

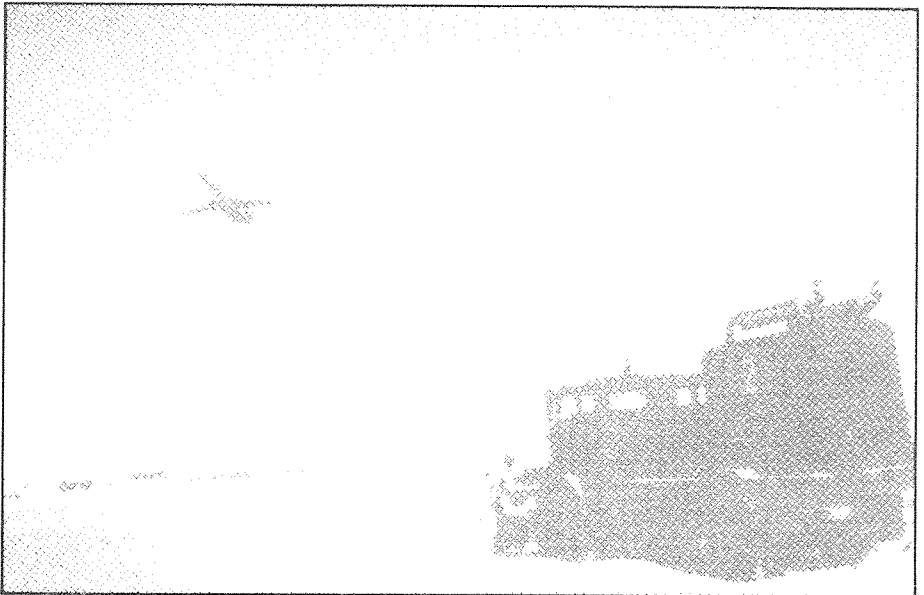


Transport Canada
Airports

Transports Canada
Aéroports

TP 2633

AIRPORT TRAFFIC DIRECTIVES FOR THE OPERATION OF VEHICLES ON AIRPORT MOVEMENT AREAS



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TP 2633

MANUAL OF AIRPORT TRAFFIC
DIRECTIVES FOR THE OPERATION OF
VEHICLES ON AIRPORT MOVEMENT AREAS

Airports Authority Group
Airports Operations
Airports Operational Requirements

OPR: AK/AKP/AKPR

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INTRODUCTION

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

This manual is a reference source to combine the applicable regulations, rules and procedures related to safe vehicle operation that experience has shown to be most important in the 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 listed in section 8.00 should be consulted.

**AIRPORT TRAFFIC DIRECTIVES FOR THE
OPERATION OF VEHICLES ON AIRPORT MOVEMENT AREAS**

1.00 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 (aérodrome).

Aircraft — Any machine capable of deriving support in the atmosphere from the reactions of the air (aéronef).

Airport — An aerodrome in respect of which a Canadian aviation document is in force (aéroport).

Airport Manager — The Department of Transport official or the duly authorized representative in charge of the airport (gestionnaire d'aéroport).

Airport Traffic — All traffic on the manoeuvring area of an airport and all aircraft flying in the vicinity of an airport (circulation d'aéroport).

Airside — That area of an airport intended to be used for activities related to aircraft operations and to which public access is normally restricted (côté piste).

Airside Vehicle Operator's Permit (AVOP) — Means a document issued by the airport manager certifying that the person named therein is authorized to operate vehicles in an airside area (permis valide d'utilisation de véhicules côté piste (AVOP)).

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 (aire de trafic).

Apron Traffic — All aircraft, vehicles, equipment and pedestrians using the apron of an airport (circulation sur l'aire de trafic).

Blind Transmissions — A transmission from one station to another when two-way communication cannot be established and it is believed that the called station can hear transmissions, but is unable to transmit (transmission sans accusé de réception).

Controlled Airport — An airport at which an air traffic control unit is provided (aéroport contrôlé).

Cross-Walk — Any portion of a road, an apron or any other area designated by a sign or surface marking as a pedestrian crossing (passage pour piétons).

Designated Vehicle Corridor — A road delineated by surface markings on an apron (corridors de véhicules).

Designated Vehicle Crossing Point — A location on an apron, delineated by surface markings, where vehicles are to cross an aircraft taxi-line (intersection désignée).

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 (matériel).

Flight Service Specialist — A Transport Canada employee who provides advisory information to aircraft and vehicles using, or about to use, the manoeuvring areas of an airport where control service is not available (spécialiste de l'information de vol).

Flight Service Station (FSS) — A Transport Canada operated facility from which aeronautical information and related aviation support services are provided to aircraft including airport and vehicle advisory services for designated uncontrolled airports (station d'information de vol (FSS)).

Glide Path — That part of an instrument landing system that helps the pilot approach the runway on the correct descent angle to the designated touchdown zone (radiophare d'alignement de descente).

Ground Control — The operating position in the control tower that provides: (a) clearances and instructions for the movement of airport traffic, and (b) information to all traffic within the airport perimeter as it is known and pertinent (contrôle au sol).

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 (côté ville).

Holding Bay — A defined area where aircraft can be held, or bypassed, to facilitate efficient surface movement of aircraft (plate-forme d'attente de circulation).

Hold-Short — Instructions to hold at least 45 m (150 ft.) from the edge of a runway while awaiting permission to cross or proceed onto a runway (restez à l'écart de la piste).

Intersection — The point at which a road, runway or taxiway meets or crosses another road, runway or taxiway (intersection).

Light Signal from Airport Control Tower — A light used by the tower to control airport traffic when there is no radio communication (projecteur directif).

Localizer — That part of the instrument landing system that helps the pilot remain lined up with the runway during his approach (radiophare d'alignement de piste).

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, excluding aprons (aire de manoeuvre).

Movement Area — That part of an aerodrome to be used for the surface movement of aircraft and includes the manoeuvring areas and aprons (aire de mouvement).

Off the Runway — Indicates a vehicle is at least 45 m (150 ft.) to the side of the nearest edge of the runway in use, wherever practical (à l'écart de la piste).

Operational Stand — An area on an airport apron designated for the parking of aircraft for the purpose of loading and unloading passengers, and the provision of ground services (poste de stationnement).

Operator — The person responsible for the operation and safety of the vehicle and equipment; usually referred to as the driver (conducteur).

Positive Vehicle Advisory Service (PVAS) — Instructions issued by Flight Service Specialists at designated uncontrolled airports to (service consultatif contrôlé pour véhicules):

- (1) Regulate vehicles entering, leaving or moving along runways; and
- (2) Coordinate the movement of vehicle traffic on the airport manoeuvring area other than runways.

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 (secteur réglementé).

Taxiway — That part of an aerodrome used for manoeuvring aircraft and airport equipment between the apron area and runway (voie de circulation).

Threshold — The beginning of that portion of the runway usable for landing (seuil).

Uncontrolled Airport — An airport that is "non-controlled" to the extent that the airport does not have an operating air traffic control tower (aéroport non contrôlé).

Restricted Radiotelephone Operator's Certificate — A document issued by the Department of Communications certifying that the holder may act as an operator on any aeronautical-land radio station fitted with radiotelephone equipment only, transmitting on fixed frequencies and not open to public correspondence (certificat restreint de radiotéléphoniste).

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 (véhicule automobile).

Vehicle Advisory Service — Information provided by the flight service station for the safe movement of known vehicles and aircraft on manoeuvring areas at locations where no control tower is in operation (service consultatif pour véhicules).

Vehicle Corridors — Parallel 150-mm (6 in.) wide, solid white lines spaced 7.5 m apart to provide guidance to vehicle and equipment operators (corridors pour véhicules).

Warning Devices — A siren and flashing red light (dispositif d'avertissement).

2.00 AIRPORT TRAFFIC DIRECTIVES FOR THE OPERATION OF VEHICLES ON AIRPORT MOVEMENT AREAS

2.01 National Airport Traffic Directives

The directives contained in sections 1 through 8 of this manual apply at airports operated by the Department of Transport and are based on Acts, Regulations and procedures applied nationally for the safe and orderly operation of vehicles on airport movement areas.

2.02 Local Airport Traffic Directives

There may be considerable difference in the operating conditions at each airport because of the size and complexity of operation, climatic conditions, geographical location and other factors. Local Airport Traffic Directives (Section 10 of this manual), address these differences by establishing the procedures, in addition to those stated in sections 1 to 8, that apply to the operation of a vehicle at a specific airport.

2.03 Airside Vehicle Operator's Permit (AVOP)

No person shall operate a vehicle in the airside area of an airport unless:

- (a) that person is in possession of an airside vehicle operator's permit, or
- (b) that person is escorted or accompanied by a person who is in possession of an airside vehicle operator's permit, or
- (c) that person is authorized by the Airport Manager to operate a vehicle in that area.

An Airside Vehicle Operator's Permit is issued by the Airport Manager on the basis of applicant knowledge of both the national and local airport traffic directives for the airport named on the AVOP and may be based on a test.

Application for an AVOP must be made to the local Airport Manager by the applicant in writing and must include the address of the applicant and reasons for the application.

Other information pertinent to the issuance of an AVOP but not addressed in this manual, may also be required at some airports. This additional information will be identified in the Local Airport Traffic Directives (Section 10) in force at the airports where the application is made. To avoid delays, you should also check with the Airport Manager's office to ensure that all clearances and other certificates or licenses that you may be required to hold are available at the time of application for an Airside Vehicle Operator's Permit.

Note: Subject to being revoked or suspended, an Airside Vehicle Operator's Permit issued under the Airport Traffic Regulations is valid for the period stated on the permit.

The "D" or "DA" indication on a Restricted Area Pass is not an AVOP. It is only an indicator that the bearer of the pass also holds an AVOP, which is a separate document.

On the expiry of an Airside Vehicle Operator's Permit, the permit holder shall forthwith return the permit to the Airport Manager.

3.00 RESPONSIBILITIES AND DUTIES

Each employer must ensure that their employees are qualified to operate vehicles and equipment which they are required to operate in the course of performing their duties on the airside.

Before operating a motor vehicle on the airside of an airport the vehicle operator must become familiar with the regulations and procedures in this manual and obtain authorization from the Airport Manager.

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The vehicle operator must determine that his vehicle is operating satisfactorily and has the required safety equipment and markings (See Section 7.00, Recommended Safety Equipment for Vehicles). All operators shall notify their immediate supervisor of any equipment malfunction.

If you encounter any obstruction or potentially hazardous condition on any aircraft movement surface, report its nature and location to your supervisor in order that corrective action may be taken.

All personnel with Transport Canada airport restricted area passes shall wear these on outer clothing, ensuring they are always visible when in the restricted areas.

A person who is not in possession of a valid identification shall not enter or remain in any area of an airport that is designated by a sign as a restricted area unless authorized to do so by the Airport Manager.

Persons not displaying the passes should be considered unauthorized and should be reported immediately to the Airport Manager or representative. All designated gates must be kept closed and locked to prevent unauthorized personnel or vehicles access to the airside.

4.00 VEHICLE OPERATING PROCEDURES

4.01 General

Aircraft always have the right-of-way. A vehicle operator, therefore, shall yield to any aircraft. Before entering an airport movement area, the vehicle operator shall always visually check and ensure that aircraft are not approaching or departing.

Vehicles and pedestrians are permitted on the airport movement area only with authorization from the Airport Manager.

No person shall operate a vehicle in an airside area unless the vehicle displays a provincial registration plate or a registration plate or other means of identification issued or authorized by the Airport Manager.

No person shall operate a vehicle in an airside area while under a prohibition from operating the vehicle imposed by a court or judge.

No person shall operate a vehicle in an airside area in a manner that, having regard to all the circumstances, including the amount of traffic, is dangerous to aircraft, equipment, persons or vehicles.

Headlights must be turned on whenever a vehicle is operating in the manoeuvring area.

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All vehicles operating on airport movement areas shall have safety equipment and display markings as described in Section 7.00, Recommended Safety Equipment for Vehicles.

Every operator of a vehicle in an airside area shall yield the right-of-way to an emergency vehicle with warning devices operating.

Every operator of a vehicle in an airside area, other than an emergency vehicle with warning devices operating, shall yield the right-of-way to:

- (a) vehicles and equipment engaged in snow removal, pavement ice control activities or other maintenance activities; and
- (b) vehicles towing aircraft.

Every operator of a vehicle involved in an accident in the airside area of an airport shall report the accident forthwith to an enforcement officer or the airport manager.

Smoking is not permitted on apron areas or other prohibited areas. This prohibition applies to persons both inside and outside vehicles and equipment.

No person shall park an aircraft fuel servicing vehicle within 15 m (50 ft.) of any airport terminal building, aircraft cargo building, aircraft hangar or any other airport structure designed to house the public that has windows or doors in any exposed walls.

No person shall park a vehicle in any area designated by a sign as an area in which parking is prohibited.

No person shall, without the permission of the airport manager, park a vehicle in any area of an airport not intended for the use of vehicles.

No person shall park a vehicle in any area of an airport designated by a sign as a loading area.

Wherever possible and practical, vehicles and equipment should be backed into parking areas. This is particularly important around air terminal buildings, loading bridge areas, and other heavy traffic areas.

No person shall:

- (a) throw, deposit or knowingly leave on a road, apron or manoeuvring area at an airport any glass, nails, tacks, scraps of metal, chemical substance or other material that may damage any aircraft or vehicle;
- or
- (b) throw, deposit or knowingly leave any form of trash or garbage at an airport except in a container provided for that purpose.

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Foreign material such as mud and gravel can seriously damage aircraft engines. Vehicle operators, therefore, should ensure that the surfaces of movement areas are kept clean by checking that wheels and tires are clean before they enter these areas. If foreign material is deposited on these surfaces, operators shall notify the airport manager, the field maintenance supervisor, the ground controller, or the flight service specialist and arrange for immediate removal.

Vehicle operators shall remain a safe distance from areas affected by jet blast or propwash of manoeuvring aircraft, and not pass in front of or closely behind aircraft with engines running unless the wheels of the aircraft are chocked or the marshaller waves permission.

All vehicles and equipment operating on airport manoeuvring areas at controlled airports, and airports with a Flight Service Station including those serviced by a Remote Flight Service Station shall have a functioning two-way radio operated by a person with a valid restricted radio-telephone operator's certificate, or be escorted by a vehicle so equipped and manned. Each operator shall ensure that the two-way radio is working before the vehicle enters the airport manoeuvring area. The radio frequencies to be used and times of use are listed in the Local Airport Traffic Directives (Section 10).

Vehicles can seriously interfere with electronic equipment. No vehicle should proceed closer than 150 m (500 ft.) from an Instrument Landing System (ILS) transmitter building except with permission of the Control Tower or Flight Service Station. The location of sensitive air navigation equipment and related zones of restricted vehicle operation are indicated on the airport site plan of the Local Airport Traffic Directives (Section 10).

Vehicle operators shall use service and perimeter roads to reach field locations when these roads are available and time permits.

No person shall operate a vehicle on a road at an airport at a rate of speed that exceeds the speed limit posted for that road or, where no speed limit is posted, 50 km/h (30 mph.).

Operators and vehicles will remain clear of the scene of an accident and aircraft carrying distinguished visitors unless authorized by the airport manager.

4.02 Operation of Vehicles on Aprons and Other Uncontrolled Movement Areas

Every operator of a vehicle on an apron shall acknowledge and obey any instruction received from an apron management unit.

All vehicles and equipment on the apron must be operated by persons authorized by the Airport Manager or be escorted by a vehicle operated by a person so qualified. At airports where this authorization is a valid Airside Vehicle Operator's Permit (AVOP), the operator must carry the permit while on the apron.

An AVOP may limit the holder to operation of a vehicle on the airport apron. This limitation recognizes that the operator will not require access to airside areas other than the apron and that vehicles used in the normal performance of his/her duties will not normally be equipped with safety and radio equipment necessary for safe vehicle operation on airport manoeuvring areas.

All self-propelled vehicles must be equipped with head lamps, tail lamps, parking lamps and, if licensed for off airport use, a license plate lamp. Vehicles with a cab must also be equipped with a rotating or flashing beacon lamp mounted on top of the vehicle. Vehicles without a cab must be capable of operating the parking and tail lamps so that they flash on and off in unison.

Whenever a self-propelled vehicle is moving from one place to another on the airport apron, those lamps equipped with a flasher (beacon lamp only for vehicles with a cab) must be in operation. The purpose of this procedure is to indicate to taxiing aircraft that the vehicle is being operated in the active apron area. These lamps should not, therefore, be left flashing when the vehicles is stationary within the perimeter of a parked aircraft for the purpose of providing service to that aircraft. Improper use of flashing lamps is potentially distracting to taxiing aircraft and down-grades their value as a warning indicator that the vehicles is in motion.

Headlamps and non-flashing tail and parking lamps must be operated during hours of darkness and reduced visibility and may be left on as required while engaged in service to parked aircraft. All vehicle lamps should be turned off when the vehicle is parked in approved parking locations.

All non-self-propelled equipment is required to carry a strip of yellow reflective material along the full length of the equipment and diagonal yellow and black pannels on the front and rear lower corners.

The presence of unlit equipment on airport aprons can be a significant hazard to taxiing aircraft. For this reason, it is important that the reflective material on all equipment should be kept clean and in good condition at all times.

Section 7.00 of this manual illustrates the location and colour of apron vehicle safety marking required at Transport Canada airports.

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The vehicle operator must know the apron layout, including the location of operational stands, vehicle corridors, and aircraft taxi lines.

All vehicle operations shall follow the designated routing as defined by the Airport Manager in the local airport traffic directives (section 10.00 of this manual).

Vehicle operators must understand the pavement marking system.

(a) White lines pertain to vehicle movement and control.

- (i) Vehicle corridors used on busy aprons are marked by two solid white lines 7.5 m (25 ft.) apart, centred by a single broken line.
- (ii) Security lines are solid white lines 150 mm (6 in.) wide, used to denote the parking area for ground service vehicles and equipment.

(b) Yellow lines pertain to aircraft movement and control.

- (i) Aircraft movement guidelines, solid yellow lines 150 mm (6 in.) wide, are continuations of taxiway centrelines that serve as a centre-of-aircraft guideline to aid aircraft traversing the apron. (These lines may not be required on some small aprons.)
- (ii) Aircraft lead-in lines are marked by two 150-mm (6 in.) solid yellow lines spaced 150 mm (6 in.) apart. The spacing and angle vary, depending on the "design aircraft" and local operating procedures.

Note: See section 4.07 for additional information.

At airports with designated vehicle corridors all vehicles (with the exception of vehicles noted below) must operate within these corridors when moving about the apron, e.g., to or from operational stands, between operational stands, across aircraft taxi lanes, etc.

Only these vehicles may operate outside the corridors:

- (a) vehicles such as maintenance, construction and snow removal vehicles, that require access to other areas of the apron when performing their duties; and
- (b) emergency vehicles, with warning devices operating, when responding to an emergency.

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All vehicles and equipment shall yield the right-of-way to airport maintenance equipment and airport emergency service vehicles performing their duties.

No person shall operate a vehicle within 15 m (50 ft.) of an aircraft being fuelled or defuelled except for the purpose of servicing that aircraft or as required when operating within a designated vehicle corridor.

Vehicles already in a designated vehicle corridor have right-of-way over all other vehicles attempting to enter. Where thoroughfares intersect, the vehicle on the right has the right-of-way. You must use the right-hand lane of a designated vehicle corridor and should not pass other moving vehicles.

Vehicle corridors are not "guaranteed safe routes". Taxiing or parked aircraft may at times encroach on vehicle corridors, and you must avoid such aircraft.

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

On aprons where vehicle corridors have not been designated, you should use extra care. Avoid, as much as possible, operating in aircraft taxi lanes and cross aircraft taxi lanes only at right angles.

Areas within operational stands provide free movement for vehicles performing their duties.

Every operator of a vehicle entering or on an apron shall yield the right-of-way to an aircraft that is approaching and is close enough to constitute an immediate hazard and refrain from proceeding until the operator can do so in safety.

No operator of a vehicle entering or on an apron shall approach or cross an aircraft movement guideline except:

- (a) at a right angle to the aircraft movement guideline; or
- (b) where a designated vehicle crossing point exists, at that crossing point.

Unless otherwise authorized by the Airport Manager, no person shall drive vehicles and equipment on an apron at a rate of speed in excess of 25 km/h (15 mph.) Check local airport traffic directives for changes. Operators shall reduce speed and maintain a careful lookout when near aircraft and corners of buildings or other installations.

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Equipment and vehicles shall not be parked or left unattended on vehicular routes or aircraft movement areas without the permission of the Airport Manager. Vehicles must be parked only in approved areas when not in immediate use.

Every person operating a vehicle on an apron shall yield the right-of-way to pedestrians being escorted between an aircraft and the terminal building.

Every operator of a vehicle shall yield the right-of-way to a pedestrian who is within a pedestrian cross-walk.

No operator of a vehicle shall overtake or pass another vehicle at or within 30 m (100 ft.) of a pedestrian cross-walk.

No pedestrian on an apron shall impede, interfere with or obstruct in any way the free movement of apron traffic except in the course of his employment relating to the control of that traffic.

4.03 Manoeuvring Areas – Controlled Airports

Before operating a vehicle on the manoeuvring area the operator must have a valid Airside Vehicle Operator's Permit and a Restricted Radiotelephone Operator's Certificate.

Whenever non-radio-equipped vehicles and equipment are operating in groups or fleets with a radio-equipped vehicle, they shall be under the control of a qualified employee responsible for requesting and acknowledging all ground control instructions. Recommended radio procedures are outlined in Section 5.00, Radiotelephone Procedures.

The control tower directs all traffic on an airport manoeuvring area, unless otherwise stated in the Control Tower/APM agreement and drivers and pedestrians must always obey its instructions. (See Local Airport Traffic Directives in Section 10 of this manual).

Vehicle operators must always report to the ground controller before entering and immediately after leaving the manoeuvring area.

Before proceeding onto manoeuvring areas the vehicle operator shall contact the ground controller for permission to proceed to a specific location by a specified route. The vehicle operator shall acknowledge all instructions from the ground controller as understood, or request that the instructions be repeated if not understood. The operator shall proceed, only along the specified route to the specified location unless he receives alternate instructions.

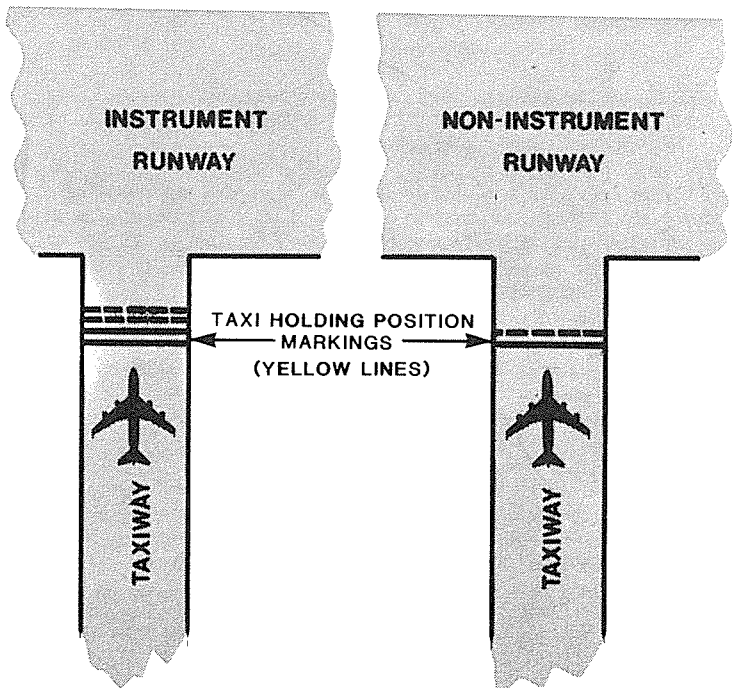
Aircraft being towed or vehicles towing an aircraft must always be in radio contact with ground control before entering and while within the manoeuvring area.

Note: Local airport procedures concerning vehicle operations on designated taxiways may differ from the above. Check local airport traffic directives (Section 10).

Requests for permission to proceed into the manoeuvring area shall include:

- (a) the vehicle identification;
- (b) its current location;
- (c) the intended activity/work to be performed while in the manoeuvring area and/or specific destination and intended route (otherwise, the ground controller will normally specify the route to be followed) and;
- (d) the time the vehicle and/or the person will be in the manoeuvring area.

Whenever an operator is instructed to hold short of a runway, or is awaiting permission to cross or to proceed onto a runway, the operator shall hold the vehicle 45 m (150 ft.) from the nearest edge of the runway, or behind the solid yellow line on taxiways so marked.



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This procedure also applies to the area extending from each end of the runway to permit unobstructed aircraft approach to the runway for landing and to gain altitude after take off. Where the land falls away sharply off the end of a runway, this procedure may not apply. Consult the Local Airport Traffic Directives (Section 10 of this manual) for specific procedures at your airport.

Note: Taxiways are marked with a solid and broken yellow line, or two solid and two broken yellow lines, with the broken lines closest to the runway.

When instructed to leave the runway, vehicle operators shall acknowledge instructions and proceed to a taxi holding position or to a safe position off to the side of the runway at least 45 m (150 ft.) from the nearest edge of the runway. Once in a holding position, vehicle operators shall inform the ground controller that they are off the runway and give their exact position.

Note: Vehicles and equipment sometimes may have to operate within 45 m (150 ft.) of the runway. When this happens, the operator must inform the ground controller of the approximate distance of the vehicle or equipment from the nearest runway edge.

If equipment breaks down, the operator shall immediately notify ground control of the location and difficulty and ask for assistance.

While on the manoeuvring areas, vehicle operators shall always monitor the appropriate ground control frequency and acknowledge and comply with any instructions from ground control.

If the radio fails while the vehicle is in the manoeuvring areas, turn the vehicle to face the control tower and flash the headlights off and on. The ground controller will respond using the following light signals:

- (a) flashing green light – proceed;
- (b) steady red light – stop, hold your position;
- (c) flashing red light – vacate the runway;
- (d) flashing white light – return to starting point on the airport.

Note: In the course of moving from the manoeuvring area ((d) above), the vehicle operator must hold short of each intervening runway and receive permission to proceed (flashing green light signal) before crossing the runway.

If your radio and vehicle both fail while in the manoeuvring area, light and place red, road flares approximately 30 m (100 ft.) ahead of and behind the vehicle in a line parallel to the nearest runway or taxiway as a warning to aircraft. If the flares when placed are not likely to be seen from the control tower due to snow banks or other intervening obstructions, light and place on or more flares near the vehicle where they may be clearly visible from the control tower. Stay with the vehicle. In adverse weather conditions normally associated with combined vehicle and radio failure, the vehicle may provide your best protection until help arrives.

The blinking on and off of runway lights is a warning signal for all vehicles to leave the runway immediately.

4.04 Manoeuvring Areas — Uncontrolled airports with a Flight Service Station

Vehicles on the manoeuvring area must be operated by persons with a valid Airside Vehicle Operator's Permit and a Restricted Radiotelephone Operator's Certificate.

Whenever non-radio-equipped vehicles and equipment are operating in groups or fleets with a radio-equipped vehicle, they shall be under the control of a qualified employee responsible for requesting and acknowledging all Flight Service Station instructions. Recommended radio procedures are outlined in Section 5.00, Radiotelephone Procedures.

At uncontrolled airports Flight Service Stations provide a Positive Vehicle Advisory Service (PVAS) for the safe movement of known vehicles and aircraft on manoeuvring areas.

Vehicles shall only be operated on or near a manoeuvring area in accordance with instructions issued by the Flight Service Specialist.

Instructions from the Flight Service Specialist should be responded to in the same manner as if issued by a Ground Controller.

Vehicle operators must always report to the Flight Service Station before entering and immediately after leaving the manoeuvring area.

Before proceeding onto a manoeuvring areas, vehicle operators shall contact the Flight Service Specialist to advise of their intentions and provide the following information:

- (a) the vehicle identification;
- (b) its current location;
- (c) the intended activity/work to be performed in the manoeuvring area and/or specific destination and intended route, and;

(d) the time the vehicle and/or person will be on the manoeuvring area.

Vehicle operators shall acknowledge all information received from the Flight Service Specialist only if completely understood. If in doubt as to the information received, a repetition shall be requested either in full or in part.

Flight Service Specialists provide advisories according to "reported" or observed aircraft traffic.

Note: Vehicle Operators must understand the term "reported". Aircraft are not required to be radio-equipped at non-controlled airports and therefore, may arrive and depart without contacting the Flight Service Station. The phrase "no reported" traffic does not necessarily mean "no traffic". It only means that no aircraft have made their presence or intentions known to the Flight Service Specialist. Thus Vehicle Operators shall always visually check and ensure that aircraft are not approaching or departing.

Vehicles towing aircraft shall be in communication with the Flight Service Station.

Vehicle Operators shall proceed along only the specified route to the specified destination unless alternate advice is received.

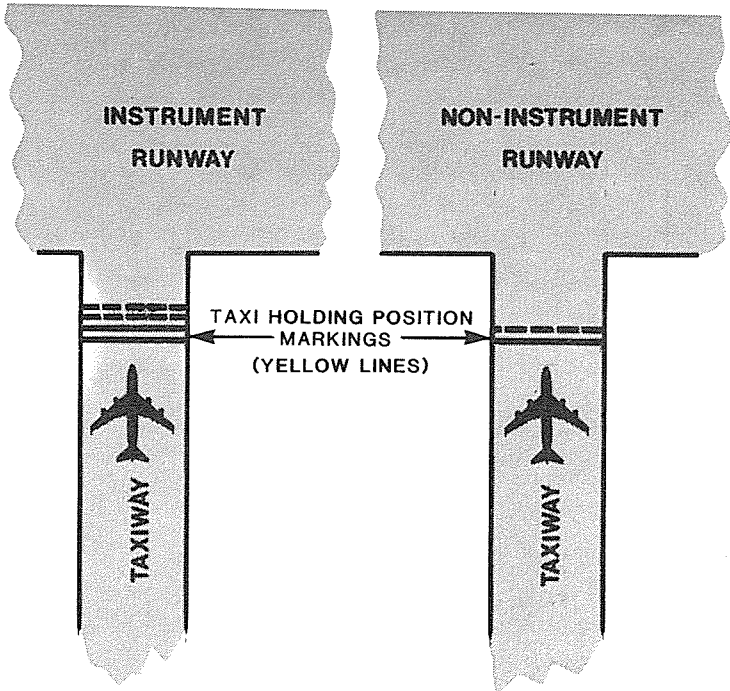
Combined Radio/Vehicle Failure

If your radio and vehicle fail while in the manoeuvring area, light and place red, road flared approximately 30 m (100 ft.) ahead of and behind the vehicle, parallel to the runway or taxiway as a warning to aircraft. If you have reason to believe your flares will be noticed and assistance provided, stay with the vehicle. In adverse weather conditions normally associated with combined vehicle and radio, the vehicle may provide your best protection.

When instructed to hold short of a runway, or while awaiting permission to cross or to proceed onto a runway, Vehicle Operators shall remain at least 45 m (150 ft.) from the nearest edge of the runway or behind the solid yellow line on taxiways so marked.

This procedure also applies to the area extending from each end of the runway to permit unobstructed aircraft approach to the runway for landing and to gain altitude after take off. Where the land falls away sharply off the end of a runway, this procedure may not apply. Consult the Local Airport Traffic Directives (Section 10 of this manual) for specific procedures at your airport.

Note: Taxiways are marked with a solid and broken yellow line, or two solid and two broken yellow lines, with the broken lines closest to the runway.



When instructed to leave the runway, vehicle operators shall acknowledge the instruction and proceed to a taxi holding position or to a safe position off to the side of the runway at least 45 m (150 ft.) from the nearest edge of the runway. Once in the holding position, immediately inform the Flight Service Station that you are off the runway and state your exact position.

Note: When you are not able to move your vehicle at least 45 m (150 ft.) from the runway edge, you must inform the Flight Service Station of your approximate distance from the edge of the runway.

If vehicles or equipment breakdown, the vehicle operator shall immediately notify the Flight Service Station of the location of the disabled vehicle or equipment and request assistance.

If the vehicle radio fails while in the manoeuvring area, the vehicle operator must leave the manoeuvring area immediately (see instructions in section 4.06) and, as soon as possible, inform the Flight Service Station by telephone or other appropriate means that the vehicle(s) is no longer in the manoeuvring area.

Vehicle operators shall immediately leave the runway when:

- (a) an aircraft makes a low pass, or
- (b) the runway lights are blinked on and off.

4.05 Manoeuvring Areas — Uncontrolled Airports with Remote Vehicle Advisory Service Provided from a Flight Service Station at Another Airport

Some Flight Service Stations provide vehicle advisory service to airports which are remote from the airport where the Flight Service Station is located.

The rules governing vehicle activities in the manoeuvring areas at these remote airports are the same as at airports where the Flight Service Station is located (Section 4.04). But some differences in radio communication procedures are necessary because you and the Flight Service Station are at different airports and one Flight Service Station may serve more than one remote airport.

When calling the Flight Service Station you must include the geographical location of that Station and identify yourself by vehicle identification and the name of the airport from which you are calling. Examples of this procedure are contained in Section 5.07 (e) of this manual.

Combined Radio/Vehicle Failure

If your radio and vehicle fail while in the manoeuvring area, light and place red, road flared approximately 30 m (100 ft.) ahead of and behind the vehicle, parallel to the runway or taxiway as a warning to aircraft. If you have reason to believe your flares will be noticed and assistance provided, stay with the vehicle. In adverse weather conditions normally associated with combined vehicle and radio, the vehicle may provide your best protection.

4.06 Manoeuvring Areas — Uncontrolled Airports without Vehicle Control or Advisory Service

Every vehicle on the manoeuvring area must be operated by a person with a valid Airside Vehicle Operator's Permit.

Before proceeding onto a manoeuvring area, the operator shall hold short and visually check for arriving and departing aircraft. The operator may proceed onto the manoeuvring area only if there is no indication of arriving

or departing aircraft. This procedure also applies to the area extending from each end of the runway to permit unobstructed aircraft approach to the runway for landing and to gain altitude after take off. Where the land falls away sharply off the end of a runway, this procedure may not apply. Consult the Local Airport Traffic Directives (Section 10 of this manual) for specific procedures at your airport.

Do not leave vehicles unattended on manoeuvring areas.

Persons on the manoeuvring area shall look out for arriving and departing aircraft and shall leave the manoeuvring areas as soon as aircraft appear.

Vehicle operators shall interpret a low pass by an aircraft as a signal to leave the runway immediately.

Combined Radio/Vehicle Failure

If your radio and vehicle fail while in the manoeuvring area, light and place red, road flared approximately 30 m (100 ft.) ahead of and behind the vehicle, parallel to the runway or taxiway as a warning to aircraft. If you have reason to believe your flares will be noticed and assistance provided, stay with the vehicle. In adverse weather conditions normally associated with combined vehicle and radio, the vehicle may provide your best protection.

4.07 Airside Pavement Markings, Lights and Signs

General

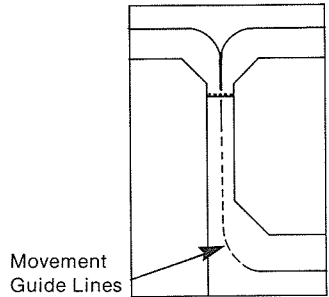
Both vehicle and aircraft movement on the ground is guided by pavement markings, lights and signs on the airside which are different from those used on roads and highways.

This section describes and illustrates the markings, lights and signs most commonly used at airports and which an airside vehicle operator is required to know. Other traffic control devices, in addition to the following ones, may be used at some airports and will be explained as required, in the Local Directives (Section 10) which form a part of this manual.

Pavement Markings

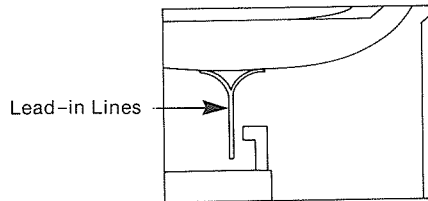
Aircraft Movement Guide Lines

A single yellow line extending from the runway along a taxiway to, and in some cases, along the apron. The nose wheel of the aircraft is centered on this line to ensure that the main wheels are on pavement and that the wings will not contact known obstructions (buildings, light standards etc.). On aprons, vehicles may only cross aircraft movement guide-lines at right angles.



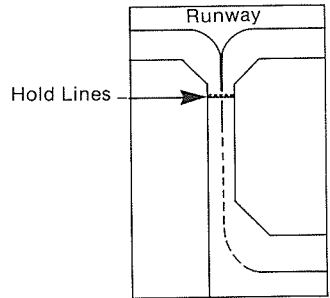
Aircraft Lead-in Lines

Two parallel yellow lines between an aircraft guide line and a gate or parking position. The aircraft nose wheel is centered on these lines to guide the aircraft into the parking position without hitting other parked aircraft or obstructions.



Hold Lines

A solid and a broken yellow line or two solid and two broken yellow lines across the width of a taxiway with the broken line(s) closest to the runway. Vehicles and aircraft must stop behind the solid line(s) and not proceed unless and until permitted to do so by the air traffic controller or Flight Service Specialist.



Runway Headings (Designation) Markings

Each end of a runway is numbered in tens of degrees corresponding to the direction of the runway in relation to a magnetic compass. The compass of an aircraft will read 270° when approaching the end of a runway marked with the number 27. The numbers are painted white and face towards the end of the runway. When two parallel runway are provided at an airport they will be identified with the compass heading number plus the letter 'L' for left and 'R' for right painted in white below the number. Vehicle operators should know the various runway headings (numbers) and their location on the airport. These will be illustrated in the site plan in section 10 of this manual (Local Airport Traffic Directives).

Runway Center Line

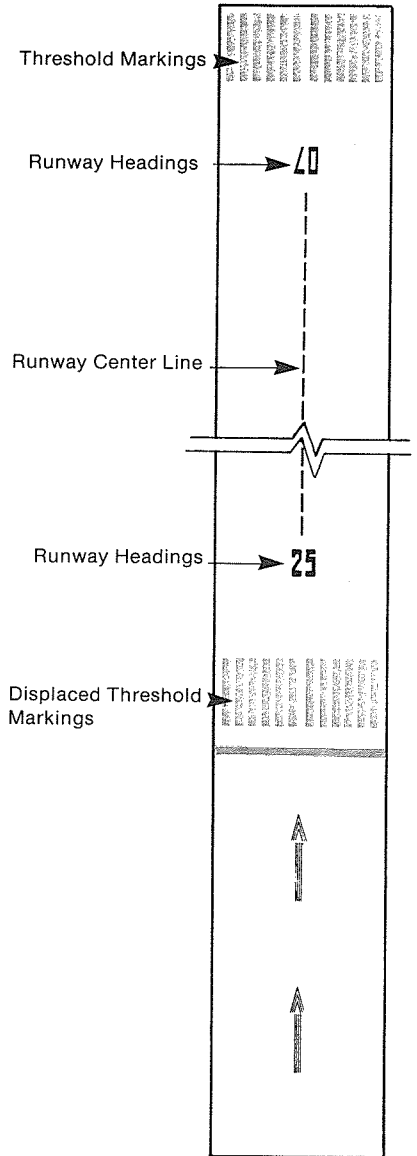
The center of a runway may be marked with a broken white line made up of several lines close together, each group is 100' in length with 100' between.

Threshold Markings

The beginning of the usable part of a runway for aircraft landing may be marked with a series of solid white lines parallel to the length of the runway. The lines are in groups. The number of lines in group, and the number of groups of lines varies according to the width of the runway.

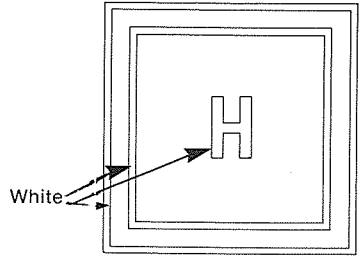
Displaced Threshold Markings

If for any reason, the threshold is set-in from the end of the runway, white lines painted close together to form arrows, pointed to a bar across the runway, indicate the beginning of the usable runway for aircraft.

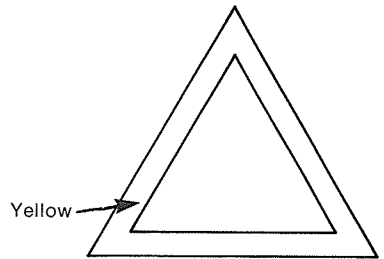


Helicopter Areas

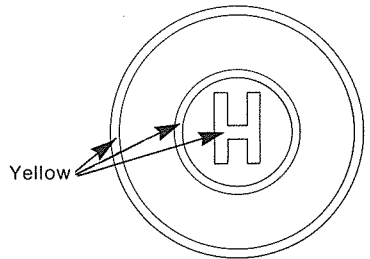
The paved surface of areas designated for the arrival and departure of helicopters is designated by a large white 'H' within a white square or circle.



The area where a helicopter may arrive or depart (but not land) is marked with a yellow triangle.

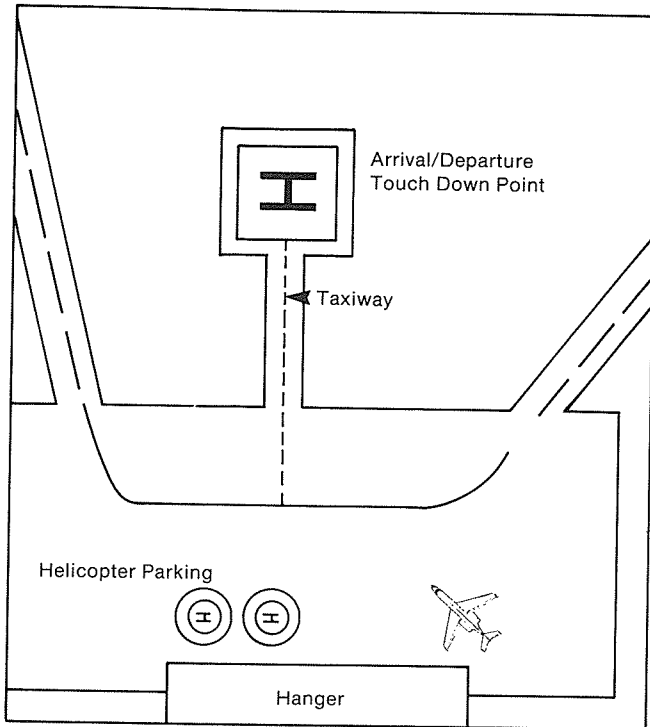


Helicopter parking (or touch down) locations on an apron are marked by two yellow circles with yellow capital 'H' inside the smaller circle.



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Paved taxiways between the helicopter arrival/departure and parking positions are marked with a yellow line that may extend onto the apron.



All vehicle operators must remain outside the perimeter marking of helicopter arrival/departure areas and parking locations except when engage in service to these aircraft. While taxiing, all aircraft have the right of way.

Lights

Aerodrome Beacon

The aerodrome beacon is a large rotating white light mounted at a location such as on top of the control tower. It is provided for visual identification of the airport by aircraft but is also a good reference point for vehicles on the airfield. The location of the aerodrome beacon will be illustrated on the airport site plan (Section 10).

Edge Lighting for Aircraft Movement Surfaces

General

Different coloured lights are used to indicate the edge of various aircraft movement surfaces.

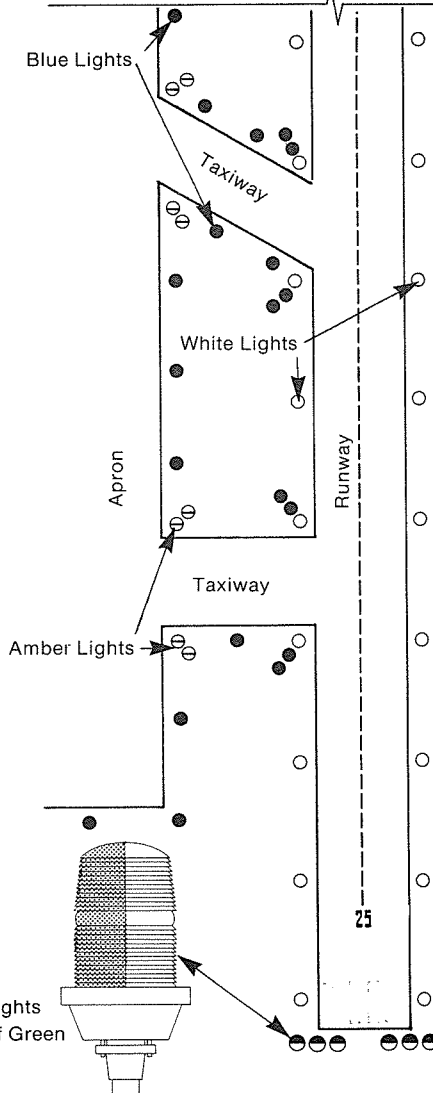
Blue lights are used along the edge of aprons and taxiways. ●

White lights are used along the edge of runways. ○

Amber lights are used at the intersection of aprons and taxiways. ⊖

Two sided lights, half red and half green, are used at the end of runways with the red half facing the runway and the green half pointing towards the approach to the runway. ●/○

Two Sided Lights
Half Red Half Green



Every vehicle operator must know the meaning of these lights to avoid entering areas where they are not permitted to be and as a guide to vehicle movement when within the manoeuvring areas (runways and taxiways) of the airport.

Signs

Airside Service Roads:

Signs used on aprons and airside service roads are generally the same signs as those used on provincial roads throughout Canada. All vehicle operators on airside service roads are required to comply with these signs which are enforceable under the Airport Traffic Regulations.

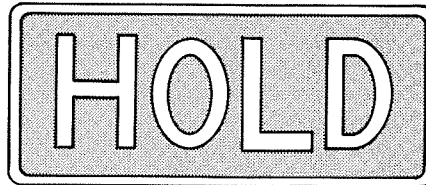
Manoeuvring Area Signs:

Signs used on the manoeuvring area (runways and taxiways) 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.

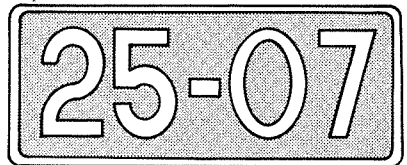
These signs are normally mounted on either the left, right or both sides of a runway or taxiway according to requirements and are located 15 m to 20 m (50' to 65') from the edge of the manoeuvring surface.

"Mandatory Instruction Signs" with white letters/numbers on a red background include:

- (a) "Hold" signs which may be used in conjunction with "Hold" lines (pavement markings) on a taxiway.



- (b) Runway Designator signs when used alone (not in conjunction with a "hold" sign). When these signs are red, they carry the combined message to "hold short" and that the runway ahead is as indicated on the sign.



Directional, Information signs and Designator signs (when used in conjunction with a red hold sign) may be green with white letters/numbers on yellow with black letters/numbers. (The yellow signs are the new standard and will replace all green signs by January 1, 1995.)

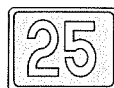
- (a) Directional signs normally have an arrow indication the direction of travel to exits, aprons, terminal buildings, or other facilities named on the sign.



- (b) Information signs provide information of interest primarily to aircraft but which may also be helpful to vehicle operators as reference points.



- (c) Designator signs like street signs, identify the names of runways by number and of taxiways by letter. Remember that taxiways are referred to when speaking by using the phonetic alphabet so that taxiway "A" is spoken of as "taxiway Alpha"; taxiway "B" is "taxiway Bravo", etc. and that a vehicle may not enter a taxiway without prior approval of ground control or Flight Services or, in their absence, the approval of the Airport Manager.



At a few busy airports, traffic lights are used to control vehicles where a service road crosses or enters a runway or taxiway. These traffic lights are operated by the control tower and are normally red except when turned to green by the ground controller. Consult the Local Airport Traffic Directives. (Section 10 of this manual) for specific instructions regarding these traffic lights.

5.00 RADIOTELEPHONE PROCEDURES

5.01 Radiotelephone and Voice Techniques

Hold background-noise-cancelling microphones as close to the lips as possible. Hold most other microphones approximately 6.5 cm (2-3 in.) in front of the mouth.

Listen out first to ensure that you will not interrupt another transmission, then: depress the "press to talk" (PTT) switch before beginning to speak and keep it depressed for the entire transmission. Avoid clicking on and off. When the transmission is finished, release the PTT switch immediately.

Speak plainly and distinctly to prevent running consecutive words together. Do not shout, accentuate syllables artificially, or speak too rapidly.

Use standard procedure words and phrases and standard airport terminology.

Due to obstructions (i.e. metal buildings, hills, etc.) there may be some areas on the airport where signals are not received. These areas are referred to as blind spots and should be indicated on the airport site plan in the Local Airport Traffic Directives (Section 10).

Always:

- 1) Obtain permission before entering within 45 m (150 ft.) of the side of a runway, taxiway or approach to the end of a runway and including any portion of an apron which is identified with a sign and/or pavement marking as being part of the manoeuvring area (i.e. CAT II Hold).
- 2) Monitor the radio at all times when in the manoeuvring area. No vehicle operator may leave a vehicle radio unattended while in the manoeuvring area except with the specific permission of the ground controller or Flight Service Specialist.
- 3) Advise ground control or Flight Service Station when your vehicle has exited the manoeuvring area.
- 4) Report completion of an activity only after it has been completed i.e. report being off of a runway only after your vehicle is at least 45 m (150 ft.) away from the runway edge not while you are still in the process of leaving.
- 5) Ensure that you fully understand all instructions given by a controller or Flight Service Specialist before entering within 45 m (150 ft.) of an aircraft manoeuvring area or crossing an active runway.

- 6) In addition to any permission given by radio to proceed into or within the manoeuvring area, check visually to ensure that you will not interfere with any aircraft on or approaching the path you have been given permission to follow.
- 7) Always use the correct radio call sign for the vehicle you are operating in every radio transmission.

5.02 ICAO Phonetic Alphabet and Pronunciation of Numbers

Always use the ICAO Phonetic Alphabet when phonetics are required for clarity in radiotelephone communications.

Letter	Word	Spoken as
A	- ALFA	(Al fah)
B	- BRAVO	(BRAH VOH)
C	- CHARLIE	(CHAR lee)
D	- DELTA	(DELL tah)
E	- ECHO	(ECK oh)
F	- FOXTROT	(FOKS trot)
G	- GOLF	(GOLF)
H	- HOTEL	(hoh TELL)
I	- INDIA	(IN dee ah)
J	- JULIET	(JEW lee ETT)
K	- KILO	(KEY loh)
L	- LIMA	(LEE mah)
M	- MIKE	(MIKE)
N	- NOVEMBER	(no VEM ber)
O	- OSCAR	(OSS cah)
P	- PAPA	(pah PAH)
Q	- QUEBEC	(keh BECK)
R	- ROMEO	(ROW me oh)
S	- SIERRA	(see AIR rah)
T	- TANGO	(TANG go)
U	- UNIFORM	(YOU nee form)
V	- VICTOR	(VIK tah)
W	- WHISKEY	(WISS key)
X	- X-RAY	(ECKS ray)
Y	- YANKEE	(YANG key)
Z	- ZULU	(ZOO loo)

Pronounce numbers as:

0	ZE-RO	5	FIFE
1	WUN	6	SIX
2	TOO	7	SEV-en
3	TREE	8	AIT
4	FOW-er	9	NIN-er

Note: Stress the syllables printed in CAPITAL letters. For example, give the two syllables in ZE-RO equal emphasis, but give the first syllable for FOW-er primary emphasis.

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Transmit all numbers, except whole thousands, by pronouncing each digit separately. Transmit whole thousands by pronouncing each digit in the number of thousands followed by the word "thousand".

Examples:

<u>Number</u>	<u>Spoken as</u>
10	ONE ZERO
75	SEVEN FIVE
100	ONE ZERO ZERO
583	FIVE EIGHT THREE
12000	ONE TWO THOUSAND
38143	THREE EIGHT ONE FOUR THREE

Numbers with a decimal point shall be spoken as:

118.1	ONE ONE EIGHT DECIMAL ONE
465.2125	FOUR SIX FIVE DECIMAL TWO ONE TWO FIVE

5.03 Standard Procedures and Words

While it is not practical to lay down a precise phraseology for all radiotelephone procedures, the following words and phrases should be used where applicable. Do not use words and phrases such as "OK", "REPEAT", "HOW IS THAT", or slang expressions.

<u>Word or Phrase</u>	<u>Meaning</u>
ACKNOWLEDGE	Let me know that you have received and understood this message.
AFFIRMATIVE	Yes, or permission granted.
CONFIRM	My version is ... is that correct?
CORRECTION	An error has been made in this transmission (or message indicated). My correct version is...
HOW DO YOU READ?	Can you hear and understand me?
I SAY AGAIN	I will now repeat my last word (sentence) for clarification.
NEGATIVE	No, or permission not granted, or THAT is not correct, or I do not agree.
OVER	My transmission is ended and I expect a response from you. (Normally used only under poor communication conditions).

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OUT	This conversation is ended and no response is expected. (Normally used only under poor communication conditions.)
READ BACK	Repeat all, or the specified part, of this message back to me exactly as received.
ROGER	I have received all of your last transmission.
SAY AGAIN	Repeat all, or the following part, of your last transmission. (Do not use the word "Repeat".)
SPEAK SLOWER	(Self-explanatory)
STANDBY	Wait and listen. I will call you again.
THAT IS CORRECT	(Self explanatory)
VERIFY	Check text with originator and send correct version.
WHAT IS YOUR REQUEST/MESSAGE?	(Self-explanatory)

5.04 Call-up Procedure

A "call-up" is a procedure used to establish two-way communication between an airport vehicle and ground control (control tower) or Flight Service Station. Before making a "call-up", listen out to avoid cutting into a transmission from other users. Proceed only when the frequency is not being used by others.

A call-up consists of:

- (a) call sign of the station called;
- (b) identification of the station from which the call is made.

On call-up, always use the call sign of the station called.

Examples:

- (a) "(Site Name) GROUND, STAFF FOUR SIX".
- (b) "(Site Name) RADIO, BLOWER ONE FOUR TWO".

If you do not receive a response to your call-up, wait a reasonable time and call again.

5.05 Acknowledgements

An acknowledgement means a transmission has been received and understood. Never acknowledge until the transmission is fully understood.

Examples:

- (a) "(Site Name) RADIO, STAFF TWO NINER, ROGER" or;
- (b) "(Site Name) RADIO, STAFF TWO NINER, SAY AGAIN".

5.06 End of Transmission

To end any two-way communication, say the name of the vehicle call sign.

Example:

"GRADER ONE FIVE SEVEN".

5.07 Standard Phraseologies

Standard phraseology has been developed through years of practice to transmit instructions, and messages most efficiently and without misunderstanding, using the fewest words.

Examples:

(a) Authorization Request and Response

Vehicle Operator: "OTTAWA GROUND, (vehicle identification)".

Ground Controller: "(vehicle identification), OTTAWA GROUND".

Vehicle Operator: "OTTAWA GROUND, (vehicle identification) ON OR AT (location), REQUEST PERMISSION TO PROCEED TO (location) VIA (route)".

Ground Controller: "(vehicle identification) PROCEED TO (location) VIA (route)".

If the request for permission to proceed is denied, response from ground control will start with the word "NEGATIVE", for example:

Ground Controller: "(vehicle identification) NEGATIVE! HOLD YOUR POSITION".

(b) Authorization Request when Accompanying a Non-radio-equipped Vehicle

Vehicle Operator: "OTTAWA GROUND, (vehicle identification) PLUS ONE, REQUEST PERMISSION TO PROCEED TO ... etc.".

Use the term "plus one" or "plus two" because it indicates to the ground controller the number of vehicles in the group.

(c) Control Instructions

"PROCEED ON TO RUNWAY 14-32 FOR INSPECTION, ADVISE WHEN OFF THE RUNWAY".

"HOLD SHORT RUNWAY 32".

"TRUCK EIGHT THREE, (site Name) GROUND, LEAVE RUNWAY (Number) AT (location) AND REPORT WHEN OFF THE RUNWAY".

(d) Request to Flight Service Station and Responses

Vehicle Operator: "FORT SMITH RADIO, STAFF TWO SEVEN".

Flight Service Station: "STAFF TWO SEVEN, FORT SMITH RADIO".

Vehicle Operator: "FORT SMITH RADIO, STAFF TWO SEVEN, REQUEST PERMISSION TO INSPECT THRESHOLD LIGHTS RUNWAY 15".

Flight Service Station: "STAFF TWO SEVEN, FORT SMITH RADIO, NO REPORTED TRAFFIC, PROCEED TO THRESHOLD RUNWAY 15, ADVISE WHEN OFF THE RUNWAY".

(e) Request to a Flight Service Station via a Remote Flight Service Station (RFSS)

Vehicle Operator: "KENORA RADIO, TRUCK EIGHT TWO AT DRYDEN".

Flight Service Station: "TRUCK EIGHT TWO AT DRYDEN, KENORA RADIO".

Vehicle Operator: "KENORA RADIO, TRUCK EIGHT TWO AT DRYDEN, REQUEST PERMISSION TO PROCEED ONTO RUNWAY 11/29 FOR RUNWAY CHECK".

Flight Service Station: "TRUCK EIGHT TWO AT DRYDEN, KENORA RADIO, NO REPORTED TRAFFIC, PROCEED ONTO RUNWAY 11/29, ADVISE WHEN OFF RUNWAY".

5.08 Radio Test Procedures

On-the-air radio tests, when necessary, should be short (not more than 10 seconds). Do not interfere with other communications.

The readability of signals may be reported in plain language, but most often is reported according to the following scale:

- 1 - unreadable;
- 2 - readable now and then;
- 2 - readable but with difficulty;

- 4 - readable;
- 5 - perfectly readable.

Example of radio check communications:

Vehicle Operator: "(Site Name) GROUND, STAFF TWO SEVEN, RADIO CHECK".

(Short response may be:

Ground Control: "STAFF TWO SEVEN, (Site Name) GROUND, RADIO CHECKS", or),

Ground control: "STAFF TWO SEVEN, (Site Name) GROUND, COMMENCE TEST COUNT".

Vehicle Operator: "TEST COUNT, ONE, TWO, THREE, TWO, ONE".

Ground Control: "READ YOU FIVE".

5.09 General Radio Regulations

(a) Superfluous Communications

Restrict transmissions to authorized messages. No unnecessary signals are permitted.

(b) Profane Language

Profane and offensive language is strictly prohibited. Any person who violates the regulations relative to unauthorized communications or profane language is liable, upon summary conviction, to a penalty not exceeding \$1,000 and costs, or to imprisonment for a term not exceeding six months.

(c) False Distress Signals

Any person who knowingly transmits, or causes to be transmitted, a false or fraudulent distress signal, call, or message, or who, without lawful excuse, interferes with or obstructs any radio-communication, is guilty of an offence. He is liable, on summary conviction, to a penalty not exceeding \$2,5000 and costs, or to imprisonment for a term not exceeding 12 months, or to both fine and imprisonment.

(d) Secrecy of Communications

Persons operating radio equipment must preserve the secrecy of correspondence and are not to divulge contents of any communication except through authorized channels.

6.00 VEHICLE IDENTIFICATION

For radiotelephone communication, airport vehicles are given the following identifiers.

Function	Generic Identifier	Numbers Allocated
Crash Firefighting and Rescue Vehicles	Red	1-19
Staff vehicles (cars, station wagons, pick-ups, panels) (includes Ottawa and Regional Headquarters, airport manager, telecommunications, and air traffic services)	Staff	20-79
Trucks (dump, snowplow, stake, etc.)	Truck	80-119
Snowblowers	Blower	120-149
Tractors, Graders	Tractor/Grader	150-179
Passenger Transfer Vehicles (PTV)	PTV	180-204
Police and Security	Police	205-219
Other vehicles and equipment not covered above	Type of vehicle	220-239
Commercial, maintenance, and construction vehicles and mobile equipment rented or contracted to Transport Canada	Type of vehicle	240-299
Air carrier and service agency vehicles and equipment	Type of vehicle	300-499
National Defence Vehicles except Airport Emergency Services Vehicles	Type of vehicle consistent with the above	500-599

Note: The identification assigned to a vehicle must be used in-full in every radio-telephone transmission from that vehicle.

7.00 RECOMMENDED SAFETY EQUIPMENT FOR VEHICLES

7.01 Safety Equipment for Manoeuvring Areas

All vehicles that will be operated or driven on the aircraft manoeuvring areas of airports must be equipped with a rotating warning light that must

be turned on while a vehicle is on these areas. If equipped with headlights, these must also be turned on while in the manoeuvring area.

The rotating warning lights shall be mounted on the vehicle in a location that will permit the beam to be seen by aircraft or surface traffic from any position within 360°. The light beam shall be set at an angle of 6° above the horizontal and it shall rotate at a constant speed of 35 RPM. The enclosing globe of the warning light shall be "aviation yellow" for all vehicles except airport emergency service vehicles, which are to be equipped with a red warning light.

Additional Recommended Safety Equipment

Vehicles operated alone (not in company of another vehicle or vehicles) in the manoeuvring area or other remote locations of the airfield for an extended period of time are to carry a supply of red, road safety flares sufficient to provide a continuous signal for a minimum of one hour. Although not required to be in the vehicle at all times, the carriage of these flares is strongly recommended in winter when both motor and battery/radio failure are most likely to occur. The vehicle owner is responsible to ensure provision of an adequate supply of flares based on operating requirements.

The vehicle operator and his/her supervisor are responsible to ensure that flares are in the vehicle when required based on prevailing operating conditions and work assignment.

7.02 Safety Marking and Equipment Requirements for Apron Areas

All vehicles and equipment operating on aprons shall be equipped with standard safety markings prescribed for apron service vehicles. These requirements are contained in Policy AK-14-03-012 obtainable from the office of the Airport Manager.

Exceptions:

Occasional use on the apron area of vehicles or equipment not equipped with standard safety markings may be permitted while under escort of a vehicle so equipped.

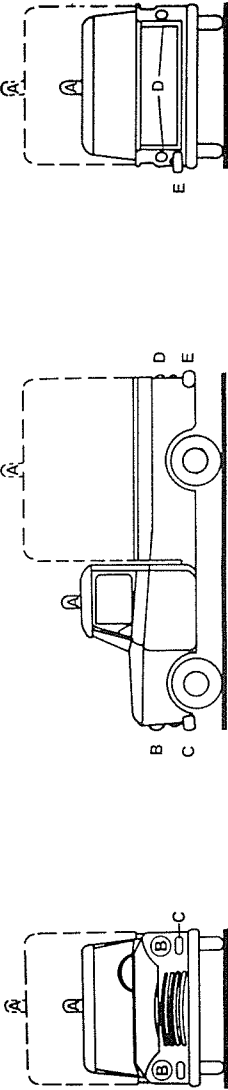
Aircraft fuelling vehicles which have an overall height in excess of 3.5 m are permitted to mount 360° beacon lamps on the vehicle cab provided that tail signal lamps are operated in conjunction with the 360° beacon lamp to provide adequate indication to the rear of the vehicle.

Police, emergency services and other vehicles equipped with safety marking prescribed for operation on airport manoeuvring areas are considered to equal or exceed these standards.

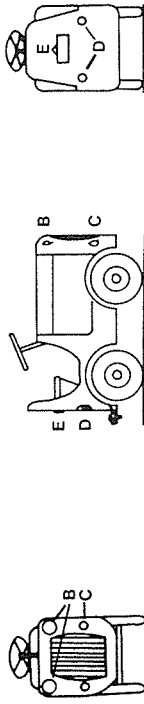
7.03 Safety Marking Requirements for Apron Service Vehicles

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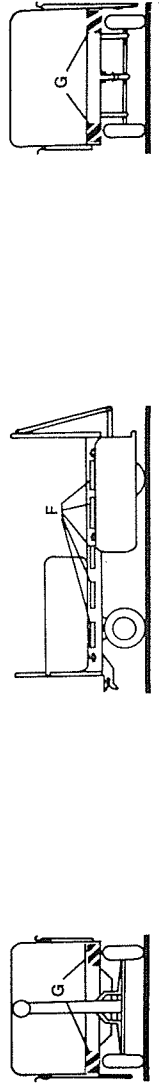
I. Self-propelled Vehicles with Cab



II. Self-propelled Vehicles without Cab



III. Non-self-propelled Vehicles and Equipment



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

8.00 ACTS AND REGULATIONS

the following acts and regulations were used to support the information in this manual:

- (a) Department of Transport Act;
- (b) Aeronautics Act;
- (c) Government Property Traffic Act;
- (d) Radio Act;
- (e) Air Regulations;
- (f) Airport Traffic Regulations;
- (g) General Radio Regulations.

Related manuals on which this directive is based include:

ATC-MANOPS

FSS-MANOPS

Fleet Management Manual: Motor Vehicle and Mobile Equipment (TP 123).

Safety Marking Requirements for Apron Service Vehicles (AK-14-03-012).

National Identification System for Radiotelephone Communications from Vehicles Operated on Airport Manoeuvring Areas (AK-14-03-014).

9.00 AVOP SELF-TEST

Your written AVOP test will be based on a number of multiple choice questions taken from those contained in the following pages. (Questions related to the Local Airport Traffic Directives are contained in Section 10.00 and will also form part of your AVOP test).

The questions in Section 9.01 are grouped in the same order as the information in sections 1 to 8 of this manual for easy cross reference.

The correct answer for each question is provided in section 9.02 to check your own score and identify those parts of the manual which may need further study.

9.01 AVOP National Test Questions

1.00 DEFINITIONS

- 1) Which of the following most accurately describes that part of an aerodrome intended to be used for the taking of and landing of aircraft and the movement of aircraft associated with taking off and landings, excluding aprons:
 1. Restricted area.
 2. Movement area.
 3. Airport area.
 4. Manoeuvring area.

- 2) Which of the following most accurately describes the beginning of that portion of the runway usable for landing?
 1. Taxiway.
 2. Apron.
 3. Threshold.
 4. Button.

- 3) An airport at which an air traffic control unit is provided is called a:
 1. Aerodrome.
 2. Controlled airport.
 3. Flight Service Station.
 4. Uncontrolled airport.

- 4) A road delineated by surface markings on an apron is called a:
 1. Designated Vehicle Corridor.
 2. Aircraft Taxi Line.
 3. Airport Service Road.
 4. Aircraft Lead-in Line.

2.02 Local Airport Traffic Directives

- 5) Local Airport Traffic Directives:
1. Apply at all Transport Canada airports.
 2. Apply only to commercial vehicles.
 3. Apply only at the airport where issued.
 4. Apply only to government vehicles.
- 6) Who has authority for the issuing, suspension or cancellation of permission to operate a vehicle on the airside of a Transport Canada operated airport?
1. The Minister of Transport.
 2. The Airport Manager.
 3. The Officer in Charge of Security.
 4. A Police Constable.

3.00 RESPONSIBILITIES AND DUTIES

- 7) The manual which contains all regulations and procedures related to operation of a vehicle on the airside of a Transport Canada operated airport is:
1. The General Radio Operators Handbook.
 2. The Manual of Airport Traffic Directives (TP 2633).
 3. The Provincial Drivers Handbook.
 4. The Guide to Sport Car Driving on Runways and Taxiways.
- 8) The person responsible for determining that his or her vehicle is operating satisfactorily and has the required safety equipment and markings is:
1. The owner of the vehicle.
 2. The operator of the vehicle.
 3. The police.
 4. The Airport Manager.
- 9) If you encounter a condition on an aircraft movement surface that is likely to cause damage to an aircraft, you should report it to:
1. The airport mechanic or foreman.
 2. Your immediate supervisor.
 3. All aircraft operators.
 4. The local security office.

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- 10) Who is responsible for reporting any vehicle malfunction or dangerous condition to the supervisor?
 1. Any other driver.
 2. The base supervisor.
 3. The mechanic.
 4. The vehicle operator.

- 11) Who is required to wear a Transport Canada Restricted Area Pass while on the airside of the airport?
 1. All persons on the airside of an airport.
 2. Every person who is not aircrew or a ticketed passenger.
 3. Aircrew and passengers.
 4. Security staff only.

- 12) How is a restricted area pass carried?
 1. On the outside of the clothing.
 2. In your wallet.
 3. In the vehicle glove compartment.
 4. Not required to be carried.

- 13) Who is responsible for reporting a person found on the airside of an airport who is not wearing a restricted area pass?
 1. The Security Officer.
 2. The company chief representative.
 3. Everyone who has a restricted area pass.
 4. Any passenger.

- 14) Who is responsible for ensuring that all designated gates to the airside of the airport are closed and locked?
 1. Every person who has authority to use a gate giving airside access.
 2. Airport Security staff.
 3. Airport Management staff.
 4. Airline employees only.

- 15) There are many types of vehicles and equipment used on the airside of an airport. Who is responsible for ensuring that a vehicle operator knows how to operate the equipment he or she uses?
 1. The licensing authority.
 2. The vehicle operator.
 3. The vehicle operator's employer.
 4. The security office.

4.01 VEHICLE OPERATING PROCEDURES – GENERAL

- 16) All vehicles operated on the airport manoeuvring areas, except those under escort, must be equipped with:
1. Headlamps and tail lamps and reflective tape on both sides.
 2. A flashing beacon and radio on company frequency.
 3. An approved rotating beacon lamp and radiotelephone on the appropriate radio frequency.
 4. A reflective yellow material on the sides and striped black and yellow patches on the lower left and right corners of the vehicle.
- 17) All vehicles with a cab while operating without escort on the airport aprons must be equipped with which of the following lights or markings?
1. An amber flashing or rotating beacon, headlamps, parking and tail lamps.
 2. Headlamps, tail lamps and reflective tape on both sides.
 3. A two-way radio on the citizens band or company frequency.
 4. None of the above.
- 18) All non self-propelled equipment used on the airport aprons must be equipped with safety marking. Which of the following most accurately describes that marking?
1. Yellow reflective stripe along the sides, and black and yellow patches at the front and rear lower corners.
 2. Headlamps, tail lamps and a horn.
 3. Both 1 and 2 above.
 4. Any reflective material that can be seen from 300 m at night.
- 19) Which of the following traffic has first priority, (right of way) over all other traffic?
1. Maintenance vehicles in the performance of their duties.
 2. Emergency vehicles.
 3. Aircraft.
 4. The vehicle approaching from the right.

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- 20) Which of the following examples most accurately describes the precaution which must be taken before operating a vehicle near radio navigational facilities?
1. Get permission from the Airport Manager first.
 2. Drive a small vehicle so that the signal will be affected as little as possible.
 3. Get approval from ground control or Flight Services.
 4. Stay away from this equipment at all times.
- 21) Smoking on apron areas is:
1. Permitted.
 2. Permitted in vehicles only.
 3. Prohibited both inside and outside vehicles.
 4. Permitted if no aircraft are within 100 m of the smoker.
- 22) It is permissible to operate a vehicle in front of or directly behind an aircraft with engines running when:
1. Not at any time.
 2. The red, anti-collision beacon of the aircraft is turned off.
 3. The marshaller waves permission and the aircraft wheels are blocked (chocked).
 4. You have waited three minutes and the pilot has not indicated any intention to move the aircraft.
- 23) When vehicles are parked in an approved parking space in the vicinity of Terminal Buildings or adjacent to heavy traffic areas, they should be:
1. Left with beacon or flashing signal lamps in operation.
 2. Backed into the parking area.
 3. Driven in front first.
 4. Left with engine running.
- 24) Whenever an aircraft carrying distinguished visitors is at an airport, unauthorized personnel and vehicles are required to:
1. Remain clear of the aircraft unless otherwise authorized by the Airport Manager.
 2. Drive slowly past the area but do not take pictures.
 3. Conduct normal vehicle movements but do not stare.
 4. There is no restriction on vehicle movement.

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- 25) Vehicle operators must ensure that mud and gravel are not deposited on aircraft movement surfaces because:
1. This material can cause damage to taxiing aircraft and engines.
 2. Erosion could occur if too much dirt is removed from the runway edge.
 3. The material can cause damage to aircraft in the air.
 4. Dirty vehicles are not permitted on airport property.
- 26) If a vehicle operator notices foreign materials (mud - gravel - solid objects) on an aircraft movement surface, the vehicle operator is required to:
1. Report the nature and location of the material to the police.
 2. Stop and remove the material.
 3. Report the nature and location of the material to your supervisor.
 4. No special requirements exist for vehicle operators.
- 27) If an aircraft were to crash on the airport, unauthorized vehicle operators are required to:
1. Wait until Crash Firefighting and Rescue is over before entering the area.
 2. Proceed immediately to the scene and render assistance.
 3. Stay away from the area unless authorized by your supervisor.
 4. Remain clear of the area unless otherwise authorized by the Airport Manager.

4.02 Operation of Vehicles on Aprons

- 28) The colour of pavement markings which outline vehicle corridors and security lines is:
1. Green except in grassed areas.
 2. Yellow.
 3. White.
 4. Red at intersections, white in other areas.
- 29) The colour of pavement markings related to aircraft movement guidelines and aircraft lead-in lines is:
1. Green except in grassed areas.
 2. Yellow.
 3. White.
 4. Different for each class and type of aircraft.

TP 2633

- 30) Select the description below which most accurately describes how vehicle corridors are indicated on paved aprons:
1. Two solid white lines 7.5 m apart, centered by a single broken line.
 2. Two broken yellow lines divided by a solid white line.
 3. Two solid yellow lines 7.5 m apart, centered by a single broken line.
 4. Two solid white lines 7.5 m apart, centered by a broken green line.
- 31) The purpose of an aircraft movement guideline is:
1. To indicate where aircraft movement is permitted.
 2. To show where aircraft movement is not permitted.
 3. To delineate lanes on a taxiway for vehicle movement.
 4. To serve as a center-of-aircraft guideline to aid aircraft travelling on taxiways and aprons.
- 32) Aircraft lead-in lines are provided to:
1. Lead the aircraft onto the runway when landing.
 2. Assist in the docking of an aircraft at a gate.
 3. Indicate where aircraft are restricted on an apron.
 4. Indicate the limits of vehicle corridors.
- 33) What vehicles must stay within vehicle corridors when moving about the apron to or from operational stands, between operational stands, across aircraft taxi lines, etc.
1. Emergency vehicles and vehicles towing aircraft.
 2. All vehicles except emergency and airport maintenance vehicles in the performance of their duties.
 3. Delivery vehicles except those under escort.
 4. Airline service vehicles only.
- 34) What vehicles are permitted to operate outside the vehicle corridors on aprons?
1. Emergency vehicles and airport maintenance vehicles while operated in the performance of their duties.
 2. Anyone who wishes to pass at speed.
 3. No one except the Airport Manager.
 4. Both two and three above.

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- 35) A vehicle operating in the right hand lane of a vehicle corridor has right of way over:
1. Snow removal equipment engaged in snow removal.
 2. Other vehicles entering the corridor.
 3. Small aircraft only.
 4. All other vehicle traffic.
- 36) When operating a vehicle in a vehicle corridor on an apron, the operator may:
1. Use the left lane to pass slower vehicles.
 2. Leave the vehicle corridor to pass slower vehicles.
 3. Drive in the left lane rather than tailgate another vehicle.
 4. None of the above.
- 37) Where vehicle corridors intersect, the vehicle which has the right of way is:
1. The vehicle on the left.
 2. The vehicle entering the corridor from the right.
 3. The vehicle travelling at the greater speed.
 4. The vehicle on the right.
- 38) You are operating a vehicle in a vehicle corridor which passes behind an aircraft with engines running, you are required to:
1. Stop well clear of the aircraft and wait until the aircraft has been backed out or the marshaller clears you to pass.
 2. Pass behind the aircraft as quickly as possible.
 3. Leave the vehicle corridor and go around the aircraft at a minimum distance of 15 m.
 4. Turn your vehicle around and return to your starting point on the apron.
- 39) Vehicle Corridors are:
1. Required to be used at all times regardless of circumstances.
 2. Not guaranteed safe routes and caution must always be exercised to avoid parked and moving aircraft.
 3. Guaranteed safe routes for vehicles under all circumstances.
 4. Provided to ensure the safe and orderly movement of aircraft.

TP 2633

- 40) Areas within Operational Stands:
1. Are provided for the servicing and maintenance of vehicles.
 2. Provided for free movement of vehicles performing their duties related to aircraft.
 3. Are defined as areas where vehicle flashing lamps or beacon lamps must always be turned on.
 4. Are provided for the refueling of aircraft only.
- 41) Vehicle operators must always exercise caution:
1. When vehicle corridor markings are obscured due to faded paint, snow cover or any other reason.
 2. When entering and leaving the active apron area and entering and leaving vehicle corridors.
 3. When operating in front of or behind aircraft with engines running.
 4. When any of the conditions indicated above are encountered.
- 42) Where vehicle roads or corridors intersect, the vehicle which has the right of way is:
1. The largest vehicle.
 2. The vehicle on the left.
 3. The vehicle on the right.
 4. The vehicle with a cab and flashing or rotating beacon.
- 43) When not in use, Apron Service Vehicles may be parked:
1. On the apron where space is available.
 2. In any apron area not used for the movement of aircraft.
 3. In parking areas designated by the Airport Manager only.
 4. As in one and two above if overflow parking is only provided on the groundside of the airport and assigned space on the apron is full.
- 44) All non-self-propelled equipment used on an apron is required to be marked with reflective material. Which of the following most accurately describes how this equipment must be marked?
1. A yellow stripe on the front and back - the full width of the vehicle.
 2. Black and yellow patches on the sides and a yellow stripe across the end.
 3. One and two (above), but not four (below).
 4. A solid yellow stripe on the sides and black and yellow patches at the front and rear lower corners.

4.03 Manoeuvring Areas — Controlled Airports

- 45) Three documents must be carried at all times when operating a vehicle without escort on the manoeuvring area of a controlled airport. Which of the following most accurately describes these documents?
1. Provincial driver's license, AVOP, security pass.
 2. Security Pass, AVOP, Restricted Radio Telephone Operators Certificate.
 3. Security pass, parking permit, radio operators hand book.
 4. All of the above.
- 46) At controlled airports, the control tower is responsible for directing which of the following traffic?
1. Vehicles and pedestrians on aprons.
 2. Aircraft, vehicles and pedestrians on manoeuvring areas.
 3. All vehicles, aircraft and pedestrians on the airport.
 4. Aircraft on manoeuvring areas but not vehicles.
- 47) When required to operate a vehicle in the manoeuvring area of a controlled airport, the vehicle operator must first:
1. Notify the Airport Manager.
 2. Consult his/her supervisor.
 3. Contact the ground controller by radio for permission.
 4. Contact apron management by radio for permission.
- 48) The instructions of a ground controller:
1. Apply to vehicles on runways but not taxiways.
 2. Must be obeyed at all times.
 3. Are a guide only for vehicle operator information.
 4. Apply to aircraft only.
- 49) Standard procedures for a vehicle operator who has received instructions from a ground controller is to:
1. Acknowledge all instructions as understood or request that the instructions be repeated.
 2. Proceed immediately according to instructions heard.
 3. Always ask for a repeat of the instructions to ensure they are fully understood.
 4. Do nothing if all instructions are not fully understood.

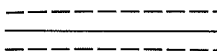
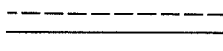
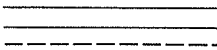
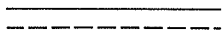
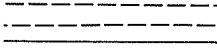
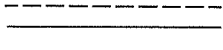

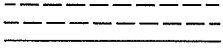
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- 50) When instructed by a ground controller to proceed into the manoeuvring area only along a specified route, the vehicle operator has the following options if he/she chooses to proceed:
1. Proceed as originally planned regardless of instructions from ground control.
 2. Proceed as directed or do not enter the manoeuvring area.
 3. Request the reason why you may not use an alternate route.
 4. Drive on the unpaved edge of the runway to reach your destination.
- 51) When a vehicle is towing an aircraft on the manoeuvring areas of an airport, the vehicle operator must:
1. Ensure that the towing vehicle is diesel powered only.
 2. Maintain radio contact with ground control.
 3. Refrain from further radio contact with the tower after towing commences.
 4. Maintain radio contact with the pilot only.
- 52) When is it permissible to operate a vehicle on taxiways or runways without first receiving permission by radio from ground control?
1. When radio contact with ground control cannot be made due to interference.
 2. Whenever you are unable to get permission by radio within a reasonably short period of time.
 3. Whenever use of part of a runway or taxiway is the most direct route to your destination.
 4. When the taxiway or runway has been designated to be used in this manner in the Local Airport Traffic Directives.
- 53) Which of the following should be included in a request to operate a vehicle in the manoeuvring area?
1. Vehicle identification and location.
 2. Requested destination and route within the manoeuvring area.
 3. Duration of time and purpose for being in the manoeuvring area.
 4. All of the above.

54) When told to "Hold Short" or when awaiting permission to cross a runway, what must the vehicle operator do?

1. Stop at least 45 m from the nearest edge of the runway or behind the solid yellow lines painted on the taxiway and wait for permission from ground control to proceed.
2. Stop at least 45 m from the nearest edge of the runway or behind the solid yellow line on the taxiway. Look both to the right and left and proceed only if aircraft are not landing or taking off.
3. Remain out of the manoeuvring area and do not proceed until the ground controller gives permission.
4. Kepp all future transmissions as brief as possible.

55) Which of the following illustrations most accurately illustrates how yellow hold lines are painted on a taxiway?

- | | |
|--|--|
| 1. Instrument Runway | Non-Instrument Runway |
|  |  |
| 2. Instrument Runway | Non-Instrument Runway |
|  |  |
| 3. Instrument Runway | Non-Instrument Runway |
|  |  |
| 4. Instrument Runway | Non-Instrument Runway |
|  |  |

56) Which of the following is used to indicate the "HOLD" position on a taxiway:

1. A red sign to the side of the taxiway bearing the word "HOLD".
2. A solid and broken yellow line across the width of the taxiway with the broken line closest to the runway.
3. Two solid and two broken yellow lines across the width of the taxiway with the broken lines closest to the runway.
4. All of the above.

- 57) The colour of "HOLD" lines is:
1. White.
 2. Green.
 3. Yellow.
 4. Red.
- 58) As soon as a vehicle has left the runway of a controlled airport, the vehicle operator must:
1. Turn off the rotating beacon light.
 2. Reduce speed and use a lower gear.
 3. Stop and hold short of the apron until given permission to proceed.
 4. Advise the ground controller that you are off the runway and give your location.
- 59) When instructed by the ground controller to "Leave (or) Get Off the Runway", the vehicle operator must:
1. Acknowledge the instruction.
 2. Proceed to a holding position or to a safe position off to the side of the runway at least 45 m from the nearest runway edge.
 3. Inform the ground controller when off the runway and give your exact location.
 4. All of the above.
- 60) When is it permissible to operate closer than 45 m from the edge of a runway?
1. When the work to be performed is closer than 45 m from the edge of the runway.
 2. During grass cutting only.
 3. Only on non-instrument runways.
 4. When the ground controller has given permission.
- 61) You are working in the manoeuvring area and your vehicle breaks down. You are unable to move the vehicle under its own power. What should you do?
1. Leave your vehicle with the lights on and walk to where you can get assistance.
 2. Wait until your shift ends and go home.
 3. Try to repair the vehicle on your own.
 4. Notify the ground controller of your location and difficulty and ask for assistance and stay with the vehicle until help arrives.

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- 62) Vehicle Operators must monitor the ground control frequency:
1. When in the manoeuvring area.
 2. At all times and in all locations of the airport.
 3. Only when on the apron.
 4. When operating on aprons and service roads.
- 63) A vehicle which is not equipped with a radio on the ground control frequency may be operated in the manoeuvring area when:
1. The vehicle weight exceeds (14,000 lb) - 6,500 kg.
 2. A radio-equipped vehicle is not available.
 3. It is under escort of a radio-equipped vehicle operated by a qualified employee responsible for requesting and acknowledging all ground control instructions.
 4. No aircraft are scheduled to land or take off from the airport for at least thirty minutes.
- 64) You are operating a radio-equipped vehicle in the manoeuvring area and your radio breaks down. What should you do?
1. Return to a non-manoevring area by the shortest route for repairs.
 2. Try to repair the radio and if this fails, sound the horn until someone comes to your assistance.
 3. Wait until the next aircraft lands and follow it back to the apron.
 4. Turn your vehicle to face the control tower and flash your headlights on and off. Wait for the controller to respond using light signals.
- 65) A flashing green light signal from the control tower means:
1. Stop, hold your position.
 2. Proceed.
 3. Leave/vacate the runway.
 4. Return to starting point on the airport.
- 66) A steady red light signal from the control tower means:
1. Proceed.
 2. Stop, hold your position.
 3. Leave/vacate the runway.
 4. Return to starting point on the airport.

TP 2633

- 67) A flashing red light signal from the control tower means:
1. Stop, hold your position.
 2. Return to starting point on the airport.
 3. Leave/vacate the runway.
 4. Proceed.
- 68) A flashing white light from the control tower means:
1. Proceed.
 2. Return to starting point on the airport.
 3. Stop, hold your position.
 4. Leave/vacate the runway.
- 69) A vehicle with a disabled radio has received ground control instruction by light signal to "return to starting point on the airport". To get there, the vehicle must cross a runway to reach the apron. The vehicle operator is required to:
1. Proceed without stopping until off the manoeuvring area.
 2. Sound the horn twice before crossing the runway.
 3. Hold short of the runway and check for arriving or departing aircraft before proceeding across the runway.
 4. Hold short of the runway and wait for a green flashing light from the control tower before proceeding.
- 70) The blinking on and off of runway lights means:
1. Identify yourself to the tower by turning your beacon light off.
 2. Leave the runway immediately.
 3. The controller wants you to drive faster.
 4. The runway lights are being tested.
- 4.04 Manoeuvring Areas — Uncontrolled Airports with a Flight Service Station**
- 71) An airport is considered to be uncontrolled when:
1. There is no control tower at the airport or the existing control tower is not staffed (closed for the day).
 2. There is no control tower or Flight Service Station at the airport.
 3. The airport is served by a Flight Service Station which is located at another airport.
 4. All of the above.

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- 72) At uncontrolled airports, vehicle advisory for the airport manoeuvring areas may be provided by radio from:
1. The Flight Service Station.
 2. The maintenance garage.
 3. The Airport Manager's office.
 4. A control tower at a remotely located airport.
- 73) Vehicle operators are required to respond to a Flight Service Station advisory:
1. If aircraft are currently using the runways and taxiways.
 2. In the same way as if it were issued from ground control.
 3. In the majority of cases but not as strictly as for ground control.
 4. Not at all.
- 74) Vehicles on the manoeuvring area of uncontrolled airports with a Flight Service Station must be operated by a person with two valid documents called:
1. A provincial driver's license and a valid airside parking permit.
 2. A regionally issued vehicle operator's permit for all airports in the Region and a provincial or territorial driver's license.
 3. An Airside Vehicle Operators Permit issued or endorsed for the specific airport and a Restricted Radio Telephone Operator's Certificate (or equivalent).
 4. A Restricted Radio Telephone Operators (or equivalent) Certificate and a Vehicle Ownership License.
- 75) At uncontrolled airports with a Flight Service Station, vehicles may operate on or near manoeuvring areas only according to:
1. Instructions issued by radio from the Airport Manager.
 2. Instructions issued by the ground controller.
 3. Instructions issued by the Flight Service Station.
 4. Instructions issued by the Airfield Maintenance Foreman.

- 76) A vehicle advisory from a Flight Service Station may indicate that there is "No reported traffic". What does this term mean?
1. No aircraft traffic has reported to the Flight Service Station but aircraft without a radio may be present.
 2. There are no aircraft in the area of concern to the vehicle operator.
 3. Aircraft are known to be operating to and from the airport but are not big enough to bother reporting them to the vehicle operator.
 4. Secret military flights are operating into the airport which cannot be reported to the vehicle operator.
- 77) At all uncontrolled airports, every vehicle operator, before driving onto or crossing the runway, must:
1. Check his brakes to ensure the vehicle will stop short of the "HOLD" position on taxiways.
 2. Ensure that all cigarettes and other smoking material is extinguished.
 3. Flash the vehicle headlights on and off three times to notify the Flight Service Station of his intentions to cross the runway.
 4. Visually check to ensure that aircraft are not approaching or departing using the runway.
- 78) At uncontrolled airports with a Flight Service Station, a vehicle operator may not proceed into the manoeuvring area before:
1. Receiving traffic advisory from the Flight Service Station and acknowledging all information received as understood.
 2. Checking the vehicle for safety and fastening the seatbelt.
 3. Turning on all vehicle lights.
 4. Checking first with the Flight Service Station to ensure that the vehicle has been registered with the Flight Service Station.
- 79) If all vehicle advisory information from a Flight Service Station is not fully understood, the vehicle operator must:
1. Assume that he has enough knowledge of the airport to proceed in safety based on that portion of the instructions that he heard.
 2. Assume that the Flight Service Station operator is too busy to ask for a repeat of the message ("say again") and proceed with caution.
 3. Ask the Flight Service Station to repeat ("say again") the message until it is understood and confirmed ("Roger") to the Flight Service Station.
 4. Report the problem of communication to your supervisor and refuse to enter the manoeuvring area.

TP 2633

- 80) A radio request from a vehicle to a Flight Service Station to operate on or near the manoeuvring area must include which of the following information?
1. The vehicle identification and present location.
 2. The specific destination in the manoeuvring area where you wish to operate.
 3. The time that you will be in the manoeuvring area and purpose for being there.
 4. All of the information listed above.
- 81) Hold lines painted on a taxiway always have the broken line:
1. Closest to the runway.
 2. Furthest from the runway.
 3. Between solid yellow lines.
 4. In pairs.
- 82) When instructed to leave the runway, the vehicle operator shall:
1. Acknowledge the instruction.
 2. Proceed to the nearest taxiway hold position or to a safe position at least 45 m to the side of the runway.
 3. Advise ground advisory when you are off the runway and give your exact location.
 4. All of the above.
- 83) When is it permissible to operate a vehicle within 45 m of a runway edge at an airport with a Flight Service Station?
1. When your work requires you to be there and permission has been given by the Flight Service Station to operate in that area.
 2. When the ground is dry and the vehicle will not sink into the soft shoulder.
 3. Whenever required in order to perform necessary maintenance.
 4. Any time if you ensure that the vehicle's rotating beacon is on at all times.
- 84) What are you required to do if your vehicle breaks down while in the manoeuvring area at an airport with a Flight Service Station?
1. Abandon the vehicle and walk as quickly as possible to the Flight Service Station to advise the location of the vehicle.
 2. Stay in the vehicle and hope that aircraft see the rotating beacon in time to avoid collision.
 3. Complain very strongly to vehicle maintenance staff for not maintaining the equipment.
 4. Immediately notify the Flight Service Station and ask for assistance.

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- 85) When leaving the manoeuvring area, every vehicle operator is required to:
1. Proceed to the Flight Service Station and sound the horn to indicate you are no longer in the manoeuvring area.
 2. Advise the Flight Service Station by radio when you are off the manoeuvring area.
 3. Proceed directly to the vehicle fueling location and refill the tank.
 4. Take a coffee break.
- 86) When vehicles are operating in a group or fleet in the manoeuvring area under guidance of one radio-equipped vehicle, the operator of the radio-equipped vehicle is responsible to:
1. Display a red flag on the right front fender to indicate that the vehicle is radio equipped.
 2. Display red flags on all vehicles in the group which are not radio equipped.
 3. Request and acknowledge all Flight Service Station advisories for all vehicles in the group.
 4. Ensure that all the operators of vehicles without a radio know the meaning of light signals used to direct vehicles during radio failure at controlled airports.
- 87) If at an uncontrolled airport your radio fails while you are in the manoeuvring area, you must:
1. Stay where you are and sound the horn repeatedly until someone is sent to escort you out of the area.
 2. Leave the vehicle and proceed directly to the Flight Service Station for assistance.
 3. Wait until an aircraft lands and then follow it as it taxis out of the manoeuvring area.
 4. Leave the manoeuvring area immediately and advise the Flight Service Station of your action as soon as possible by telephone or other appropriate means.
- 88) When an aircraft makes a low pass over the runway, all vehicle operators on the runway must:
1. Wave vigorously to show the pilot where you are.
 2. Proceed with your duties until you receive direct instructions to leave the manoeuvring area.
 3. Park your vehicle parallel to the runway edge with headlights on and facing the direction of aircraft approach.
 4. Leave the runway immediately.

4.06 Manoeuvring Area — Uncontrolled Airports Without a Flight Service Station

- 89) At airports where vehicle radios are not required, before entering the manoeuvring area, every vehicle operator must:
1. Drive quickly to ensure the vehicle is on the runway for the shortest period of time.
 2. Check the runway visually to ensure there are no aircraft arriving or departing.
 3. Wait until an aircraft makes a low pass and then proceed onto the runway.
 4. Always travel in company of a second vehicle so that both ends of the runway can be watched for approaching aircraft at the same time.
- 90) At uncontrolled airports without a Flight Service Station, the vehicle operator must not:
1. Interfere with wild animals on the runway unless they have a license to do so from the appropriate authority.
 2. Perform snow removal or other maintenance during hours of darkness.
 3. Drive in excess of the posted speed limit.
 4. Leave the vehicle unattended on the manoeuvring area.
- 91) At uncontrolled airports without a Flight Service Station, vehicle operators must, while in the manoeuvring area:
1. Keep a lookout for arriving or departing aircraft.
 2. Leave the runway as soon as aircraft appear.
 3. Leave the runway if an aircraft makes a low pass.
 4. Be alert at all times and do all of the foregoing.

4.07 Airside Pavement Markings, Lights and Signs

- 92) The colour of a "Hold" sign is:
1. Green with white letters.
 2. White with black letters.
 3. Red with white letters.
 4. Yellow with black letters.
- 93) Manoeuvring surfaces at an airport that are designated by a letter are:
1. Aprons.
 2. Runways.
 3. Service Roads.
 4. Taxiways.

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- 94) Runway edge lights are what colour:
1. Red.
 2. White.
 3. Blue.
 4. Amber (Yellow)
- 95) Apron and taxiway edge lights are what colour:
1. Red.
 2. White.
 3. Amber (Yellow).
 4. Blue.
- 96) Lights used to indicate the intersection of a taxiway and an apron are what colour:
1. Amber (Yellow).
 2. White.
 3. Red.
 4. Green.
- 97) Signs used to identify the location of various surfaces and giving direction to various movement area locations may be which of the following colours.
1. White with black or Green with yellow numbers/letters.
 2. Green with white or Yellow with black letters/numbers.
 3. Red with white or Green with white letters/numbers.
 4. Blue with white or White with black letters/numbers.
- 98) Two coloured (double faced) threshold marker lights are what colours:
1. Blue and white.
 2. Red and white.
 3. Red and green.
 4. Green and amber.
- 99) The colour of threshold marker lights which face towards the runway is which of the following colours:
1. White.
 2. Green.
 3. Amber.
 4. Red.

- 100) The arrival and departure point on an airport for use by helicopters is identified by which of the following pavement markings:
1. A large, white, 'H' within a white circle or square or a yellow triangle.
 2. A silhouette of a helicopter within a white circle.
 3. A Yellow 'H' within two concentric, yellow circles.
 4. A large, white 'H' within a white cross.
- 101) The pavement marking which indicates an apron location reserved for the parking of helicopters is:
1. A yellow triangle.
 2. A white 'H' within a yellow triangle.
 3. A yellow 'H' within two, concentric, yellow circles.
 4. None of the above.

5.00 RADIO TELEPHONE PROCEDURES

5.01 Radio Telephone and Voice Techniques

- 102) Microphones which have background noise - cancelling capability should be held how close to the lips?
1. 6.5 centimeters in front of the mouth.
 2. As close to the lips as possible.
 3. 2.4 centimeters in front of the mouth.
 4. 6.5 inches from the lips.
- 103) Most microphones which are not background noise-cancelling should be held how far in front of the mouth?
1. 6.5 centimeters in front of the mouth.
 2. One meter in front of the mouth.
 3. Against the lips.
 4. To the side of but near the mouth.
- 104) The "press to talk" switch on a microphone should be:
1. Clicked on and off between words or phrases while you think about what you want to say.
 2. Left open after you complete your transmission to show you are waiting for a reply.
 3. Depressed before beginning to speak and kept depressed for the full transmission.
 4. Clicked on and off rapidly to get the attention of the ground controller or FSS as appropriate.

- 105) When speaking into a microphone, you should always:
1. Speak plainly and distinctly without artificially accentuating words or running words together.
 2. Speak rapidly and loudly to ensure that the message received is loud enough and does not take up too much time.
 3. Accentuate every syllable of every word in a loud clear voice and slowly so that nothing is missed by ground control or ground advisory.
 4. Make sure that aircraft are listening so that everyone gets the message the first time.
- 106) A radio "blind spot" is:
1. Any place on the airport where radio signal to or from a vehicle cannot be received by the control tower or Flight Service Station or the vehicle.
 2. Any place where the vehicle operator cannot see the control tower or Flight Service Station.
 3. Any place in a vehicle where the vehicle operator cannot see the vehicle radio.
 4. A hole in the ionosphere through which radio signals will not pass.
- 107) When phonetics are required for clarity in radiotelephone communications, what alphabet must be used?
1. The Standard English (French) Alphabet.
 2. The Radio Technician's Alphabet.
 3. The ICAO Phonetic Alphabet.
 4. The Ground Controller's Alphabet for Vehicle Communication in Canada.

5.02 ICAO Phonetic Alphabet and Pronunciation of Numbers

108) Circle the correct phonetic word for each of the following letters of the alphabet:

	<u>1.</u>	<u>2.</u>	<u>3.</u>	<u>4.</u>
A -	Apple	Australia	Alpha	Able
B -	Boston	Bravo	Baker	Baron
C -	Canada	Charlie	Cocoa	China
D -	Delta	Doughnut	Datsun	Dog
E -	Equador	Easy	Echo	Empty
F -	Fox	Frigid	Foxtrot	Fan
G -	Golf	Golden	Gantry	Girl
H -	Handle	How	Hostle	Hotel
I -	Income	India	Item	Ink
J -	Juliet	John	Jig	January
K -	King	Kangaro	Kilometer	Kilo
L -	Love	Liter	Lima	Lost
M -	Mary	Mexico	Matron	Mike
N -	Neilson	November	Nugget	Nancy
O -	Oslo	Oboe	October	Oscar
P -	Papa	Police	Peter	Poland
Q -	Quart	Québec	Quick	Queen
R -	Romeo	Rose	Roger	Rat
S -	Sugar	Sam	Sierra	Spitfire
T -	Tang	Taxi	Tear	Tango
U -	Uncle	Uniform	Unit	Under
V -	Victor	Vision	Vapour	Vent
W -	Walter	Whiskey	Wing	West
X -	Xebec	Xanadu	X-Ray	Xerox
Y -	Yak	Young	Yoke	Yankee
Z -	Zebra	Zipper	Zip	Zulu

Which of the following is the correct way to speak numbers:

109) 2330

1. Twenty-three, thirty.
2. Two thousand, three hundred and thirty.
3. Two-three-three-zero.
4. Two-thirty-three-zero.

110) 583

1. Five hundred and eighty-three.
2. Five-eighty-three.
3. Fifty-eight-three.
4. Five-eight-three.

111) 12000

1. One two thousand.
2. Twelve thousand.
3. One-two-zero-zero-zero.
4. Twelve-zero-zero-zero.

5.03 Standard Procedures and Words

112) In the space opposite to the following words and phrases, enter the number which corresponds to the correct meaning listed below.

1. Repeat all, or the following part, of your last transmission.
2. Wait and listen. I will call your again.
3. Let me know that you have received and understood the message.
4. My transmission is ended and I expect a response from you.
5. Yes, or permission granted.
6. Check text with originator and send correct version.
7. I will now repeat my last word (sentence) for clarification.
8. Repeat all, or the specified part, of this message back exactly as received.
9. My version is . . . is that correct.
10. I have received all of your last transmission.
11. An error has been made in this transmission. My correct version is . . .
12. This conversation is ended and no response is expected.
13. No, or permission not granted, or that is not correct, or I do not agree.
14. Can you hear and understand me?

Acknowledge _____	Affirmative _____
Confirm _____	Correction _____
Verify _____	How do you read? _____
I say again _____	Negative _____
Over _____	Out _____
Read back _____	Roger _____
Say again _____	Standby _____

5.04 Call-Up Procedures

113) Before making a radio "call-up", the vehicle operator must:

1. Ask for a radio check.
2. Click the switch to let others know your intention.
3. Turn up the volume of the transmitter to maximum.
4. Listen out to make sure the frequency is not is use.

- 114) A "call up" consists of:
1. The call sign of the station called and the call sign of the station from which the call is made.
 2. The name - number (callsign) of your vehicle and your request.
 3. The station called and your request.
 4. No special procedures have been developed for radio "call up".
- 115) If a vehicle operator does not receive a response to a call up, he/she should:
1. Repeat the call until he gets an answer.
 2. Wait a reasonable time and call again.
 3. Try a different frequency.
 4. Proceed without approval.
- 116) An "acknowledgement" means a message or instruction transmitted by radio has been received and fully understood. Vehicle operators entering or operating within the manoeuvring area should always:
1. Avoid requesting a repeat of the message because it requires too much radio transmission time.
 2. Be careful if the message refers to runway crossing but do not be concerned if only taxiways are involved.
 3. Never acknowledge a message or instruction unless it is received and fully understood.
 4. Respond according to past procedures if the message is not clear or fully understood.

5.05 Acknowledgements

- 117) When ground control or Flight Services transmits directions or instructions that are not fully understood or not clearly transmitted, the vehicle operator must:
1. Assume that the portion of the message heard is adequate and proceed.
 2. Guess at what is meant on the basis of past experience.
 3. Request a repeat of the message and fully understand it before proceeding.
 4. Consult the manual for possible meanings for what was heard.

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118) When ground control or Flight Services transmits directions or instructions which are heard clearly and fully understood, the vehicle operator must:

1. Acknowledge the directions or instructions and then proceed.
2. Proceed immediately according to directions/instructions.
3. Ignore the direction/instruction if not suited to your needs.
4. Call back to ensure that the instructions given were exactly what was wanted/intended.

5.06

119) When a vehicle operator wishes to end a radio transmission, the proper procedure is:

1. Say the name of the station called and the vehicle call sign.
2. Stop transmitting.
3. Say the vehicle call sign.
4. There is no standard procedure.

5.07

120) Standard phraseology is used in radio communication with ground control and Flight Services. What is the purpose of using these standard ways of saying things.

1. It is a habit of the old timers that is hard to change.
2. Because this method of communication has always been used.
3. A better system of spoken communication has not been developed.
4. To transmit clear instruction and messages efficiently (in the shortest time) with the fewest words and without misunderstanding.

121) Staff 27 is providing escort for two other vehicles which are not radio equipped. Staff 27 is required to identify himself/herself to ground control as:

1. Staff 27 with grader and truck.
2. Staff 27 escorting two other vehicles.
3. Staff 27 plus 2.
4. Staff 27.

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- 122) What is the correct meaning for the following ground control instruction to a vehicle? "Proceed to Runway 14-32 inspection, advise when off the runway."
1. You are authorized to go to runway 14-32 but not enter on to it. You are to advise ground control when you are off the runway.
 2. You are directed to inspect runway 14-32 and must advise ground control if you drive off the edge of the runway.
 3. You may not inspect runway 14-32 and must confirm to ground control that you are off the runway at this time.
 4. You are authorized to drive on runway 14-32 for the purpose of inspecting that runway and are required to advise ground control by radio when you have left the runway, giving your location at that time.
- 123) What is the correct meaning of the following ground control instruction: "Hold short Runway 32."
1. Stop and hold your vehicle 45 m from the nearest edge of runway 32 or behind the solid yellow line on a taxiway so marked until given permission to cross.
 2. Stop and hold your vehicle at the edge of runway 32 and await permission to cross.
 3. Stop and hold your vehicle at the taxiway leading to runway 32 and await further instructions.
 4. The term "hold short" applies only to aircraft and need not be obeyed by vehicle operators.
- 124) Which of the following call up to ground control is correct?
1. (Site name) Ground, this is truck eighty-eight.
 2. (Site name) Ground, staff twenty-nine.
 3. (Site name) Ground, truck eight three.
 4. (Site name) Ground, this is staff six eight.

5.08 Radio Test Procedures

- 125) On-the-air radio tests, when necessary, should be:
1. Conducted only by a supervisor.
 2. At least three (3) minutes long to ensure they need not be repeated.
 3. Should be short (not more than 10 seconds).
 4. Conducted using the ICAO phonetic alphabet only.
- 126) The readability of a radio signal may be reported numerically. A reported readability of three (3) means:
1. Perfectly readable.
 2. Readable but with difficulty.
 3. Unreadable.
 4. Readable.

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- 127) The readability of a radio signal may be reported numerically. A reported readability of four (4) means:
1. Readable.
 2. Unreadable.
 3. Readable but with difficulty.
 4. Perfectly readable.
- 128) The readability of a radio signal may be reported numerically. A reported readability of five (5) means:
1. Readable now and then.
 2. Perfectly readable.
 3. Unreadable.
 4. Readable but with difficulty.
- 129) The readability of a radio signal may be reported numerically. A reported readability of one (1) means:
1. Perfectly readable.
 2. Readable now and then.
 3. Readable but with difficulty.
 4. Unreadable.

9.02 AVOP National Test Answers

Listed below are the correct answers to questions in section 9.01. They are grouped to correspond with the sections of the manual on which they are based.

1.00	1) - 4		25) - 1		49) - 1
	2) - 3		26) - 3		50) - 2
	3) - 2		27) - 4		51) - 2
	4) - 1	4.02	28) - 3		52) - 4
2.02	5) - 3		29) - 2		53) - 4
2.03	6) - 2		30) - 1		54) - 1
3.00	7) - 2		31) - 4		55) - 3
	8) - 2		32) - 2		56) - 4
	9) - 2		33) - 2		57) - 3
	10) - 4		34) - 1		58) - 4
	11) - 2		35) - 2		59) - 4
	12) - 1		36) - 4		60) - 4
	13) - 3		37) - 4		61) - 4
	14) - 1		38) - 1		62) - 1
	15) - 3		39) - 2		63) - 3
4.01	16) - 3		40) - 2		64) - 4
	17) - 1		41) - 4		65) - 2
	18) - 1		42) - 3		66) - 2
	19) - 3		43) - 3		67) - 3
	20) - 3		44) - 4		68) - 2
	21) - 3	4.03	45) - 2		69) - 4
	22) - 3		46) - 2		70) - 2
	23) - 2		47) - 3	4.04	71) - 1
	24) - 1		48) - 2		72) - 1

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	73) - 2	5.04	113) - 4	
	74) - 3		114) - 1	
	75) - 3		115) - 2	
	76) - 1		116) - 3	
	77) - 4	5.05	117) - 3	
	78) - 1		118) - 1	
	79) - 3	5.06	119) - 3	
	80) - 4	5.07	120) - 4	
	81) - 1		121) - 3	
	82) - 4		122) - 4	
	83) - 1		123) - 1	
	84) - 4		124) - 3	
	85) - 2	5.08	125) - 3	
	86) - 3		126) - 2	
	87) - 4		127) - 1	
	88) - 4		128) - 2	
4.06	89) - 2		129) - 4	
	90) - 4			
	91) - 4			
4.07	92) - 3			
	93) - 4			
	94) - 2			
	95) - 4			
	96) - 1			
	97) - 2			
	98) - 3			
	99) - 4			
	100) - 1			
	101) - 3			
5.01	102) - 2			
	103) - 1			
	104) - 3			
	105) - 1			
	106) - 1			
	107) - 3			
5.02	108) - Check your answers with section 5.02 of this manual			
	109) - 3			
	110) - 4			
	111) - 1			
5.03	112) - Acknowledge		3	
	Confirm		9	
	Verify		6	
	I say again		7	
	Over		4	
	Read back		8	
	Say again		1	
	Affirmative		5	
	Correction		11	
	How do you read?		14	
	Negative		13	
	Out		12	
	Roger		10	
	Standby		2	

LOCAL AIRPORT TRAFFIC DIRECTIVES

APPLICABLE AT _____ AIRPORT

10.00 The information checked-off in this index is provided in the following pages and constitutes the Local Airport Traffic Directives for the airport named above.

10.01 How and where to:

- (a) Apply for an Airside Vehicle Operator's Permit _____
- (b) Report an accident _____
- (c) Report hazardous debris on aircraft movement surfaces _____
- (d) Arrange for an AVOP test _____

10.02 Airport Site Plan _____
Apron Site Plan _____

10.03 Explanation of Operating Procedures/Restrictions Specific to this Airport _____

10.04 Airport/Control Tower/FSS Agreement Related to Vehicle Operations _____

10.05 Radio Frequencies and Hours of Use _____

10.06 Study Material in TP 2633 relevant to the AVOP Test at this Airport (D and D/A) _____

10.07 _____

10.08 AVOP Self-Test _____

10.09 AVOP Local Test Questions _____

10.10 AVOP Local Test Answers _____