



# Airside Vehicle Operating Permit (AVOP) Student Study Manual

## DA Permit

- Inuvik
- Fort Simpson
- Fort Smith
- Hay River
- Norman Wells
- Yellowknife

## 1. Introduction

The airside of an airport is a specialized working environment governed by rules designed to prevent accidents and minimize the risk of injury and property damage to all within it.

This manual is a reference source to combine the applicable regulations, rules, standard practices and procedures related to safe airside vehicle operation, specifically the Airside Vehicle Operating Permit (AVOP) program. Experience has shown this program to be most important in achieving or maintaining a safe airside working environment.

Persons using this manual are reminded that it has no legislative sanction. For purposes of interpreting and applying the law, the Acts and Regulations must be consulted.

The requirements contained in this manual apply at all Government of the Northwest Territories (GNWT) owned and operated Airports. The requirements are based on Acts, Regulations, Standards and Procedures for the safe and orderly operation of vehicles on Airport Movement Areas.

Airports rely on Mutual Aid to provide the primary response for aircraft rescue and firefighting. In the case of uncontrolled Airports, it is common for local off-Airport fire, rescue, and police departments to provide the primary response to emergency situations on the Airport. During emergency events the aerodrome may be closed, to allow unrestricted Airside access to responding agencies that do not possess an AVOP.

**This manual pertains specifically to a “DA” Airside Vehicle Operating Permit (AVOP) that would allow the permit holder to operate a vehicle on airport aprons, uncontrolled taxiways and service roads only.** The DA AVOP permit may be issued locally at the discretion of the Regional Airport Manager, a qualified Airport Maintenance Contractor or other personnel designated by the Regional Airport Manager.

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## Definitions

**Aerodrome** - Any area of land, water (including the frozen surface thereof), or other supporting surface used or designated, prepared, equipped, or set apart for use either in whole or in part for the arrival and departure, movement, or servicing of aircraft, and including any buildings, installations, and equipment in connection therewith.

**Aerodrome Beacon** - Rotating or flashing white (strobe) light mounted on a tower or structure. It provides pilots with a visual reference of an aerodrome during periods of reduced visibility or darkness. It is used to indicate the location of an aerodrome from the air.

**Aircraft** - Any machine capable of deriving support in the atmosphere from the reactions of the air.

**Aircraft Stand** - An area on an Airport Apron designated for the parking of aircraft for the purpose of loading and unloading passengers and cargo, and the provision of ground services.

**Airport** - An aerodrome for which under Part III of Canadian Aviation Regulations, an airport certificate has been issued by the Minister of Transport Canada.

**Airport Operator** - The holder of an airport certificate, or the person in charge of such airport, whether an employee, agent or representative. The GNWT is the Airport Operator for all public airports in the Northwest Territories.

**Airport Maintenance Contractor** - An organization that has entered into a contract with the GNWT to locally maintain an Airport.

**Airside** - That area of an Airport intended to be used for activities related to aircraft operations and to which access is normally controlled.

**Airside Vehicle Operating Permit (AVOP)** - A permit issued by the Airport Operator certifying that the person named therein is authorized to operate a vehicle on the Airside of an Airport.

**Air Terminal Building** - A building located adjacent to an airport apron, for the purpose of enplaning and deplaning passengers and for persons meeting and greeting those passengers. Passenger baggage is also processed through these structures.

**Air Traffic Services Unit (ATSU)** - An Air Traffic Control tower (ATC), a Flight Service Station (FSS), or a Community Aerodrome Radio Station (CARS), owned by and operated by or for NAV CANADA (at an Airport).

**Apron** - That part of an aerodrome, other than the Manoeuvring Area, intended to accommodate the loading and unloading of passengers and cargo, the refuelling, servicing, maintenance, and parking of aircraft, and any movement of aircraft, vehicles, and pedestrians to allow execution of those functions. (The Apron is commonly referred to as the Ramp)

**Apron Traffic** - All aircraft, vehicles, equipment and pedestrians using the Apron of an Airport

**Aircraft Radio Control of Aerodrome Lighting (ARCAL)** - The ARCAL system controls the aerodrome lighting by decoding a series of radio transmissions that are generated by keying the aircraft transmitter microphone a specified number of times within a 5 second period. Once activated, the ARCAL remains on for a minimum of 15 minutes after which period the ARCAL and associated selected lighting are automatically turned off. The 15-minute time period resumes every time an operation or brightness selection is made.

**Community Aerodrome Radio Station (CARS)** - An aerodrome radio station operated by Nav Canada or a designated contractor, to assist local aviation activity through the provision of aviation weather and aviation communication services.

**Cross Walk** - Any portion of a road, apron area, or any other area designated by a sign or surface marking as a pedestrian crossing.

**“DA” AVOP** - An Airside Vehicle Operating Permit authorizing a person to operate a vehicle on aprons, uncontrolled taxiways and service roads only, at the airport named on the permit and may be subject to restrictions as specified by the Airport Operator.

**“D” AVOP** - An Airside Vehicle Operating Permit authorizing a person to operate a vehicle on all airside areas, at the airport named on the permit and may be subjected to restrictions specified by Airport Operator.

**Equipment** - Any motor vehicle or mobile device, either self-propelled or towed or of a specialized nature, used for runway and airfield maintenance or in the maintenance, repair and servicing of aircraft including test equipment and cargo and passenger handling equipment.

**Flight Service Station (FSS)** - A Nav Canada unit that provides services pertinent to the arrival and departure phases of flight at uncontrolled aerodromes and for transit through a mandatory frequency (MF) area

**Foreign Object Debris (FOD)** - A substance, debris or article alien to the vehicle or aircraft which would potentially cause damage. FOD includes loose hardware, tools, parts, pavement fragments, catering supplies, building materials, rocks and sand, pieces of luggage, pens, coins, badges, hats, soda cans, paper clips, rags, trash, paperwork and even wildlife. Anything that can find its way into an aircraft engine or flight control mechanisms is a recipe for foreign object damage.

**Foreign Object Damage** - The damage done to aircraft engines, tires, or the airplane body from rocks, trash, or the actual foreign object debris found on Runways, Taxiways and Aprons.

**Frangible Object** - An object of low mass designed to break, distort or yield on impact so as to present the minimum hazard to aircraft.

**Groundside** - That area of an airport not intended to be used for activities related to aircraft operations and to which the public normally has unrestricted access.

**Insurance** - A contract binding a company to indemnify an insured party against specified loss in return for premiums paid.

**Intersection** - The point where two runways, a runway and a taxiway, or two taxiways cross or meet or where a taxiway and apron meet.

**Local Airport Traffic Directives (LATDs)** - An additional set of airport traffic directives developed to address specific differences at an airport, by establishing safety procedures specific for that airport.

**Manoeuvring Area** - That part of an aerodrome intended to be used for the taking off and landing of aircraft and the movement of aircraft associated with taking off and landing (taxiways and runways), excluding aprons.

**Movement Area** - That part of an aerodrome to be used for the surface movement of aircraft and includes the manoeuvring areas (taxiways and runways) and aprons.

**Operator** - The person responsible for the operation and safety of a vehicle and equipment usually referred to as the driver.

**Regional Airport Manager (RAPM)** - A Department of Infrastructure authorized official representative responsible for the operation and maintenance of an Airport and/or a number of Community Airports within a Region.

**Restricted Area** – An area of an airport designated by a sign as an area to which access by persons or vehicles requires the production of valid identification.

**Restricted Area Identification Card (RAIC)** - A Transport Canada pass that allows access to restricted areas at an Airport

**Taxiway** - That part of an airport used for manoeuvring aircraft and airport equipment between the apron area and runway, normally identified by a letter(s) or a combination of letters followed by a number on black background with yellow characters.

**Uncontrolled Taxiway** - A taxiway that is not controlled by an Air Traffic Services Unit and to which a DA AVOP permit holder normally has access.

**Vehicle** - An automobile, bicycle, over-snow vehicle, truck, bus, or any self-propelled vehicle or device in, on or by which a person or thing is or may be transported, carried, or conveyed on land, and includes a machine designed to derive support in the atmosphere from reactions against the earth's surface of air expelled from the machine, but does not include an aircraft.

**Vehicle Corridor** - A roadway on the apron, marked by two solid white lines 7.5 m (25 ft.) apart, centred by a single white broken line, to provide guidance to vehicle and equipment operators.

**Vehicle Crossing Point** - A location on an apron, indicated by white surface markings, where vehicles are to cross an aircraft taxi-line.

**Warning Devices** - A siren; flashing RED, BLUE, or AMBER lights; or a backup alarm

## 2. Airport Traffic Directives - Airside Operations

### 1.1 Airport Traffic Directives

The Airport Traffic Directives contained in this manual apply at all Airports owned and operated by the Government of the Northwest Territories (GNWT) and are based on Acts, Regulations, Standard Practices and Procedures for the safe and orderly operation of motorized vehicles on airport movement areas. This airside Vehicle Operating Permit (AVOP) Manual meets the intent of the Canadian Aviation Regulation Part III, Subpart 2-Airports, Article 302.10.

### 1.2 Local Airport Traffic Directives

There may be considerable differences in the operating conditions at each airport in the Northwest Territories because of the size and complexity of the operation, climatic conditions, geographical location, and other factors. Local Airport Traffic Directives (LATDs) address these differences by establishing safety procedures specific for that airport, in addition to those stated in this manual. The development of LATD(s) is the responsibility of the Regional Airport Manager and apply at the airport where issued.

If Local Airport Traffic Directives are in effect for an Airport, the Airport Manager should consider including the following information in the LATD:

- How to arrange for an Airside Vehicle Operating Permit test;
- Any specific procedures (designated routing for vehicles, etc.) or restrictions in effect at the Airport;
- Any Air Traffic Services Unit (ATSU) agreements relating to vehicle operations;
- How and when to report an accident;
- How and when to report hazardous materials (FOD) on aircraft movement surfaces;
- The Apron Site Plan, including gate parking areas;
- The Airport Site Plan, including identifying any surfaces that are gravel (on paved airports) and aircraft hardstands (on gravel airports); and
- Radio Frequencies in use at the Airport (for a D AVOP)

### 1.3 DA Airside Vehicle Operating Permit (AVOP) - General

There are two types of Airside Vehicle Operating Permits (AVOP), a DA permit and a D permit. Both are for the performance of assigned duties on the airside of an airport, and may be subject to restrictions that are specified on the permit. The Airport Traffic Directive's objective is to ensure the safe operation of authorized vehicles on the airside of an airport. A **DA AVOP** allows the holder the privilege, based on need, to operate a motorized vehicle on the **apron areas, uncontrolled taxiways and service roads** of an Airport, and may be issued locally at the discretion of the Regional Airport Manager or the Airport Maintenance Contractor.

1.3.1 To acquire a **DA AVOP**, the Employer and/or Applicant is required to:

- Complete an AVOP application "justifying a need" that a **DA AVOP** is required;
- The Regional Airport Manager or Airport Maintenance Contractor must approve the application;
- Applicant must provide a valid Territorial or Provincial Driver's licence;
- The Applicant must study this manual, the Local Airport Traffic Directives (LATD) study guide, if applicable, and pass both a written exam(s) and a practical driving test; and

The Regional Airport Manager and designated Airport Maintenance Contractor are required to reiterate DA AVOP applicants not to drive past the double amber lights, prior to issuing DA AVOP permits.

- The Employer or Applicant must provide proof of valid automobile liability insurance endorsed to cover airside operations for the vehicle(s) to be operated on the airside of an airport.

#### 1.4 DA Airside Vehicle Operating Permit (AVOP) Conditions

1.4.1 No person shall operate a vehicle on the airside area of an Airport unless the following conditions are met:

- The vehicle operator holds a valid Territorial or Provincial Driver's Licence, with the appropriate class, to operate the intended vehicle;
- The employer or individual attests to the fact the person is qualified to operate specific vehicle/equipment airside;
- The vehicle(s) is properly equipped and insured for operating airside;
- The vehicle operator is in possession of a valid **DA** AVOP for the specific airport;
- The vehicle operator agrees, by signing his/her permit, to comply with the Airport Vehicle Operator Permit (AVOP) Manual and Local Airport Traffic Directives (LATDs) requirements (if applicable);
- The vehicle operator accessing airside is under escort by a person who holds a valid AVOP permit for the specific airport; or
- The vehicle operator accessing airside has obtained authorization from the Regional Airport Manager under specific instructions for the specific airport.

#### 1.5 DA AVOP Issuing Authority

1.5.1 Regional Airport Managers and designated Airport Maintenance Contractors have the authority to issue a **DA** AVOP for Airports under their control based on the applicant's "need", passing a written knowledge exam(s) and passing an airside practical driving test. The Regional Airport Managers also have the authority to suspend or cancel permission to operate a vehicle on the airside of an airport, owned or operated by the GNWT for violations to the terms and conditions of AVOP program as specified in Section 9 of this manual.

1.5.2 Regional Airport Managers may also provide a local Airport Maintenance Contractor with the authority to issue a **DA** AVOP for an airport they are responsible for; based on the Airport Maintenance Contractor's completion of an AVOP "train the trainer course" and an understanding of the AVOP program requirements and procedures.

1.5.3 An application for a **DA** AVOP must be made to the Regional Airport Manager or designated Airport Maintenance Contractor by the applicant in writing, and must include the address of the applicant and full justification for the need to have a **DA** AVOP. The Airport Maintenance Contractor will also notify the Regional Airport Manager once the AVOP is issued.

1.5.4 Other information pertinent to the issuance of a **DA** AVOP not addressed in this manual may also be identified in the Local Airport Traffic Directives in force at the airport where the application is made. To avoid delays, an AVOP applicant should check with the Regional Airport Manager or the Airport Maintenance Contractor's office to verify if other requirements such as insurance, security clearances, other certificates or licences, may need to be submitted at the time of the application for an AVOP.

## 1.6 Insurance Requirements

- 1.6.1 All vehicles operating Airside, except those under escort, shall provide proof that they have automobile liability insurance endorsed to cover airside operations before being allowed Airside. This specialised insurance is mandatory and standard vehicular insurance does not cover any claims that arise out of a vehicle/aircraft accident. Authority for Airside access will only be granted by the Regional Airport Manager or the designated Airport Maintenance Contractor upon the presentation of a Certificate of Insurance issued by either the Insurance Company or their Authorised Representative (Broker).
- 1.6.2 In order to operate a motorized vehicle or motorised equipment Airside, the vehicle or equipment owner must provide proof they have at least \$2,000,000.00 of liability insurance coverage.
- 1.6.3 The owner of motorized vehicles and equipment shall provide a list of motorized vehicles and equipment that are covered by the Insurance Certificate to the Regional Airport Manager or the designated Airport Maintenance Contractor.
- 1.6.4 Proof of Insurance shall be provided annually by the vehicle or motorised equipment owner when the new Policy is issued.

## 1.7 Medical Requirements

- 1.7.1 **General Health, Hearing, and Vision** The general health, hearing, and vision requirements to hold an AVOP are the same as for a Territorial or Provincial Driver's Licence. Loss of a Provincial/Territorial Driver's licence for any medical reason shall render the AVOP cancelled. The AVOP holder shall notify the Regional Airport Manager or designated Airport Maintenance Contractor immediately.
- 1.7.2 **Medication** AVOP Holders shall not operate a motorized vehicle airside while taking any medication that impairs concentration or performance.

## 1.8 AVOP Permit Holder Responsibilities

- 1.8.1 AVOP holders are responsible for:
  - Disclosing any medical condition to the permit holder's employer, which may affect their ability to drive safely on airside;
  - Carrying a valid Territorial or Provincial Driver's licence when operating a vehicle on the Airside of an airport; and
  - Ensuring that their **DA** AVOP is valid

## 1.9 Vehicle/Equipment Escorts Apron

A Company whose employee has a valid driver's licence, an AVOP permit, a properly equipped airside vehicle with airside automobile liability insurance endorsed to cover airside operations can provide vehicle escort service on the apron of an airport. However it must be fully understood the Company is responsible and liable for the escorted vehicle should it be involved in an accident or incident.

### 1.9.1 Rules for Airside Vehicle Escorts:

- The person providing the escort must have a valid AVOP for that airport;
- The company or person providing the vehicle escort must have valid automobile liability insurance endorsed to cover airside operations and the vehicle must be properly equipped (as specified in section 4 of this manual);
- The person providing the escort must remain with vehicle/equipment under escort at all times;
- The person providing the escort is responsible for briefing the escorted vehicle/equipment operator on airside operational procedures;
- The person providing the escort must not lead or direct escorted vehicle/equipment into any unauthorized area; and
- As soon as the escorted vehicle/equipment completes its assigned airside task, it must be escorted off airside.

**NOTE: Security Regulations can supersede escort rules. The Regional Airport Manager also has the right to restrict escort rules at any time.**

## 1.10 AVOP Permit Expiry, Renewal, Change of Employer, Transfer, Multiple Airports Permit

1.10.1 **Expiry** - Subject to being revoked or suspended, an Airside Vehicle Operating Permit (AVOP) issued under this AVOP Manual is valid for a period of up to five years. If the permit is required for a shorter period of time due to a temporary need, the period of validity shall be for a lesser period and specified on the AVOP. Upon the expiry of an Airside Vehicle Operating Permit or termination of employment, the employer or permit holder shall immediately return the AVOP to the Regional Airport Manager or designated Airport Maintenance Contractor.

1.10.2 **Renewal** - An AVOP permit holder must renew their permit prior to expiry. Permits may be renewed up to 3 months prior to expiry. Failure to renew your AVOP permit prior to expiry shall result in having to re-write the AVOP permit tests. If a permit is not renewed prior to expiry it will be deemed to have lapsed and the initial application process will be required to be undertaken, including all testing. A valid Territorial or Provincial Driver's Licence along with proof of automobile liability insurance endorsed to cover airside operations must be provided at the time of renewal. An AVOP application must also accompany a request for renewal. The Employer or Individual will reconfirm the applicant's employment and reconfirm the "need" to operate a vehicle airside.

1.10.3 **Change of Employer** - AVOP permits are filed by Employer and are not valid if the permit holder becomes employed by a new Employer. If there is a change in Employer, the permit holder is to return the original permit to the former Employer, the Regional Airport Manager or the designated Airport Maintenance Contractor and submit a new application, signed by the new Employer, confirming the person is employed by that company and that they have a "need" to operate a vehicle airside.

The Regional Airport Manager or the designated Airport Maintenance Contractor will determine if there is a need to retest an applicant who is changing Employers. If the employment change is immediate, the issuance of a new permit without testing may be authorized. If a break occurs in the employment change that exceeds 6 months, the previous permit will be deemed to have lapsed and the initial application process will be required to be undertaken, including all testing.

Applicants, who are employed by multiple Employers and are required to operate a vehicle on the airside of an airport by more than one of the Employers, will have to provide an application from each Employer. They shall either at the discretion of the Regional Airport Manager or delegate hold 2 AVOP permits or be endorsed for an additional Employer on one permit. The permit application and supporting documentation will be filed in each Employer's file held by the Airport Operator. Automobile liability insurance endorsed to cover airside operations will be required for each Employer for company vehicles being operated Airside.

- 1.10.4 **Transfer** – If an AVOP holder is relocating from one NWT community to another and is being employed by the same Employer, the AVOP permit holder can make arrangements with the Regional Airport Manager or the designated Airport Maintenance Contractor to have their permit transferred to a different airport. This would include submitting an application for approval and undertaking any additional testing requirements, if the airport has LATDs or has a surface that is gravel versus pavement. The applicant would then be endorsed on the reverse of the permit for an additional airport.
- 1.10.5 **AVOP Permit for Multiple Airports** – If an AVOP permit holder is required to perform duties at multiple airports, the AVOP permit holder can make arrangements with the Regional Airport Manager to have their permit endorsed for additional airports or receive a Regional AVOP permit. This would include submitting an application for approval and undertaking any additional testing requirements, i.e. if the airport has LATDs or has a surface that is gravel versus pavement.

## 2 Airside Safety

### 2.1 General

- 2.1.1 At GNWT Airports, the only persons allowed airside are those that have an established “need”, such as airport staff, air carrier employees, aircraft owners, aircraft servicing personnel, persons authorized by Regional Airport Manager or the Airport Maintenance Contractor and ticketed passengers when escorted by airline personnel to and from an aircraft to groundside or the air terminal building.
- 2.1.2 No pedestrian on an apron shall impede, interfere with or obstruct in any way the free movement of apron traffic.
- 2.1.3 It is the responsibility of all personnel working airside to report all accidents, such as slip and falls, injuries, damages etc. and any unsafe condition observed, to the Regional Airport Manager/ Airport Maintenance Contractor or the Air, Marine & Safety Division Duty Manager.
- 2.1.4 **Smoking is not allowed anywhere on the airside of an airport, including inside a vehicle.**
- 2.1.5 No person shall operate a vehicle on Airside in a reckless or dangerous manner that proposes a threat to aircraft, vehicle traffic, or Airside personnel and passengers.
- 2.1.6 No person shall operate a vehicle on the Airside of an Airport while under the influence of drugs or alcohol, or if they have been prohibited from operating a vehicle imposed by a court or judge. Operating a vehicle under the influence is an offence under the Criminal Code of Canada and the Northwest Territories' Highway Traffic Act.

### 2.2 Foreign Object Debris (FOD)

- 2.2.1 Foreign material such as ice, mud, clay, gravel, organic matter, or any debris dropped Airside can seriously damage aircraft engines and shall not be knowingly brought airside. Vehicle operators must ensure that the surfaces of Movement Areas are kept free of foreign matter by checking the wheels, tires, and mud flaps before they enter Airside.
- 2.2.2 Chlorides, salts, or other materials corrosive to aircraft shall not be allowed to be tracked anywhere airside. Vehicle operators shall ensure their vehicle does not track on to Airside surfaces any chemical that is not authorised for use Airside by the Airport Operator. The Regional Airport Manager or Airport Maintenance Contractor can answer any questions in this regard.
- 2.2.3 All potentially hazardous material (i.e. plastic bags, construction material, baggage tags, garbage, etc.) shall be picked-up, disposed of in FOD containers placed on the airport aprons and reported immediately to their supervisor and the Regional Airport Manager or the Airport Maintenance Contractor. If the hazardous material is seen on airside manoeuvring areas where the permit holder is restricted from accessing, a **DA** AVOP permit holder shall immediately notify the Air Traffic Services Unit (ATS), Community Aerodrome Radio Station (CARS), the Regional Airport Manager, the Airport Maintenance Contractor or the Airport Maintainer of the location of the debris and request that they arrange for the immediate removal of the foreign material.
- 2.2.4 Occasionally FOD which is more serious in nature may be found on Movement Areas. This includes tools, fuel caps, aircraft components, freight, etc. FOD of this nature must be turned in to the Regional Airport Manager, the Airport Maintenance Contractor, the Airport Maintainer or the local ATC/FSS/CARS, for recording into the site FOD logbook and holding for return to its owner.

## 2.3 Personal Entertainment/Communications Devices

2.3.1 Personal entertainment devices (MP3 players, iPods etc.) are not permitted to be operational (switched on) on Airside Movement areas.

2.3.2 The use of cell phones on the airside is strictly for work related purposes and employees are to follow the NWT Distracted Driving Law. Personnel are prohibited from using cellphones where a spark may cause a concern.

**NOTE: The use of a cellphone is not a substitution for a radio unless there is a radio failure.**

2.3.3 At no time are devices with headsets/earphones allowed to be used when operating a motor vehicle airside

2.3.4 If a motor vehicle operator is required to communicate with the ATC, the FSS or the CARS on an airport radio frequency, headphones can be used as a component of the airport radio system installed in the motor vehicle.

## 2.4 Situational Awareness

2.4.1 Vehicle operators must recognize the importance of situational awareness in relation with time, place and activity when operating a motor vehicle on the Airside as it may have an effect on their ability to operate safely. Factors that may hamper a vehicle operator's situational awareness include:

- Being intently focused on any one thing to the exclusion of everything else;
- Vague or incomplete instructions that transmit ineffective communications;
- Personal conflicts, either at home or at work, involving the vehicle operator which may cause or involve fatigue and stress;
- Running behind schedule;
- Being task overloaded; and
- Degraded operating conditions, such as equipment malfunctions, rain, fog, or snow

## 2.5 High Visibility Outerwear

2.5.1 Part of remaining safe Airside is to be visible, especially in darkness or low light situations. As such, **ALL** personnel working on airside are required to wear reflective outerwear when outside their vehicle on Airside. The outerwear shall meet or exceed **Class 2 CSA Z96-09 Standards**.

2.5.2 In cases where wearing safety vests would specifically interfere with the performance of duties, only the following personnel are exempt from the requirement of wearing high visibility outerwear:

- RCMP Officers (uniformed);
- Fire and Ambulance;
- Canada Border Services Agency;
- Citizenship and Immigration Canada; and
- Canadian Forces personnel (uniformed).

## 2.6 Priority of Airside Traffic

2.6.1 **Aircraft have the right-of-way airside, unless there is an emergency vehicle displaying flashing red light or flashing red and flashing yellow lights.** All motor vehicle and equipment operators shall yield the right-of-way to all aircraft. Before entering an Airport Movement Area, the vehicle operator shall always visually check and ensure that aircraft are not approaching or departing.

2.6.2 In order of priority, vehicle drivers will yield to:

- An emergency vehicle responding to an emergency displaying flashing red light or flashing red and flashing yellow lights;
- An aircraft taxiing, about to taxi or being pushed or towed; and

Other vehicles in accordance with local air directives.

## 3 Responsibilities and Duties

### 3.1 Employer or Vehicle Owner

3.1.1 The Employer or vehicle owner must ensure the vehicle being operated airside is;

- Properly insured and equipped for the area they operate on airside,
- Maintained in safe operating condition, and
- Their employees are qualified and licenced to operate the vehicle or equipment while performing their duties airside

### 3.2 Vehicle Operator

3.2.1 The vehicle/equipment operator is responsible for determining the vehicle or equipment they are operating airside is in safe condition, and the required safety equipment, as specified in section 4 of this manual, is accessible and in good operational condition.

3.2.2 It is the responsibility of all vehicle operators to immediately notify their supervisor, employer or vehicle/equipment owner of any equipment malfunction or disrepair.

### 3.3 DA AVOP Permit Holder

3.3.1 It is the responsibility of all **DA AVOP** permit holders to report to the Regional Airport Manager or designated Airport Maintenance Contractor if any unauthorized person(s), including ticketed passengers are walking airside unescorted.

3.3.2 It is the responsibility of every **DA AVOP** permit holder to carry a valid Territorial or Provincial Driver's licence when operating a motor vehicle airside.

**NOTE: Regional Airport Managers are to maintain a running list of all AVOP holders within their Region.**

3.3.3 While operating a motor vehicle on the airside of an Airport, a **DA AVOP** permit holder must comply with all airside operational procedures in this manual and the Local Traffic Directives Manual, if applicable, and be an authorized **DA AVOP** holder.

3.3.4 If a **DA AVOP** permit holder encounters any obstruction or potentially hazardous condition or accidents on airside, the permit holder must immediately report the nature and location of the hazard to the Regional Airport Manager, the designated Airport Maintenance Contactor or the Air, Marine & Safety Division Duty Manager for remedial action.

## 4 Safety Equipment

### 4.1 Self-Propelled Equipment

- 4.1.1 All self-propelled vehicles shall be equipped with operating headlamps, tail lamps, parking lamps, rotating or flashing warning beacon(s), and if licensed for road use, turning signals and a license plate lamp.
- 4.1.2 Vehicles/equipment operating on airside shall be equipped with a functional amber/yellow warning beacon except emergency service vehicles. Emergency service vehicles shall be equipped with red warning lights.
- 4.1.3 Vehicle warning beacons shall have a flash frequency of between 60 and 90 flashes per minute. The effective intensity of the flash shall be not less than 40 candela (cd) of red or yellow (amber) light.

**NOTE: SAE J845 Class 1 or SAE J845 Class 2 warning beacons meet the required airport standards.**

- 4.1.4 Warning beacons must be visible 360°, from the air. On vehicles with a cab, where the cab is higher than the cargo or box area, the warning beacon shall be mounted on top of the cab. On vehicles where the cargo or box area is higher than the cab, the warning beacon shall be mounted on the cargo or box area.
- 4.1.5 Vehicles without a cab (i.e. baggage or cargo tractors) must be equipped with a warning beacon mounted on a mount suitably high enough that it is not obstructed by any personnel operating or riding on the vehicle.
- 4.1.6 Warning beacons are not permitted to be mounted in the interior of any vehicle.
- 4.1.7 Police, Emergency Services, and other vehicles equipped with safety marking prescribed for their normal operation are approved for operation on Airport Manoeuvring Areas.
- 4.1.8 Drivers and passengers must wear seat belts while vehicles and equipment are in motion Airside, provided that seat belts were installed for use by the original manufacturer.

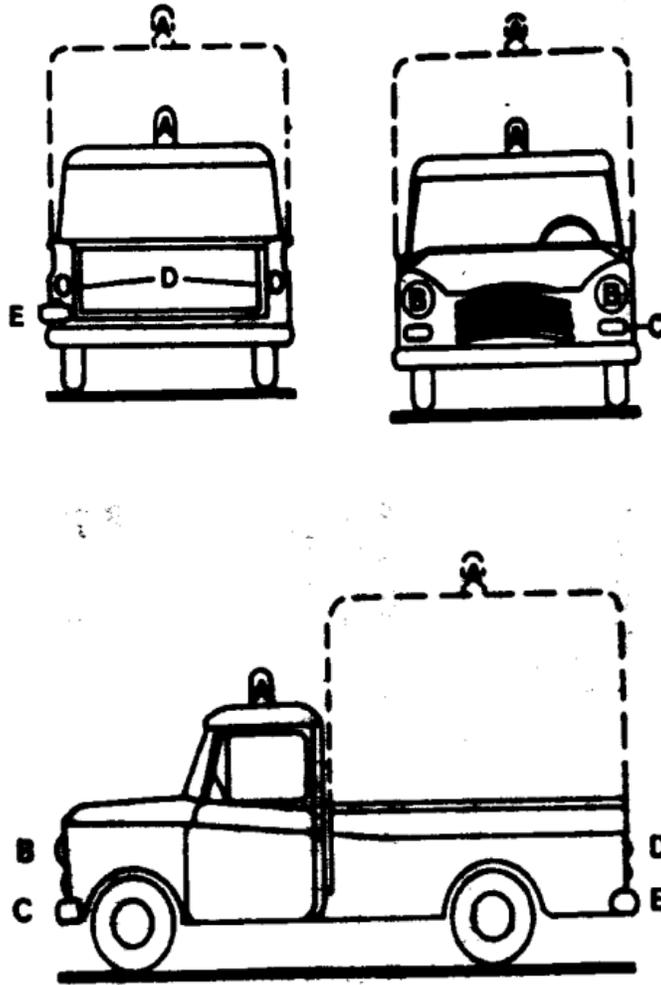
### 4.2 Towed Equipment

- 4.2.1 All towed equipment is required to have permanently affixed retro-reflective material as follows:
  - One 4 cm (1.5 in) strip of yellow retro-reflective strip along the full length of the equipment body (above the wheels); and
  - Two 4 cm x 10 cm (1.5 in x 4 in) diagonal strips of yellow and black retro-reflective panels on the front and rear lower corners to show the overall dimensions of the equipment.
- 4.2.2 The presence of equipment on Airport Aprons can be a significant hazard to taxiing aircraft and service vehicles. For this reason, it is important that the retro-reflective material on all equipment be affixed, clean, and in good condition at all times.

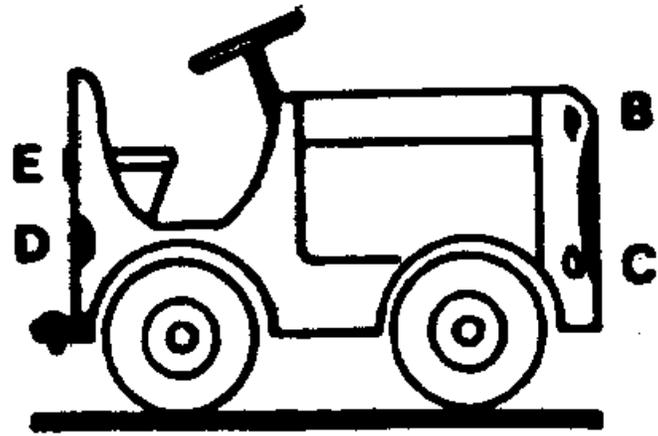
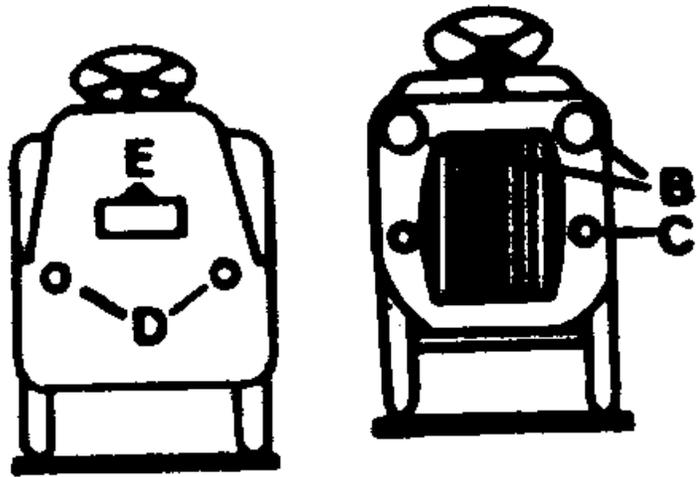
### 4.3 Safety Marking Requirements

- A - Warning Beacon
- B - Head Lamps
- C - Parking/Signal Lamps
- D - Tail/Signal Lamps
- E - License Plate Lamp
- F - Retro-Reflective Strip
- G - Retro-Reflective Panel

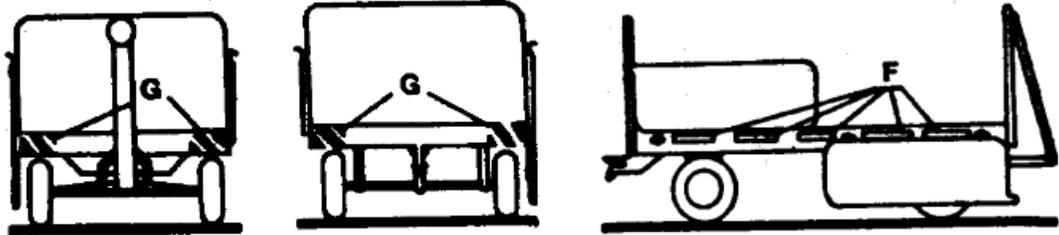
Self-Propelled Vehicles with Cab



Self-Propelled Vehicles without Cabs



Towed Equipment/Vehicles



## 5 Airside Security

### 5.1 General

- 5.1.1 All gates must be kept closed and locked to prevent unauthorized personnel or vehicles from accessing Airside areas.
- 5.1.2 **Any person that has established a need, including all AVOP permit holders, entering or exiting Airside must remain at the gate until after the gates have been manually or electrically closed.**
- 5.1.3 Manually operated gates shall be locked with a suitable lock and/or chain supplied by the airport operator. Electrically operated gates are considered locked when closed as the gate operating mechanism prevents the gate from moving when not energised.



## 6 Vehicle Operating Procedures

### 6.1 General

- 6.1.1 Vehicles, AVOP holders and pedestrians are permitted on the airport movement area only with authorization from the Regional Airport Manager or designated Airport Maintenance Contractor.
- 6.1.2 No person shall operate a vehicle Airside unless the vehicle displays a Territorial or Provincial registration plate, or other means of identification authorized by the Airport Operator, and the vehicle owner has provided a Certificate of automobile liability insurance endorsed to cover airside operations for the vehicle and a valid AVOP of the appropriate class.
- 6.1.3 No person shall park an aircraft fuel servicing vehicle within 15 m of the airport terminal building, cargo building, aircraft hangar or any other airport structure designed to house the public that has windows or doors in any exposed walls.
- 6.1.4 No person shall park a vehicle/equipment so as to block fuel servicing vehicle from exiting without reversing.
- 6.1.5 No person shall operate a vehicle within 15 m of an aircraft being fuelled or defueled except for the purpose of servicing that aircraft.
- 6.1.6 Vehicle operators and vehicles, unless authorised by the Regional Airport Manager or Airport Maintenance Contractor, shall remain clear of the scene of an Airport accident, incident, and aircraft knowingly carrying distinguished visitors unless authorized by the Regional Airport Manager.
- 6.1.7 No person shall park a vehicle in any area designated as no parking by a sign.
- 6.1.8 Vehicle operators shall yield the right-of-way to an aircraft that is approaching the apron and is close enough to constitute an immediate hazard, and shall refrain from proceeding until the operator can do so safely.
- 6.1.9 **DA** AVOP holders operating on the Apron areas of an Airport must never go past the **TWO AMBER** lights that indicate the Taxiway and Apron intersection, unless it has been designated an "Uncontrolled Taxiway".
- 6.1.10 Vehicles and equipment shall not be driven over aircraft power cables or service hoses.
- 6.1.11 Vehicles must never overtake a taxiing aircraft.
- 6.1.12 Vehicle/equipment operators shall reduce speed and maintain a careful lookout when near aircraft and corners of buildings or other installations.
- 6.1.13 Vehicle operators shall remain a safe distance from areas affected by jet blast or prop wash from manoeuvring aircraft. Vehicle Operators shall not pass in front of or closely behind an aircraft with engines running unless the wheels of the aircraft are chocked or the marshaller waves permission.
- 6.1.14 No vehicle operator will tow an aircraft on an active movement area during hours of darkness unless the aircraft displays operating wingtip, tail and anti-collision lights or is illuminated by lights mounted on the towing vehicle and directed at the aircraft being towed.
- 6.1.15 At no time will vehicle operators on the Apron drive between an aircraft and the Air Terminal Building when passengers are enplaning or deplaning.

6.1.16 Winter weather conditions may result in periods when visibility is poor. Vehicle operators must be aware of weather conditions such as heavy snow, blowing snow, fog, ice fog, ice pellets, etc. which may obscure lights, visual references, pavement markings, airport signage and make movement area surfaces slippery. Ensure extra caution is taken when operating on Airside movement areas in these conditions. Slow down at access gates entrances to avoid sliding into them when surfaces become ice covered.

## 6.2 Vehicle Corridors

6.2.1 Vehicle operators shall drive within vehicle corridors, where in force, when operating on the Apron.

6.2.2 Vehicle corridors are not guaranteed safe routes. Taxiing aircraft and snow removal equipment may at times encroach upon vehicle corridors.

6.2.3 If a vehicle corridor or vehicle lane is obscured for any reason, such as faded paint or snow cover, vehicle operators should conform to the designated roadway as closely as possible, and exercise caution.

6.2.4 On paved Aprons where vehicle corridors are not in place or on gravel Aprons, vehicle operators must be aware of aircraft, equipment, pedestrians, and all other vehicles and then only proceed when it is clearly safe to do so.

6.2.5 Vehicle operators shall enter and exit vehicle corridors at right angles (90°) and signal their intent using the vehicle's turn signal lights. If the vehicle is not equipped with turn signal lights, the operator shall signal directional intent with approved hand signals.

6.2.6 Passing other vehicles within the vehicle corridor is permitted under the following conditions:

- The vehicle being passed is travelling at a speed of 15 km/h or slower;
- Only one vehicle at a time is permitted to pass (multiple vehicle passing is prohibited);
- The section of vehicle corridor immediately in front of the vehicle being passed is clear;
- The applicable speed limit is not exceeded during the pass; and
- The passing driver exercises caution as the vehicle being passed may turn unexpectedly.

6.2.7 Authorized vehicles may operate outside the vehicle corridors in the performance of their duties. These vehicles include but are not limited to:

- Slow-moving equipment operating immediately to the right of the vehicle corridor to allow for regular traffic flow;
- Snow removal equipment and Airport maintenance vehicles; and
- Emergency response vehicles.

- 6.2.8 Taxiing or parked aircraft may at times encroach on vehicle corridors. If this is the case, you must avoid such aircraft.
- 6.2.9 Vehicles travelling in a connecting vehicle corridor that crosses an aircraft stand or aircraft stand taxi lane have right-of-way over vehicles that are established in the main corridor. The aircraft stand and the aircraft stand taxi lane must be kept clear for the movement of aircraft.
- 6.2.10 Vehicles in the main corridor must stop before the point where the main and connecting corridors intersect. When in doubt, yield to drivers in the connecting corridor.
- 6.2.11 Vehicles approaching a main vehicle corridor from a terminal must yield right-of-way to vehicles already established in the main vehicle corridor.
- 6.2.12 No vehicle operator entering or on an Apron shall approach or cross an aircraft movement guideline except:
  - At a right angle to the aircraft movement guideline; or
  - Where a designated vehicle crossing point exists, at that crossing point.

### **6.3 Operation of Vehicle/Equipment Lighting Airside**

- 6.3.1 Whenever a self-propelled vehicle is moving from one place to another on the airport apron, the warning beacon, headlamps and tail lamps must be in operation. The purpose of this procedure is to indicate to aircraft and other vehicles/equipment that the vehicle is being operated in the active movement area.
- 6.3.2 Headlamps and parking lamps must be operated and left on when the vehicle is engaged in servicing a parked aircraft.
- 6.3.3 Beacons should not be left flashing when a vehicle is stationary within an aircraft stand or the perimeter of a parked aircraft being serviced. Generally use of flashing beacons can be potentially distracting to taxiing aircraft and downgrades their value as a warning indicator that the vehicle is in motion.

### **6.4 Vehicle Parking Airside**

- 6.4.1 Aircraft servicing vehicles and equipment, when not in use, shall be parked on the Apron in a designated Apron Parking Area assigned by the Regional Airport Manager or the designated Airport Maintenance Contractor, which is properly marked and provides separation from aircraft using the Apron. This is for temporary parking only, while waiting for the aircraft.
- 6.4.2 Vehicles must always be backed into the designated airside vehicle parking areas when not in immediate use, with warning beacon and vehicle lights off.
- 6.4.3 Equipment and vehicles shall not be parked or left unattended on vehicular routes or aircraft Movement Areas without authorization from the Regional Airport Manager. No person shall leave a motorized vehicle or equipment on the Apron over night without the specific authorization from the Regional Airport Manager or designated Airport Maintenance Contractor.
- 6.4.4 The following actions shall be taken by the vehicle operator in the event a vehicle breaks down on the Apron or an uncontrolled taxiway:
  - The Regional Airport Manager or Airport Maintenance Contractor and ATC/FSS/CARS shall be notified;

- The Vehicle Operator shall make arrangements for the immediate removal of the vehicle from the Movement Area; and
- Advise ATC/FSS/CARS and Regional Airport Manager or Airport Maintenance Contractor when the vehicle is off airside.

6.4.5 Vehicle repairs shall not be carried out on any Movement Areas, except for emergency repairs required to remove the vehicle from the Movement Area. All maintenance activities shall take place on the owners leased property.

## 6.5 Speed Limits Airside

6.5.1 No person on an Apron shall drive vehicles or equipment in excess of 25 km/h. Check Local Airport Traffic Directives (LATDs) for changes. Operators shall reduce speed and maintain a careful lookout when near aircraft, corners of buildings or other installations.

6.5.2 No person shall drive a vehicle or equipment in excess of 50 km/h on Airside Service Roads, where no speed limit is posted.

6.5.3 No person shall drive a vehicle or equipment in excess of 25 km/h while operating in a marked or unmarked Vehicle Corridor.

6.5.4 When a vehicle operator is moving from one aircraft stand to another, speed shall be reduced to 15 km/h.

6.5.5 When a vehicle operator is operating within 6 m of an aircraft, speed shall be reduced to 10 km/h.

**Note:** Unless engaged in servicing the aircraft all vehicles shall remain a minimum of 15 m away from the aircraft.

## 7 Airside Lighting, Signage and Markings

### 7.1 General

On an Airport both vehicle and aircraft movement on the ground, are guided by airfield lighting, signs, pavement and gravel markings on airside, which are different from those used on roads and highways.

This section describes airfield lighting, signs, pavement and gravel markings most commonly used at NWT Airports, which an airside vehicle operator is required to know. In addition, other traffic control devices may be used at some Airports and will be described as required, in the Local Airport Traffic Directives (LATDs).

### 7.2 Airside Lighting

Every vehicle operator must know the meaning of airfield lights to avoid entering areas where they are not permitted to be, and as a guide to vehicle movement when within the Movement Areas of the Airport. Different coloured edge lights are used to delineate the edges and boundaries of various aircraft movement surfaces.

Note: Airside lighting can be activated by Pilots from their aircraft (if ARCAL lighting is in effect) or it can be turned on manually by ATC/FSS/CARS.

### 7.3 Airside Lighting Specific to a DA AVOP

**Blue** lights are used to mark the edges of aprons and taxiways.

**Double Blue** lights are used to mark the intersection of two or more taxiways.



**Double Amber** (yellow) lights are used to mark an apron/taxiway intersection.



**NOTE:** DA AVOP holders must not drive past double amber lights, from an apron onto a taxiway; unless the taxiway is “uncontrolled” meaning it does not require advisory/permission from an Air Traffic Services Unit (ATSU) to proceed onto the taxiway.

**Aerodrome Beacon** is a rotating or flashing white light mounted on a tower or a building and provides pilots with a visual identification of an airport during periods of reduced visibility or darkness.



## 7.4 Airside Signage

7.4.1 Signs used on the Manoeuvring Areas are designed and intended for the use and guidance of aircraft. They are also of value to vehicle operators to identify areas they should not enter or as guides to vehicle operation while in the Manoeuvring Area. These signs are normally mounted on the left, on the right, or on both sides of a Runway or Taxiway according to requirements.

7.4.2 **Mandatory Signage** is signage that shall be obeyed. They have white letter/numbers on a red background and similar to highway signage, this means STOP. They are located 15 m to 20 m from the edge of the manoeuvring surface. Mandatory signage includes the following:

- Runway Designator signs;
- Category I, Category II, Category III or Category II/III Holding position signs; and
- No Entry signs.

**NOTE: At no time should a DA AVOP permit holder encounter Mandatory Signage. If you do you must turn around and proceed back to the Airport Apron.**



For airports within area of compass unreliability, the **runway designation sign** will include a letter “T” after the runway designator numbers, to indicate the “true north” heading of the runway rather than the “magnetic north” heading of the runway.



7.4.3 **Information Signs** include direction, location and destination signs.

- a. **Directional signs (black on yellow)** shall have a letter or a letter number combination message, identifying the route plus an arrow or arrows appropriately oriented.



Three directional signs combined with one location sign

- b. **Destination signs (black on yellow)** shall have a letter, a letter number combination or a number message, identifying the destination plus an arrow indicating the direction to proceed. They include information to inbound and outbound aircraft.

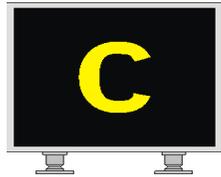


Destination Sign for Common Taxiing Route to Two Runways



Inbound Destination Sign

- c. **Location signs (yellow on black)** shall include the designation of the location; most commonly a **taxiway** or other movement area the aircraft or vehicle is on or is entering and shall contain a letter or letter number combination. It shall **not** contain arrows.



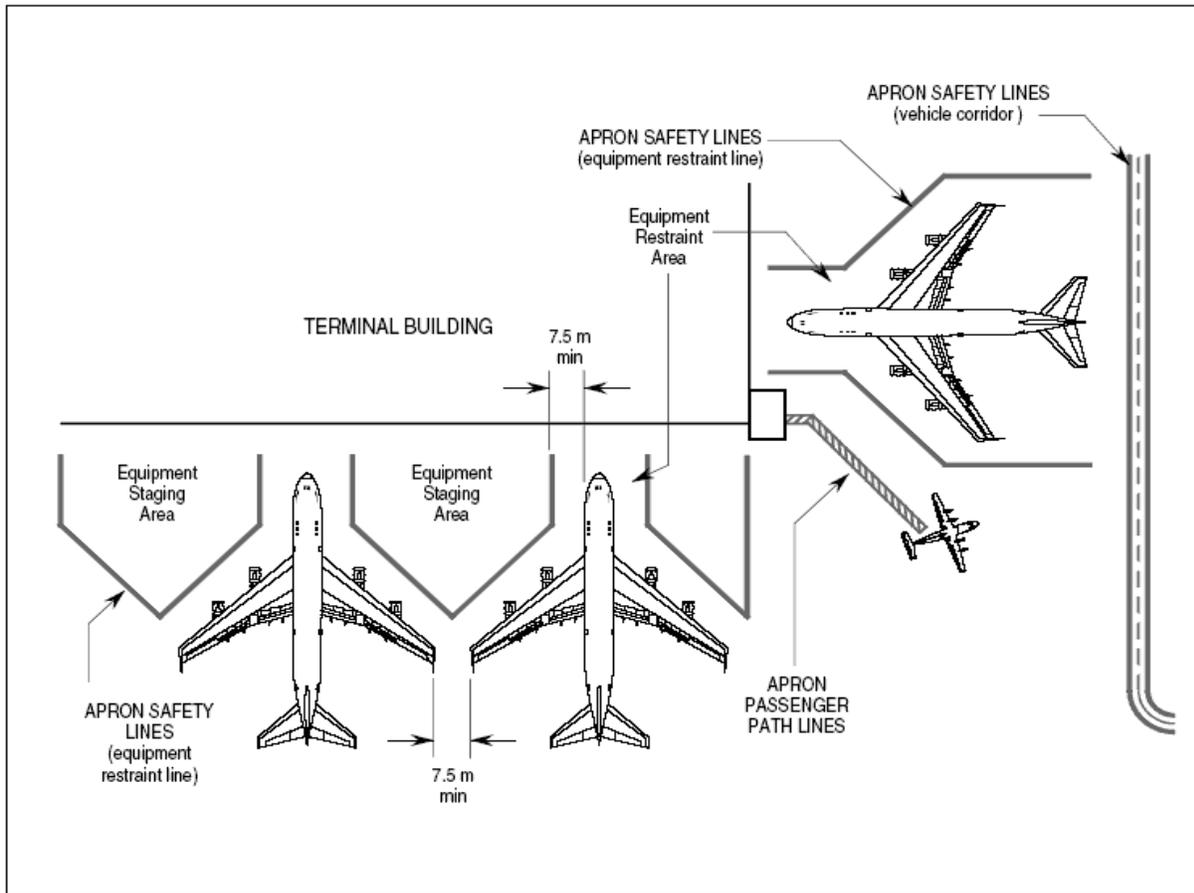
- d. **Airside Service Roads Signs** are signs used on Aprons and Airside Service Roads and are generally the same signs as those used on Territorial roads. All Vehicle Operators on Airside Service Roads are required to comply with these signs.

## 7.5 Pavement Markings

Airfield pavement markings provide information and guidance for both aircraft and vehicles when operating on airside movement areas. On Aprons and uncontrolled taxiways, Yellow markings commonly guide aircraft and White markings provide guidance for vehicles.

- 7.5.1 **Aircraft Movement Guidelines** are provided to ensure aircraft travel on airport movement areas is done safely. The nose wheel of the aircraft is centered on the line to ensure that the main wheels of the aircraft are on movement surface and that the wings will not contact known obstructions (buildings, light standards, etc.). Vehicles operating on airport aprons may only cross aircraft movement guidelines at right angles. Aircraft Movement Guide Lines are yellow in colour.
- 7.5.2 **Taxiway Centreline Marking** is a continuous line providing guidance to an aircraft from the runway, along a taxiway, to a point on the apron where aircraft stand markings being. Taxiway Centre Line marking is yellow in colour.
- 7.5.3 **Aircraft Lead-In, Turning and Lead-Out Lines** are a continuous line between a Taxiway Centre Line and an aircraft stand or parking position. No Lead-Out line will be shown if the aircraft are pushed back out of the aircraft stand or parking position by a service tug. The aircraft nose wheel is centred on these lines to guide the aircraft into and out of the parking position without hitting other parked aircraft or obstructions. These markings are yellow in colour.
- 7.5.4 **Aircraft Stand Markings** may be provided for designated aircraft parking positions on an apron. Aircraft stand markings may include stand identification, lead-in line, turn bar, turning line, alignment bar, stop line and lead-out line as required for apron aircraft parking operations. Aircraft Stand markings are yellow in colour.
- 7.5.5 **Apron Safety Lines** may be provided on a paved apron as required by parking configurations and ground facilities. The apron safety lines are located to define areas intended for use by ground vehicles and other aircraft servicing equipment to provide safe separation from aircraft. Apron safety lines may also include wing tip clearance lines and service road boundary lines. Apron Safety Lines are white in colour.
- 7.5.6 **Apron Passenger Path Lines** may be provided where passengers are required to walk on an apron between the aircraft stand and the air terminal building. Apron passenger path lines consist of two parallel lines with diagonal hatching between them, giving a zebra stripe appearance. No vehicle shall overtake or pass another vehicle at or within 30 m of an Apron passenger path Line. Apron Passenger Path Lines are white in colour.
- 7.5.7 **Vehicle Corridor Markings** may be provided on a paved Apron. At airports with designated Vehicle Corridors, all vehicles shall operate within these Vehicle Corridors when moving about the Apron. Vehicle Operators shall use the Vehicle Corridor when transiting more than one gate. Authorized vehicles may operate outside the Vehicle Corridors in the performance of their duties. Vehicle corridor markings are solid lines spaced 7.5 m apart, with a broken line in between, to provide guidance to vehicle and equipment operators. Vehicle corridor markings are white in colour
- 7.5.8 **Helicopter Arrival/Departure Markings** may be provided on paved surfaces. Vehicle operators must remain outside the perimeter markings of helicopter arrival/departure and parking areas except when servicing these aircraft. Some airports have designated helicopter landing pads. This is depicted with an H inside of a square. Be especially careful when you drive near helipads and look up for landing helicopters. Like all aircraft, vehicle operators must yield the right-of-way to a helicopter.

## 7.6 Apron Pavement Markings – Examples



Examples of Apron Safety Lines and Passenger Path Lines



**Taxiway Centre Line Marking** - Some airports will outline the yellow lines with black lines in order to increase the contrast between faded pavement and the yellow lines. When the pilot centers the aircraft nose wheel on the line, it helps to ensure the aircraft wheels will remain on the paved surface and the aircraft wing tips will not come in contact with an obstruction.

## 8 DA AVOP Test

The written AVOP test is based on 20 multiple choice questions taken from information contained in this manual. Questions that relate to the Local Airport Traffic Directives are contained in another airport document that should be attached to the student study manual and forms part of your AVOP theory exam.

### DA AVOP exams (gravel and pavement)

- Exams are 20 multiple choice questions.
- There may be an addition exam with 10 questions on Local Airport Traffic Directives at airports where applicable.
- There is a practical driving test.
- Require 80% (corrected to 100%) to pass
- Retest requires at least 24 hours before applicant can re-write or complete practical test.
- Applicant will have three attempts to pass DA AVOP exams.

### 8.1 Forms and Records

All records are confidential and subject to the Privacy Act and Access to Information Act controls. All requests for access to personal information must be directed to Policy, Planning and Communication. All records are retained in accordance with information contained in the Operational Records Classification Schedule (ORCS).

#### AVOP Application

The Application is filed at the applicable Regional Airport Manager's or designated Maintenance Contractor's office and a copy provided to the Applicant or their Employer.

#### Test Results

The test results are kept on file at the applicable Regional Airport Manager's office, or elsewhere as designated by the Regional Airport Manager.

## 9 DA AVOP Enforcement System

### 9.1 Enforcement System – General

Safety will be the first responsibility of all airside drivers at GNWT owned and operated airports. At no time do operational considerations such as time pressures, allow drivers to disobey this AVOP Manual. Any action that compromises safety or is not compliant with the AVOP requirements will result in an infraction report and will be treated as an offense under the Enforcement System. Penalties applied under the Enforcement System range from a verbal warning to a lifetime suspension of AVOP privileges.

### 9.2 Infraction Reports

AVOP permit holders who do not comply with the AVOP Manual will be issued infraction reports. The Regional Airport Manager and designated Airport Maintenance Contractor have the authority to enforce the AVOP Manual and to issue the infraction reports. The RCMP also has authority to enforce the regulations under the Criminal Code. If an infraction report has been issued, the Regional Airport Manager or the Airport Maintenance Contractor shall send a letter outlining the violation to the AVOP holder's Employer. The GNWT, Air, Marine & Safety Division, Manager Air Safety & Security, will be copied on all infraction reports.

### 9.3 Corrective Actions

If an AVOP permit holder receives an infraction report or is observed to be non-compliant with the AVOP Manual, the Airport Operator (GNWT) reserves the right to:

- Test drivers at any time, with cause;
- Suspend the AVOP privileges for the violation of any requirement described in this manual; or
- Require an AVOP permit holder to complete additional training and re-testing.

### 9.4 Infractions and Violation Types

Depending upon the severity of the Infraction or Violation, Vehicle Operators can face penalties that range from a Verbal Warning to a LIFETIME suspension of AVOP privileges as show below.

- **Minor** (verbal warning and up to a 7 day suspension of AVOP privileges);
- **Major** (retraining and retesting, and up to a 14 day suspension of AVOP privileges);
- **Gross** (retraining and retesting, and up to a 30 day suspension of AVOP privileges);
- **Critical** (up to a 1 year suspension of AVOP privileges)

**NOTE:** Multiple Infractions or Violations arising from the same incident will result in multiple penalties that are cumulative in scope. AVOP offences are outlined in the tables below.

**NOTE:** Multiple critical infractions may result in the vehicle operator receiving a lifetime ban from operating a vehicle on airside.

### 9.5 Minor Violations

Failure to comply with Local Airport Traffic Directives (LATDs).

Driving on airside without valid AVOP & Driver's Licence in the Operators possession.

Failing to report an accident or unsafe condition (if aware) (e.g. FOD, etc.).

Failure to wear CSA Class 2 outerwear when outside of vehicle or aircraft on airside.

Failure to wear seat belt.

Failure to obey directional and guidance signs, pavement markings and barriers.

Failure to meet vehicle safety equipment and marker requirements.

Failure to use a designated vehicle corridor.

Failure to enter/exit vehicle corridor at 90° angle.  
Failure to yield to vehicular traffic.  
Driving behind an aircraft.  
Driving outside the vehicle corridor while aircraft is on push back.  
Driving 1-9 km/h above the speed limit.  
Improper use of terminal service roads.  
Unsafe movement of vehicle.  
Parking motorized vehicle or equipment in a non-designated area.  
Improper passing.  
Knowingly depositing, creating, or failing to retrieve FOD.  
Use of personal entertainment device with headset or ear phones (1st Offence).  
Improper use of a cell phone (1st Offence).  
Driving without an operational beacon (1st Offence).  
Failing to ensure gate is closed upon entry or exit to the airside (1st Offence).  
Driving between aircraft and terminal when passengers are loading or unloading (1<sup>st</sup> Offence).

## 9.6 Major Violations

Leaving equipment on the Apron with no lights or markings.  
Driving between an aircraft and a Marshaller.  
Failure to yield right-of-way to aircraft or marshalling crew.  
Unauthorized parking that impacts aircraft movements.  
Failure to comply with instructions from the Airport Operator (GNWT).  
Interfering with an emergency in progress.  
Failure to yield right-of-way to responding emergency vehicles.  
Failure to yield right-of-way to airport maintenance vehicles.  
Failure to maintain proper escort (vehicle or aircraft).  
Driving 10-20 km/h above the speed limit.  
Failure to secure vehicle (leaving the keys in the vehicle).  
Causing damage from the improper parking of a vehicle and/or equipment.  
Failure to adjust vehicle operation to surface conditions.  
Unsafe operation of vehicle (Driving without due care and attention).  
Failure to wear CSA Class 2 outerwear when outside of vehicle on airside (2<sup>nd</sup> Offence).  
Use of personal entertainment device with headset or ear phones (2<sup>nd</sup> Offence).  
Improper use of a cell phone (2<sup>nd</sup> Offence).  
Driving without an operational beacon (2<sup>nd</sup> Offence).  
Failing to ensure the gate is closed upon entry or exit to the airside (2<sup>nd</sup> Offence).

## 9.7 Gross Violations

Runway incursion.

Failing to give right-of-way to pedestrian.

Driving between aircraft and terminal when passengers are loading or unloading.

Driving on the Movement Area without an appropriate AVOP.

Driving with a suspended or expired Territorial or Provincial Driver's Licence.

Unauthorized parking in a fire lane.

Smoking Airside.

Driving over 20 km/h above the speed limit.

Use of personal entertainment device with headset or ear phones (3<sup>rd</sup> Offence).

Improper use of a cell phone (3<sup>rd</sup> Offence).

Failing to ensure the gate is closed upon entry or exit to the airside (3<sup>rd</sup> Offence).

Driving without an operational beacon (3<sup>rd</sup> Offence).

Proceeding on to the airside with a vehicle, or equipment, that is contaminated with a non-approved anti-icing or deicing chemical.

## 9.8 Critical Violations

Causing an accident that either injures or kills an individual or damages an aircraft.

Dangerous driving (Driving in a manner dangerous to others.).

Driving Airside while impaired by either drugs (illegal or other) or alcohol.

Refusing to submit to a Police breathalyser.

Use of personal entertainment device with headset or ear phones (4<sup>th</sup> Offence).

Improper use of a cell phone (4<sup>th</sup> Offence).

**NOTE: AVOP Infractions and Violations are not applied to a Territorial or Provincial Driver's Licence; Offences under the Criminal Code of Canada are.**

## 9.9 Surrendering an AVOP

AVOP Holders operating vehicles Airside shall surrender their AVOP card to a representative of the Airport Operator (GNWT) as requested. Failure to comply with this requirement is a major AVOP infraction for "failure to comply with instructions from the Airport Operator" and may result in withdrawal of AVOP privileges. The representative of the Airport Operator shall return the surrendered AVOP to the Regional Airport Manager. Depending on the circumstances of surrender, the AVOP Holder may be subject to sanctions under the Criminal Code depending on the specific infraction(s).

## 9.10 Driver's Licence Suspensions

If an AVOP holder's Territorial or Provincial Driver's Licence is suspended or becomes subject to other limitations or conditions or use, the prohibition from operating a motor vehicle applies at ALL GNWT Airports and is not subject to appeal.

## 9.11 Driving Airside without a Valid AVOP

- 9.11.1 Driving Airside without an AVOP is a violation of Section 301.08 or of Section 302.10 of the ***Canadian Aviation Regulations*** and may be prosecuted accordingly.
- 9.11.2 If authorised, driving Airside under Escort without an AVOP is not a violation of Section 301.08 of the ***Canadian Aviation Regulations***.
- 9.11.3 Any Vehicle Operator found operating a vehicle Airside with an expired, suspended, or revoked AVOP may face the following consequences:
- - Escorted removal of the vehicle from Airside;
  - Employer notification; and
  - Possible prosecution under Section 301.08 or of Section 302.10 of the ***Canadian Aviation Regulations***.
- 9.11.4 Furthermore, the driver is required to contact the Regional Airport Manager in order to schedule an appointment, or telephone interview if at a different Airport, in order to review the incident and to determine:
- If prosecution under Section 301.08 or of Section 302.10 of the ***Canadian Aviation Regulations*** is warranted;
  - What AVOP retraining and retesting (both written and practical tests) is required;
  - If suspension of AVOP permit privileges is warranted; or
  - If withdrawal of AVOP permit privileges is warranted.

## 10 Appeal Process

### 10.1 Appeal Process - General

10.1.1 AVOP permit holders may appeal:

- A Notice of Infraction;
- An AVOP suspension or loss of permit privileges; and
- An AVOP withdrawal.

Initial appeals are made to the Regional Airport Manager responsible for the Airport where the infraction took place. The decisions of the Regional Airport Manager may be appealed to the Safety Management System (SMS) Manager, Department of Infrastructure. Arguments citing operational necessity will not be considered on appeal. The decision of the SMS Manager shall be final and conclusive.

### 10.2 Appeal Stages

Appeal Stage	Appeal Level	Appeal Process
Stage 1	Regional Airport Manager	<p><b>Notice of Infraction</b></p> <ul style="list-style-type: none"> <li>• A written appeal must be submitted to the Regional Airport Manager within seven (7) business days of receiving the Notice.</li> <li>• The written submission must include all the details of the AVOP permit holder’s case, with justification as to why the appeal should be considered.</li> <li>• The Regional Airport Manager shall review the written appeal and all relevant information and may choose to interview the AVOP permit holder.</li> <li>• Within five (5) business days of receiving the appeal, or within such time as is reasonably necessary to complete a full investigation, the Regional Airport Manager shall issue a decision in writing to the AVOP permit holder’s Employer.</li> <li>• Upon receipt of the written decision, the Employer shall notify the Employee (AVOP permit holder).</li> </ul> <p><b>AVOP Suspension or Loss of Permit Privileges</b></p> <ul style="list-style-type: none"> <li>• To appeal an AVOP suspension or loss of permit privileges, the AVOP permit holder shall meet with the Regional Airport Manager. If the infraction took place at an Airport other than the Regional Airport Manager’s Airport, the permit holder has the option to contact the Regional Airport Manager by telephone within 24 to 48 hours of the suspension or withdrawal.</li> <li>• At this meeting, the Regional Airport Manager shall present to the AVOP permit holder all information regarding the nature of the offence and the circumstances of the incident leading to the suspension or withdrawal. The AVOP permit holder shall present their interpretation of events and be provided with an opportunity to challenge the evidence presented.</li> <li>• The representative of the Airport Operator (GNWT) who issued the infraction may be requested to present the circumstances of the violation.</li> <li>• Within five (5) business days of receiving the appeal, or within such time as is reasonably necessary to complete a full investigation, the</li> </ul>

Appeal Stage	Appeal Level	Appeal Process
		<p>Regional Airport Manager shall issue a decision in writing to the AVOP permit holder's Employer describing, as required, the length of the suspension and the reasons for its length.</p> <ul style="list-style-type: none"> <li>• Upon receipt of the written decision, the Employer shall notify the Employee (AVOP permit holder).</li> </ul>
Stage 2	Safety Management System (SMS) Manager	<p><b>All Written Decisions</b></p> <ul style="list-style-type: none"> <li>• An AVOP Holder may, within five (5) business days of the Regional Airport Manager's issuance of a written decision describing a suspension or loss or privileges, appeal that decision in writing to the SMS Manager.</li> <li>• The SMS Manager shall consider the report of the Regional Airport Manager and conduct such other investigations as considered appropriate.</li> <li>• The permit holder is entitled to: <ul style="list-style-type: none"> <li>○ Meet with the SMS Manager to address the AVOP suspension or loss or privileges ;</li> <li>○ Present evidence; and</li> <li>○ Challenge the conclusions of the Regional Airport Manager.</li> </ul> </li> <li>• The SMS Manager may confirm, reject, or vary both the decision and the penalty imposed by the Regional Airport Manager.</li> <li>• The SMS Manager shall issue a written decision to the AVOP permit holder's Employer describing, as required, the results of the Stage 2 Appeal and any changes to the findings of the Stage 1 Appeal within five (5) business days.</li> <li>• Upon receipt of the written decision, the Employer shall notify the Employee (AVOP permit holder).</li> </ul>

## 11 AVOP Self-Test Questions

The correct answer for each question is in section 10. Check your own score and identify those areas of the manual that may need further study.

1. Where can a DA AVOP permit holder operate a motorised vehicle/equipment?
  - A. Runways
  - B. Aprons, uncontrolled taxiways and airside service roads
  - C. Controlled taxiways
  - D. Anywhere on the airside of an airport
  
2. Manoeuvring surfaces at an Airport that are designated by a letter are:
  - A. Aprons
  - B. Runways
  - C. Service Roads
  - D. Taxiways
  
3. Local Airport Traffic Directives apply:
  - A. only at government airports
  - B. only to commercial vehicles
  - C. only at airports where issued
  - D. only to government vehicles
  
4. Who has authority to issue, suspend or cancel permission to operate a vehicle on the airside of an airport, owned or operated by the GNWT?
  - A. The Minister of Transportation
  - B. The Regional Airport Manager
  - C. Transport Canada Minister
  - D. The RCMP
  
5. How much Airside Automobile Liability Insurance coverage is required for vehicle/equipment to operate airside?
  - A. \$500,000.00
  - B. \$1,000,000.00
  - C. \$1,500,000.00
  - D. \$2,000,000.00
  
6. DA AVOP permit holders are responsible for:
  - A. Disclosing any medical condition which may affect their ability to drive airside
  - B. Carrying a valid Territorial or Provincial Driver's Licence when operating a vehicle on the Airside of an airport
  - C. Ensuring their DA AVOP permit is valid
  - D. All of the above

7. To provide a vehicle escort on an airport apron what must a person have?
- A. A valid AVOP, valid Learners Driver's Licence & vehicle equipped with a amber warning beacon
  - B. A valid Driver Licence, an AVOP permit, automobile liability insurance endorsed to cover airside operations and a properly equipped vehicle
  - C. A radio licence, a radio-equipped vehicle operated by an AVOP qualified employee responsible for requesting and acknowledging all ground control instructions
  - D. Automobile liability insurance endorsed to cover airside operations, a valid Driver Licence and no aircraft scheduled to land or take off from the airport for at least thirty minutes
8. Who is responsible and liable for a vehicle being escorted airside?
- A. The Regional Airport Manager
  - B. The person/company providing the escort service
  - C. The Airport Maintenance Contractor
  - D. The RCMP
9. A DA AVOP permit issued under the AVOP Manual is valid for a period of up to:
- A. 6 months
  - B. 2 years
  - C. 5 years
  - D. 6 years
10. Smoking on airside areas is:
- A. Permitted around aircraft
  - B. Permitted on airside, in vehicles with the windows closed
  - C. Prohibited everywhere on airside
  - D. Prohibited in and around aircraft only
11. Vehicle operators must ensure that mud or ice is not deposited on aircraft movement surfaces because:
- A. The material can cause damage to taxiing aircraft and aircraft engines
  - B. Erosion could occur if too much dirt is removed from the runway edge
  - C. The material can cause damage to aircraft landing gear and aircraft engines in the air
  - D. Dirty vehicles are not permitted on the airside of an airport
12. If a vehicle operator notices foreign materials (plastic bags, garbage or solid objects) on the apron, the vehicle operator is required to:
- A. Report the nature and location of the material to the RCMP
  - B. if possible stop, remove the material and report it to their supervisor and Regional Airport Manager or designated Airport Maintenance Contractor
  - C. Report the location of the foreign material to CARS
  - D. Leave foreign material for the wind to blow away as there is no special requirement for vehicle operators
13. Personal entertainment or communication devices such as GPS devices and MP3 players are:
- A. Permitted to be operational on the airside of an airport
  - B. Permitted to be operational on the airside of an airport only when you are on a break
  - C. Permitted to be operational on the airside of an airport only when you are in a vehicle
  - D. Not permitted to be operational on the airside of an airport at any time

- 14.** What are factors that may affect a vehicle operator's situational awareness?
- A. Deteriorating weather conditions
  - B. Personal conflicts that may result in fatigue or stress
  - C. Running behind schedule or task overload
  - D. All of the above
- 15.** CSA Class 2 reflective outerwear must be worn whenever:
- A. You are outside of your vehicle on the Airside of the airport
  - B. You are inside your vehicle
  - C. You are inside the air terminal building
  - D. you are on the Groundside of the airport
- 16.** Who has first priority or right of way over all airside traffic?
- A. Airport maintenance vehicles/equipment
  - B. Emergency vehicles
  - C. Aircraft
  - D. The vehicle approaching from the right
- 17.** Who is responsible for determining the vehicle they are operating airside is in safe operating condition and all lights, warning beacon and safety equipment is operational?
- A. The RCMP
  - B. The Regional Airport Manager
  - C. The owner of the vehicle
  - D. The vehicle operator
- 18.** Whose responsibility is it to report any obstruction or potentially hazardous condition or accidents on airside?
- A. The aircraft passengers
  - B. The base supervisor
  - C. The mechanic
  - D. All AVOP permit holders
- 19.** Who is responsible for getting proper automobile liability insurance endorsed to cover airside operations, ensuring vehicle/equipment is properly equipped for airside operations and maintained in a safe operating condition?
- A. The Employer or the owner of the vehicle
  - B. The vehicle operator
  - C. The RCMP
  - D. The Regional Airport Manager
- 20.** Who is responsible for reporting unauthorized person found on the airside of an airport without an established need to be there?
- A. The airport maintainer
  - B. The air carrier agent
  - C. The Community Aerodrome Radio Station (CARS)
  - D. All AVOP permit holders

21. There are many types of vehicles and equipment used on the airside of an airport. Who is responsible for ensuring that a vehicle operator is qualified and licenced to operate the equipment while performing their duties?
- A. The motor vehicle licensing authority
  - B. The vehicle/equipment operator
  - C. The vehicle operator's employer
  - D. The Regional Airport Manager or RCMP
22. What document must be carried at all times when operating a vehicle on the airside of an airport?
- A. Driver's licence
  - B. AVOP permit
  - C. Security pass
  - D. Restricted Radio Telephone Operators Certificate
23. All vehicles with an enclosed cab operating on the apron, except those under escort, must be equipped with:
- A. Headlights, parking lights, tail lights and a warning beacon on the cab or box area
  - B. A warning beacon and a radio on company frequency
  - C. A warning beacon on the cab and a cell phone
  - D. Flashing hazard lights, headlights and backup lights
24. All towed equipment used on the aprons must be equipped with safety marking. Which of the following accurately describes that marking?
- A. Yellow reflective stripe along the full length, and two black and yellow diagonal strips at the front and rear lower corners
  - B. Headlights, tail lights, a horn and a warning beacon
  - C. Red reflective stripes along the sides with green and blue patches at front and rear lower corners
  - D. Reflective material that can be seen from 300 m at night and a slow moving vehicle sign
25. Who is responsible for ensuring gate(s) to the airside of the airport are closed and locked?
- A. Any person using the gate including passengers
  - B. Airport maintenance staff including AVOP Holders
  - C. Any person that has established a need, including AVOP Holders
  - D. Airline employees, passengers and AVOP Holders
26. How far away must an AVOP vehicle/equipment operator stay from any aircraft being fuelled, unless involved in servicing it?
- A. 7.5 meters
  - B. 10 meters
  - C. 15 meters
  - D. 20 meters

27. Except for the purpose of servicing an aircraft, a vehicle operator shall remain what distance away from an aircraft that is being fuelled or defueled?
- A. 5m
  - B. 15m
  - C. 20m
  - D. There is no minimum
28. When is it permissible for a vehicle to cross directly in front of or behind an aircraft with engines running?
- A. Not at any time
  - B. The red, anti-collision beacon of the aircraft is turned off
  - C. The Marshaller waves permission or the aircraft wheels are blocked (chocked)
  - D. You have waited three minutes and the pilot has not indicated any intention to move the aircraft
29. If there was an aircraft accident at the airport, unauthorized vehicle operators are required to:
- A. Wait for the RCMP, Fire Department and Ambulance to arrive before going to accident site area
  - B. Proceed immediately to the scene and render assistance
  - C. Stay away from the area unless authorized by your employer
  - D. Remain clear of the area unless otherwise authorized by the Regional Airport Manager or the Airport Maintenance Contractor
30. When passengers are enplaning or deplaning an aircraft, can a vehicle drive between aircraft and the air terminal building to service another aircraft?
- A. Only if vehicle/equipment operator is being escorted by aircraft servicing staff and passengers are told to keep out of the way
  - B. At no time will an airside vehicle/equipment operator be allowed to drive between an aircraft and the air terminal building when passenger are enplaning or deplaning
  - C. It is allowed when the marshaller stops passengers and waves to the vehicle operator to proceed
  - D. Vehicle operators can proceed when there is an opening between passengers and the air terminal building
31. When a vehicle operator enters or exits a vehicle corridor, they shall do so under the following conditions:
- A. Enter and exit the corridor at right angles (90°)
  - B. Signal their intent to turn with the vehicle's turn signal lights
  - C. Yield the right of way to vehicles already in the corridor
  - D. All of the above
32. Whenever a self-propelled vehicle is moving from one place to another on the airport apron, airside service roads or uncontrolled taxiways, what lighting must be operational?
- A. Four way flashers and an amber warning beacon
  - B. Headlights, tail lights and an amber warning beacon
  - C. Parking lamps, four way flashers and back-up lamps
  - D. An amber warning beacon only

33. When a vehicle is engaged in servicing a parked aircraft, what lighting must be operational?
- A. Headlights and parking lights
  - B. Four way flashers and headlights
  - C. An amber warning beacon and headlights
  - D. All lighting should be turned off
34. Aircraft servicing vehicles and equipment, when not in immediate use, shall be parked:
- A. Anywhere on the Apron that is not busy
  - B. In a designated airside vehicle parking area assigned by the Regional Airport Manager or the Airport Maintenance Contractor
  - C. Outside the apron edge lighting
  - D. In a vehicle corridor
35. When vehicles are parked in an approved airside parking space, they shall be:
- A. Left with the warning beacon or flashing signal lamps in operation
  - B. Backed into the parking space with warning beacon and lights off
  - C. Driven in front first into parking space with warning beacon and lights off
  - D. Left with the engine running, alongside the building and all lights on
36. As a DA AVOP holder, the vehicle you are operating breaks down in the middle of the apron, what would you do?
- A. Push the vehicle/equipment off to side of apron by the shortest route and get someone to tow disable vehicle/equipment off airside for repairs
  - B. Sound the horn until someone comes to your assistance; tow the disabled vehicle/equipment off apron to groundside for repairs
  - C. Wait until the next aircraft lands and have the passengers help you push the vehicle/equipment off the apron to groundside
  - D. Advise ATC/FSS/CARS and the Regional Airport Manager or Airport Maintenance Contractor; make arrangement for the immediate removal of vehicle from the movement area; and advise Regional Airport Manager or Airport Maintenance Contractor and ATC/FSS/CARS when the vehicle is off airside
37. What is maximum speed limit on the apron?
- A. 50 Km/h
  - B. 30 Km/h
  - C. 25 Km/h
  - D. 15 Km/h
38. What is the maximum speed limit on airside services roads, where no speed limit is posted?
- A. 25 Km/h
  - B. 50 Km/h
  - C. 60 Km/h
  - D. There is no speed limit
39. When a vehicle operator is moving from one aircraft stand to another, speed shall be reduced to:
- A. 10 Km/h
  - B. 25 Km/h
  - C. 15 Km/h
  - D. 50 Km/h

40. When a vehicle operator is operating within 6 m of an aircraft, speed shall be reduced to:
- A. 25 Km/h
  - B. 50 Km/h
  - C. 10 Km/h
  - D. 15 Km/h
41. Lights used to indicate the intersection of a taxiway and aprons are what colour and arrangement?
- A. Single amber (yellow)
  - B. Double amber (yellow)
  - C. Single blue
  - D. Double blue
42. What is the colour of lights used to mark the edges of aprons and taxiways?
- A. White
  - B. Blue
  - C. Amber
  - D. Red
43. What is the purpose of an aerodrome beacon?
- A. It's a white flashing light use to light up the highest building in the vicinity of the airport apron
  - B. Is a white light usually located on building or tower, it can be activated by a pilot or manually by ATC/FSS/CARS; when activated it flashes and is used by pilots to locate the airport
  - C. Is a white light usually located on building or tower, it can be activated by a pilot or manually by ATC/FSS/CARS; when activated it flashes and advises the community of incoming aircraft
  - D. It's a rotating beacon that transmits a radio signal to the pilot with the location of airport
44. What colour is the taxiway location sign?
- A. A red sign with white numbers
  - B. A yellow sign with black letters
  - C. A black sign with yellow letters
  - D. A green sign with white letters
45. The colour of runway designator sign is:
- A. White with red numbers
  - B. Green with black letters
  - C. Yellow with black letters
  - D. Red with white numbers
46. The colour of pavement markings related to aircraft movement guidelines and aircraft stand lines are:
- A. Green, except in grassed areas
  - B. Yellow
  - C. White
  - D. Different for each class and type of aircraft
47. The purpose of an aircraft movement guideline is:
- A. To indicate where aircraft movement is permitted
  - B. To show where aircraft movement is not permitted
  - C. To delineate lanes on a taxiway for vehicle movement
  - D. To ensure aircraft travel on airport movement areas is done safely and to make sure aircraft wings will not come in contact with buildings, light stands etc.
48. Aircraft lead-in lines are provided to:

- A. Lead the aircraft onto the runway when landing
- B. Assistance in the parking of an aircraft at a gate or parking position
- C. Indicate where aircraft are restricted on an apron
- D. Indicate the limits of vehicle corridors

**49. What are apron safety lines?**

- A. Defines an area(s) for the parking of airport maintenance equipment and vehicles
- B. Defines an area(s) for free movement of vehicles performing their duties related to aircraft
- C. Defines an area(s) where vehicle flashing lamps or beacon lamps must always be turned on
- D. Defines an area(s) used by ground vehicle(s) and other aircraft servicing equipment to park and provides for a safe separation from aircraft

**50. What are apron passenger path lines?**

- A. Is a 15cm wide continuous white line that provides guidance from the edge of the apron to the entry door position of the aircraft for which the aircraft stand is normally intended to serve
- B. Are two white parallel lines with diagonal hatching between them giving a zebra stripe appearance and runs from the edge of the apron to the entry door position of the aircraft for which the aircraft stand is normally intended to serve
- C. Is a 1 meter wide continuous white line that provides guidance from the edge of the apron to the entry door position of the aircraft for which the aircraft stand is normally intended to serve
- D. Are two Yellow parallel lines spaced approximately 2 meters apart with diagonal hatching at 45 degree angles between them giving a zebra stripe appearance and runs from the edge of the apron to the entry door position of the aircraft for which the aircraft stand is normally intended to serve

## 12 AVOP Self-Test Answers

- |             |                    |             |             |
|-------------|--------------------|-------------|-------------|
| 1. B (1.3)  | 2. D (Definitions) | 3. C (1.2)  | 4. B (1.5)  |
| 5. D (1.6)  | 6. D (1.8)         | 7. B (1.9)  | 8. B (1.9)  |
| 9. C (1.10) | 10. C (2.1)        | 11. A (2.2) | 12. B (2.2) |
| 13. D (2.3) | 14. D (2.4)        | 15. A (2.5) | 16. B (2.6) |
| 17. D (3.2) | 18. D (3.3)        | 19. A (3.1) | 20. D (3.3) |
| 21. C (3.1) | 22. A (3.3)        | 23. A (4.1) | 24. A (4.2) |
| 25. C (5.1) | 26. C (6.1)        | 27. B (6.1) | 28. C (6.1) |
| 29. D (6.1) | 30. B (6.1)        | 31. D (6.2) | 32. B (6.3) |
| 33. A (6.3) | 34. B (6.4)        | 35. B (6.4) | 36. D (6.4) |
| 37. C (6.5) | 38. B (6.5)        | 39. C (6.5) | 40. C (6.5) |
| 41. B (7.3) | 42. B (7.3)        | 43. B (7.3) | 44. C (7.4) |
| 45. D (7.4) | 46. B (7.5)        | 47. D (7.5) | 48. B (7.5) |
| 49. D (7.5) | 50. B (7.5)        |             |             |