wear and other factors



- 5.6.2 Inspecting attachments
- 5.6.3 Inspecting ride firmness
- 5.6.4 Inspecting for areas where public safety may be compromised
- 5.6.5 Weather Conditions
 - 5.6.5.1 Restrictions with respect to weather
 - 5.6.5.2 Where to find: technical dossier and OEM manual
 - 5.6.5.3 How to measure wind speed and use the Beaufort Scale
 - 5.6.5.4 When to deflate device/cease use

5.7 – Operating Procedures

[0.25/0]

Define the relevant information and specifics concerning:

- 5.7.1 Device operating procedures
- 5.7.2 Ensuring attendants and operators are trained and familiar with devices
- 5.7.3 Ensure weight, height, capacity and other restrictions are posted
- 5.7.4 Emergency procedures
- 5.7.5 Other information found in the Technical Dossier

5.8 – Operational Monitoring

[0.25/0.25]

Define the relevant information and specifics concerning:

- 5.8.1 Operator/Attendant Best Practices
- 5.8.2 Ongoing monitoring
- 5.8.3 Periodic inspections of device such as stakes/anchors/padding/generators etc.
- 5.8.4 Weather Conditions: monitoring of wind speed/pending weather, when to shut down
 - 5.8.4.1 Ensuring devices are operated in accordance to the Technical Dossier
 - 5.8.4.2 Wind Speeds are adhered to as specified in the Technical Dossier

5.9 – Dismantling

[0.25/0.75]

Define the relevant information and specifics concerning:

- 5.9.1 Safety considerations prior to deflation
- 5.9.2 Removal of stakes and anchors
- 5.9.3 Storage of Devices
- 5.9.4 Final Site Inspection
 - 5.9.4.1 Repairing damage to grounds



5.10 – Reference Material

5.10.1 Ontario Regulation 221/01

5.10.2 Ontario Regulation 187/03

5.10.3 Beaufort Scale

5.10.4 Technical Dossiers



Module 6: Knowledge Verification

Duration: 50 Questions

Theory: N/A Application: N/A

6.1 – Knowledge Verification Measures

- 6.1.1 The Training Provider shall develop a method of knowledge verification, with a minimum of 50 questions including but not limited to true/false, multiple choice, etc.
- 6.1.2 Training Providers shall exclusively retain the right to issue or refuse issuance of a certificate of completion if a student does not meet the Training Provider policies and procedures for course completion.
- 6.1.3 Training providers shall identify a minimum of 70% as a passing grade, however are eligible to increase the percentage based on company policies and procedures.