Star Aviation
Safe Driving Manual

Version 1.2

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1 SAFE DRIVING

The purpose of this document is to outline the minimum requirements for safe driving at Star Aviation.

Note: Updates from the previous version are highlighted in "yellow".

1.1 TRAINING AND COMPETENCY REQUIREMENTS

All personnel that are required to drive Ground Support Equipment (GSE), truck or a light and/ or road going vehicle must be deemed competent and authorised to drive on site and shall comply with the following:

- Hold a current Australian Driver's License (or equivalent)
- Hold a current 'Red' ASIC (unless under direct supervision of a current red ASIC and ADA holder for the purpose of training)
- Be trained and deemed competent on the specific piece of equipment.
- Only operate manual equipment if licenced to
- Adhere to all local airport authority rules regarding the obtaining of an ADA.

Employees commencing employment with Star Aviation from overseas who have a current motor vehicle licence from another country or state are required to transfer their licence to the relevant state/ territory/ country motor vehicle licence within 30 days of commencing employment.

1.2 DISQUALIFICATION

If a driver loses his/ her license for any reason they must notify their manager immediately and forfeit all driving privileges.

1.3 EXTRAORDINARY LICENSE

Drivers who have lost their license but are permitted to drive on public roads with an "Extraordinary driver's license" must make known the conditions of that "extraordinary license" and seek approval to drive Star Aviation Vehicles or drivable GSE. The disqualified drivers' Airport Manager shall document rationale when deciding to authorise conditionally licensed drivers.

1.4 REGULATORY BREACHES

Where a driver is deemed to be exceeding speed limits or disobeying road rules (airside or landside) it is the driver's responsibility to pay any penalties or infringements, this includes demerit points. A loss of license through misconduct may mean the employee will be suspended from performing company duties.

1.5 SAFE DRIVING RULES

When operating any Star Aviation vehicle or drivable GSE the following safe driving rules apply.

1.5.1 Vehicle Seat Belts

All driveable GSE with seats must have a seat belt fitted to each seat. For vehicles where the operator or driver operates from a standing position, seat belts are not required to be installed.

1.5.1.1 Seat Belt Use Is Mandatory

The wearing of a seat belt is mandatory (where it is fitted) for all seats in any driveable GSE.

Seat belts are commonly fitted with a lockout device to prevent the vehicle or GSE from being able to be driven if the seat belt is not engaged. Bypassing the lockout, by engaging the seatbelt and sitting on the seat (to avoid wearing the seat belt) is never acceptable. This is considered a serious safety breach and will be treated as such.

1.5.1.2 Operating Seat Belts

Seat belts should only be operated per their design. The seat belt must be correctly engaged prior to the vehicle moving and remain engaged until the vehicle comes to a complete stop.

The action of disconnecting a seat belt to stop a vehicle, is never an acceptable alternative to placing the vehicle gear sector in in park or neutral, engaging the handbrake and turning off the ignition. Failure to follow this procedure can lead to serious harm. This is considered a serious safety breach and will be treated as such.

Never disengage a seat belt until the vehicle has come to a complete stop. This is considered a serious safety breach and will be treated as such.

1.5.1.3 Unserviceable Seat Belts

If a seat belt is found to be unserviceable, that seat cannot be occupied with a person. If the seat belt that is not serviceable is located on the driver's seat, the whole vehicle/ GSE must be removed

from service, tagged as ‘unserviceable’ and not used until repairs can be completed. If the unserviceable seat belt is associated to a passenger seat, the seat belt must be clearly labelled as ‘unserviceable’ and a passenger must not occupy the seat until repairs can be completed and the seat belt is determined to be serviceable. Failure to follow this is considered a serious safety breach and will be treated as such.

1.5.2 Smoking

Smoking is prohibited in all Star Aviation vehicles, drivable GSE and when airside.

1.5.3 Medication (Prescription or Over the Counter)

Where an employee is taking medication or has a medical condition that may affect their ability to operate GSE or drive a vehicle, it is their responsibility to relay this information to their immediate supervisor

1.5.4 Speed Limits

Drive within the speed limits, not necessary at the speed limits and keep safe distance to the previous vehicle. Walking speed (5km/h) shall be respected inside the aircraft ERA or inside any airport closed environment facilities (e.g., cargo warehouse, bag rooms, etc).

1.5.5 Safety over OTP

At Star Aviation, safety is a core value, and it is part of what we do. While it is important to be efficient, there is no need to rush or take shortcuts. It is essential that you always follow Standard Operating Procedures (SOPs), Star Aviation, Regulatory and Airport rules. Remember Safety over OTP, as you can be brisk without risk.

1.5.6 Operating Conditions

Always drive to conditions. In adverse weather (rain, wet, slippery, or icy surfaces) or low visibility conditions (after sunset, fog, etc.) adjust your speed to the apron conditions. Lower speed, especially during curves or turns and keep a safe distance to the previous vehicle.

1.5.7 Driver/ Operator Personal Readiness

Do not drive or work while fatigued or under the influence of alcohol, drugs or prescription medication which may impair your ability to work safely. It is each person's responsibility to raise this with your manager or supervisor as soon as possible.

1.5.8 Guide Person

A Guide Person is a staff member that has been trained in performing the function of a Guide Person and will always direct equipment using approved IATA hand signals. The Guide Person must always position themselves so they can accurately judge clearances, and signals can be visually communicated to the operator of the equipment.
CAUTION: If visual contact is lost between the equipment operator and the Guide Person, the equipment must stop immediately and not recommence until visual contact is restored.

1.5.9 Portable Electronic Devices (PEDs)

The use of any PED such as mobile phones or music devices are strictly prohibited when driving a vehicle or operating GSE.

1.5.10 Equipment Cleanliness

All equipment shall be kept clean and free of debris and handling material such as clamping sets, ropes, supporting planks, etc. unless proper storage is provided to allow safe carriage.

1.5.11 No seat no ride

GSE and other vehicles are only allowed to carry the specific number of passengers which they are designed for. Personnel must be in a designated seat (unless approved standing areas are provided and clearly signed). Personnel shall not be carried on the moving parts of the GSE, for example on a moving conveyor belt or high-loader bridges and platforms.

1.5.12 Entering and Exiting a Vehicle

The vehicle must have come to a complete stop prior to entering or exiting. Seatbelts must be engaged prior to vehicle movement and remain engaged until after the vehicle has come to a complete stop.

Caution: Always keep hands and feet inside vehicles when in operation.

1.5.13 Secure Load

Ensure all loaded dollies or transporters have been secured by engaging locks, stops, rails or straps at all times except when the load is being transferred onto or off the equipment.

1.5.14 Elevated Position

Do not drive GSE with lifting parts (e.g., bridge platform) in the elevated position. Equipment lifting parts shall only be elevated during the final positioning at the aircraft.

1.5.15 Vehicle and GSE Use

GSE Shall only be used for its designed and intended purpose.

The misuse of GSE is unacceptable and will likely be the subject of further disciplinary action.

1.5.16 Height Clearances

Some types of equipment (e.g., PAD, stairs) are higher than the towing GSE and should never be driven or towed beneath fixed structures (e.g., Aerobridges). When driving or towing equipment, drivers must always check their surroundings to ensure that they have enough manoeuvring room, if not an alternative route must be taken. Consequences of inadequate clearances can include damage to equipment and facilities, injuries, and operational disruption.

1.5.17 Towing Equipment

Whenever towing equipment, the operator of the vehicle must ensure that the tow eye from the equipment being towed is correctly aligned with the tow hitch, and that the tow pin is correctly seated, engaged, and fully inserted through the tow eye and tow hitch. Failure to confirm this can result in an unintended detachment of the items being towed resulting in severe injury or damage.

1.5.18 Transfer of Baggage and/ or Cargo

Baggage and/or cargo items must never be transferred on the seat or footwell of the tug.

1.5.19 Operating Lights

Headlights must be used in all low light conditions. Headlights must be functional, and on low beam to ensure other operations are not impacted by high beams.

1.5.20 Pedestrian Clearance

Remain at least 1m away from pedestrians.

1.5.21 Unattended Vehicles/ Equipment

Vehicles are to never be left with the ignition running (or on) when unattended (unless it is required to power equipment to service the aircraft. In this instance the vehicle must always have a wheel

chock in place). Unattended vehicles must have the gear selector in "Park" (or Neutral if no park position is available), and the handbrake fully engaged.

1.5.22 Safety Checks

GSE Daily Functional and Before Use Visual Checks shall be performed before use according to the Daily GSE Inspection Guide.

1.5.23 Operational/ Situational Awareness

Always maintain situational awareness of your surroundings and plan your driving route.

- Before moving ensure the path is clear in front, to the side, to the rear.
- If towing any equipment or GSE ensure the path of the towed items are clear of personnel or other GSE, and there is adequate height clearance.

1.6 SITUATIONAL AWARENESS

Situational awareness refers to being aware of what is happening around you, where you are in relation to other people or things, and what potential threats there might be.

It is also about thinking about what hazards or challenges you may face, and what you can do to avoid or minimise the impact of those potential hazards.

Situation awareness may be lost because of fatigue, distractions, stressful situations, high workload, vigilance failures, poorly presented information, forgetting key information and poor mental models. This is why it is so important, that when driving GSE including a vehicle of any type, you focus on the act of driving and monitoring your surroundings. Don't rush or try to do other things. Focus on what is in front and around you and prepare to stop or change direction to avoid a hazardous situation.

1.7 VEHICLE AND DRIVABLE GSE MAINTENANCE

All Star Aviation owned or leased vehicles and GSE must:

- Be regularly maintained and kept in a safe and tidy condition, in accordance with the GSE Management Procedure.
- Have a daily pre-movement inspection completed. Safety faults found during the inspection must be reported as a fault via a SIREN.
- Have a valid Authority to Use Airside (AUA), where required, when operating in the airport locations.

1.8 VEHICLE ACCIDENTS

All vehicle and drivable GSE accidents must be reported immediately to the Star Aviation Supervisor and in accordance with the Star Aviation occurrence reporting and investigation policy.

1.9 DRIVER BEHAVIOUR

1.9.1 Mobile Phone and Other Portable Electronic Devices

Mobile phones and other portable electronic devices (PED) shall NOT be used whilst operating vehicles or drivable GSE at any time.

Vehicle operators who are required to use a mobile phone shall pull off the road to a safe position prior to use.

It is recommended not to use a two-way radio while operating drivable GSE.

1.9.2 Prohibitions

- No smoking
- No open flame

- No food and drink
- No personal electronic devices (PED)
- No alcohol and/or drugs
- No walking on moving belt
- No speeding
- No seat, no ride
- No skylarking
- No operation of GSE for personal gain (GSE is to be used for operational purposes only).

1.9.3 Reversing Equipment

When reversing any equipment where the driver does not have clear visibility either through line of sight or the use of technology (e.g., a reversing camera or sensors), the equipment can only be reversed under the guidance of a Guide Person.

1.9.4 Monitoring Driver Behaviour

Each airport shall identify and manage at risk driver behaviour by developing a self-audit schedule to observe driving activities.

2 AIRSIDE OPERATIONS

2.1 INTRODUCTION

Airside operations ensure the efficient turnaround of aircraft. They include various activities, such as baggage handling, aircraft servicing, airside driving and ensure that flights stay on schedule.

2.1.1 Airside Safety Hazards

Hazards and potential hazards exist everywhere in the airport environment, some of the safety hazards that staff are faced with on a day-to-day basis are:

- Excessive noise from aircraft engines (jet and propeller aircraft)
- Jet blast or engine ingestion around jet aircraft engines
- Propeller strike from running, or 'feathering' propellers, which can be difficult to see
- Moving tarmac vehicles, such as tugs, baggage barrows, aircraft cleaning and and catering trucks
- Aircraft fuelling, which may be susceptible to ignition (in the case of smoking or use of portable electronic devices), or rupturing if struck by tarmac equipment
- Manual handling during aircraft loading and unloading
- Working at heights if using equipment significantly higher than ground level, such as aircraft push-stairs, conveyor belts, or PAD
- Aircraft moving about the tarmac area, whether taxiing into/out of their parking bay, or under the power of the push back vehicle
- Dangerous Goods, either consigned freight, or within passenger's baggage.

Star Aviation is committed to providing a safe work environment for all our staff to work in, to do this the staff member's involvement in identifying and eliminating the risks and hazards is essential. Poor airside safety can have catastrophic consequences for both individuals, and for the business collectively. Some of the consequences of poor airside safety can include:

- Life-long noise-induced hearing loss (excessive noise)
- Instant death (jet blast, engine ingestion, propeller strike)
- Loss of limb(s) (propeller strike)
- Broken bones and other body injury (contact with moving equipment, or fall from height)

- Fire and bodily burns (ignited fuel spill)
- Back and neck injuries (poor manual handling techniques)
- Loss of business contracts and income

Star Aviation employees need to be aware and contribute to providing a safe workplace by ensuring that all team members follow instructions given to them by trainers, management and by our client airlines. Ensuring all staff comply with the following:

- Being aware of your surroundings at all times (situational awareness), and identifying safety hazards which may be present
- Adhering to procedures which are designed to contribute to workplace safety. (Either by the clients we represent or by Star Aviation management)
- Using all personal protective equipment (PPE) provided to minimise risks
- Ensuring that all Ground Support Equipment (GSE) is safe to use, and defects promptly reported
- Follow all reasonable instructions from shift supervisors and managers
- Reporting any safety hazards that may require additional safety precautions

2.1.1.1 Boeing B737 Scimitar Winglets

Boeing has introduced Scimitar winglets to improve the aerodynamic and therefore fuel performance on the Boeing B737. These new winglets, in addition to the 'normal' high fin also include a fin that goes below the wing. This means the normal underwing clearance at the wingtip is now significantly lower on aircraft fitted with the Scimitar winglets. Both Qantas and Virgin Australia are adopting the Scimitar winglet, and so these will now be present airside.

Depending on the specific B-737 the clearance will vary, but the winglets can reduce clearance to about 3.0m. When operating around B737 with a Scimitar winglet, it is recommended thay you maintain at least 5m clearance from the wingtip.

High Lift trucks

If it is not possible to maintain a 5m clearance of a Scimitar winglet when driving a high lift truck, a marshaller/ guide person must be used to assist with guiding the vehicle past the wingtip to avoid any unintentional contact.

2.1.2 Aircraft Engines

Vehicles and personnel must remain clear of aircraft danger areas when aircraft engines are running and/or the anti-collision lights are on.

(a) In order to prevent incidents and accidents caused by aircraft engines, you must never position yourself or equipment in the following critical areas before or during aircraft departure and arrival:

1. Engine intake area
2. Engine blast area
3. Propeller rotation area, where applicable

(b) Make sure the engine intake/propeller rotation area is always clear when engines are running, or the engine start is about to begin.

(c) It is forbidden to pass through the blast area while the engines are running.

Danger: Ground personnel and/or loose equipment must stay clear of the intake and blast areas.

2.1.2.1 Jet Engines

Jet Engines provide power and thrust to the aircraft during in flight and whilst on the ground when not being towed or pushed, understandably these pieces of machinery are extraordinarily powerful. There are three main hazards which exist, when dealing with the engines:

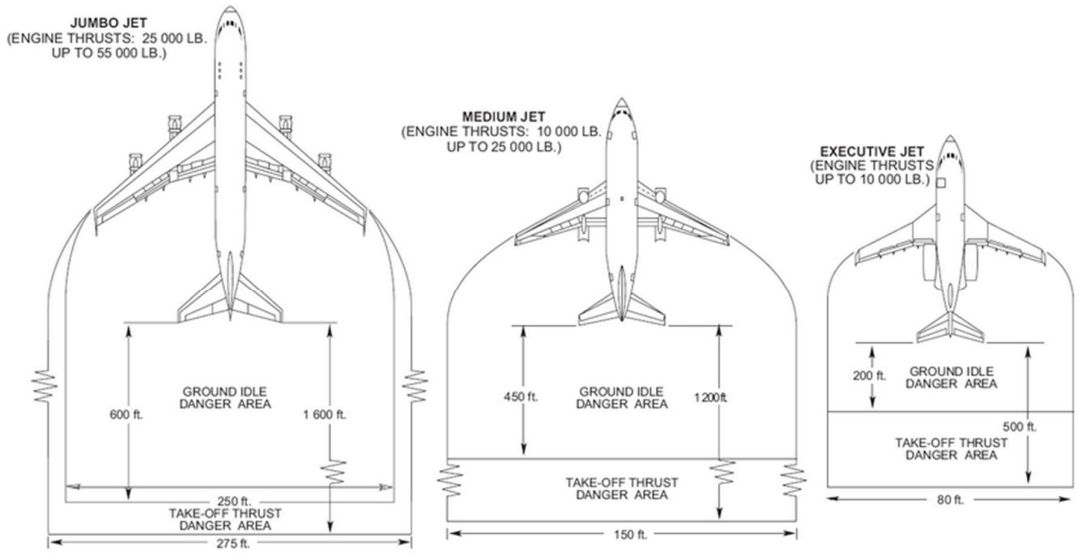
- **Engine Heat** – The tail pipe and associated components of a turbine engine can often be extremely hot whilst on the ground. The parts of a jet engine are constructed to withstand temperatures of around 1500 degrees Celsius. Immediately following the arrival of an aircraft after the engines have spooled down components of the engine can remain extremely hot in several hundred degrees Celsius range
- **Engine Ingestion** – When a jet engine operates, it creates a low-air-pressure area in front of the engine. As the aircraft requires a large amount of air it creates a sucking force to pull the air in. The suction force created by the aircraft engines can ingest large objects such as FOD, GSE. This does not limit the possibility of personnel being ingested into an aircraft engine which would most certainly have fatal consequences. Additionally, large items ingested into the engine can also jeopardise the aircraft's serviceability and become hazardous to other aircraft or objects behind the engine which are impacted by the jet blast
- **Jet Blast** – Hot exhaust is emitted from the tail of the engine blasting hot air at a speed of up to 160 km an hour. This air has been known to flip large vehicles, drivable GSE etc, presenting a very serious risk. Ensuring that all equipment and personnel remain behind the equipment line markings is paramount in allowing a safe distance from any jet engine blast.

There is a particular risk of injury or damage in areas affected by aircraft engine intakes, exhausts, and propellers. The risk is further increased if for any reason an aircraft stops and then applies the additional thrust required to "break away" and continue the manoeuvre.

All persons working near aircraft must be aware of how to identify whether aircraft engines are at IDLE or THRUST.

ENGINE AT IDLE	ENGINE AT THRUST
HOW TO IDENTIFY	
• Anti-collision beacon is ON • Engines are operating (i.e noisy) • Dispatcher on headset at aircraft	• Anti-collision beacon is ON • Engines are operating (i.e noisey) • No-one present at aircraft
SAFETY PRECAUTIONS	
• Nothing within 30 meters from tail of aircraft (exhaust danger area) • Nothing within 6-meter radius of engine inleft (ingestion danger area)	• Nothing behind tail of aircraft (exhaust danger area) • Nothing within 6-meter radius of engine inlet (ingesting danger area)

Refer to client operating procedures for distances applicable to the specific aircraft types.



JET BLAST DANGER AREAS (NOT TO SCALE)

2.1.2.2 Propeller Engines

Propeller engines have the similar dangers to that of a jet engine. The main difference with propellers is that once they are up to speed or running up or down to speed it is very difficult to see the actual blades of a propeller, particularly in dark or low light situations. In fact, propellers often seem invisible when operated at full speed, it is therefore necessary to understand the difference between when they are in operation and when they have spooled down, ensuring blades of a propeller can be seen when working around them.

2.1.3 Airside Driving

When driving airside, drivers must remain visually aware of their surrounds and the movements of other vehicles, aircraft and personnel on airside roads and apron areas. Operation of GSE shall only be carried out by authorised and qualified personnel who have been appropriately trained, have demonstrated theoretical & practical knowledge, and been deemed competent to perform those tasks.

Always obey Star Aviation and local airport rules and regulations.

2.1.4 Mandatory Give Way Requirements

Unless overruled by airport, the vehicle priorities on the ramp are as follows:

2.1.4.1 Aircraft Have Right of Way

Whenever driving airside, you must always give way to aircraft. It is essential that you are always looking out for aircraft that may be taxiing or preparing to depart. You must exercise caution.

- **Taxiing Aircraft**
  - Aircraft (moving under own power and under tow)
  - All vehicles/ GSE operators must give way to taxiing aircraft (or aircraft under tow)
  - Taxiing aircraft can be identified by the illuminated nose wheel taxi light
  - Taxiing aircraft coming onto bay will generally have all flaps (rear of the wing) and slats (front of the wing) retracted.
  - Signs that will alert that a bay is about to be occupied by an aircraft arrival include the Nose in Guidance System (NIGs) being active, a person standing ready to receive the aircraft, ground staff stationed on the bay with equipment.

- **Aircraft Preparing to Depart**
    - The signs to alert you to an aircraft preparing to depart a bay include, the anti-collision beacons are on, all doors are closed, no GSE is positioned at the aircraft, the aerobridge (if available) is not connected to the aircraft, the wheel chocks have been removed, the pushback vehicle is connected to the nosewheel (or main landing gear), the dispatcher is at the nosewheel.
- **Emergency vehicles**
    - As on public roads, airside operators must give way to emergency service vehicles
- **Vehicles exiting taxiways**
    - Any vehicle operating on a taxiway has right of way when exiting (airside safety vehicles, pushback tractors, emergency service vehicles, etc.)
- **People**
    - GSE shall always give way to passengers and be aware of their safety and potential lack of awareness of surroundings.

2.1.5 Circle Of Safety

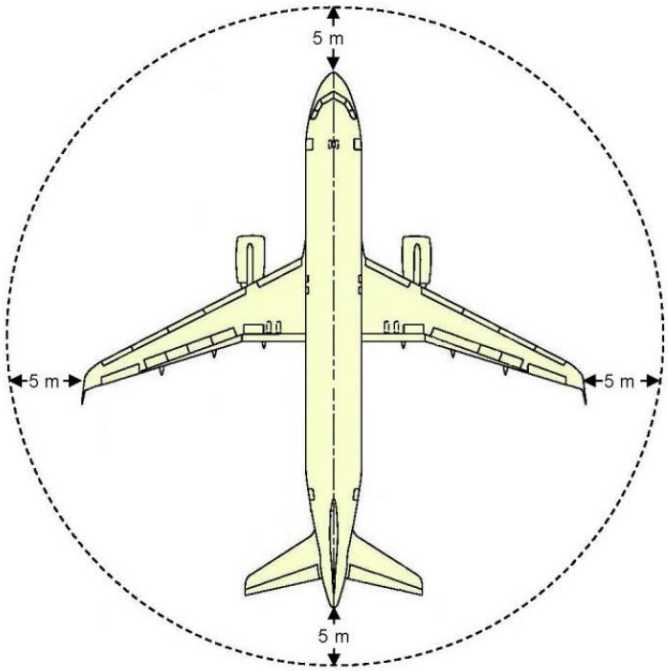
The Circle of Safety is a virtual safety buffer that extends 5 metres around the aircraft from the extremities being the nose, tail, and wing tips.

Once inside the Circle of Safety the operation of equipment should not exceed walking pace (5kph).

Drivable equipment entering the circle of safety must complete two full stop brake tests, the first at 5m (beginning of the circle of safety), and the second at 2m from the aircraft.

Equipment must never be reversed within the circle of safety unless under the direction of a Guide Person.

If the operator of equipment has reduced visibility within the circle of safety, the equipment must be operated under the direction of a Guide Person.



2.1.6 Approaching Aircraft

When the aircraft is taxiing into bay all equipment and Star Aviation ground team members must be behind the marked equipment clearance line. If the airport does not have these marked on the apron, always remain beyond the circle of safety.

Once the aircraft has come to a stop it is still not safe to approach the aircraft.

2.1.6.1 Anti-collision Beacons

Anti-collision beacons are external beacons located on top and bottom of the aircraft's fuselage, halfway down the length of the aircraft. The anti-collision beacons are extinguished by the captain when the engines have powered down enough to prevent jet blast or any ingestion hazards.

Once these beacons have been extinguished, the engines are spooling down, and the clearance from the aircraft receiver is given, it is safe to approach the aircraft and position ground support equipment.

Depending on the client ground teams are operating on, Star Aviation's clients may have additional requirements to consider prior to approaching the aircraft, these requirements must be fulfilled at all times (e.g., chocks in place, thumbs up from an engineer), however specific client training packages will refer to these points where necessary.

2.1.6.2 Towing GSE

When towing GSE to position at or near the aircraft, where possible, it should be driven along a path that does not require sharp turns, approaches the aircraft on a path parallel to the side of the aircraft fuselage and is parked in a position that is parallel or facing away from the aircraft fuselage.

2.1.7 Airside Markings

Employees working airside at airports MUST be familiar with the form and connotation of ALL airside markings.

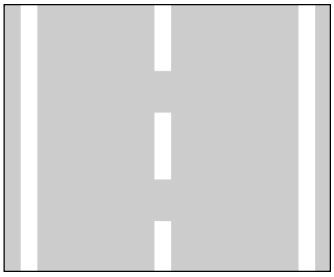
There may be some variance in the type of markings used at various airport locations where Star Aviation operates so local knowledge must be supplemented with awareness of general airport marking standards.

2.1.7.1 Runway Strip

White gable markers indicate the edge of the runway. Vehicles are not permitted to enter the runway strip without specific clearance from air traffic control (ATC) and at some airports, not without an escort or the driver/operator being the holder of an appropriate category airside license/ADA and radio operator's license (ROL) issued by a competent authority.

Where operations are conducted outside the hours during which ATC operates, vehicles required to traverse the runway strip MUST be fitted with a ground-to-air radio and mandatory broadcasts made.

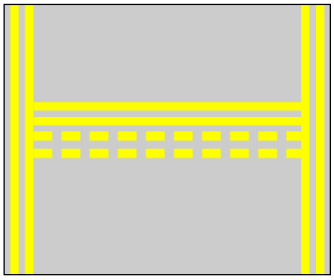
Example Runway Section



2.1.7.2 Taxi Hold Points

Taxi hold points are the holding point for aircraft prior to entering the runway. ATC often hold vehicles at this point prior to crossing a runway.

Taxi Hold Point

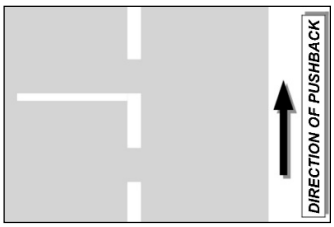


2.1.7.3 Tug Disconnect Point

Tugs engaged in the towing, or pushback of aircraft from an apron area, are required to disconnect at the point indicated by this marking.

These markers are designed to ensure that aircraft pushed back or being towed from the apron hold clear of other parked or taxiing aircraft.

Tug Disconnect Point

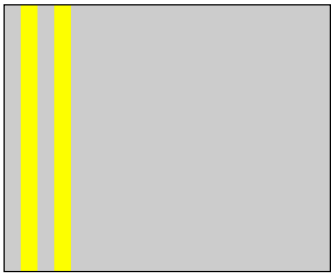


2.1.7.4 Taxiway Edge Markers

Taxiway edge markers consist of two (2) yellow lines side-by-side. The lines MUST NOT be crossed. When an extended 'shoulder' has been provided for blast protection, there will be yellow 'chevron' markings on the pavement to signify low strength pavement.

Vehicles are NOT TO DRIVE on these shoulders under any circumstances.

Taxiway Edge Marker



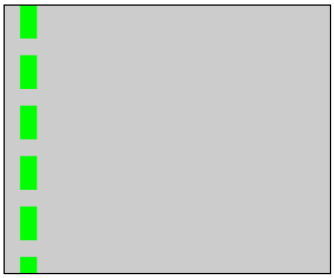
2.1.7.5 Manoeuvring Area Limit

A ‘dotted’ green line marks the limit of the manoeuvring area.

No vehicle is to cross this line without clearance from ATC.

Depending on the background and the contrast it provides to the line, either black or white might be used at certain airports as a contrast and will be no smaller than the width of the line itself.

Manoeuvring Area Limit

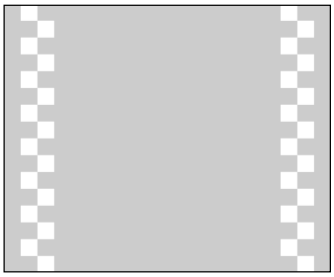


2.1.7.6 Live Taxiway Crossing

‘Staggered’ white lines mark a crossing, defining the boundary of the crossing, on a live taxiway. Vehicles MUST STOP, give way to moving aircraft (when approaching) and cross with care.

Under no circumstances should an attempt be made to ‘beat’ a taxiing aircraft. The aircraft MUST be well clear of the area (to avoid jet blast) before crossing is attempted after aircraft have passed.

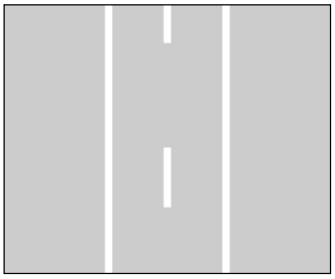
Live Taxiway Crossing



2.1.7.7 Apron Service Roads

Apron service roads are marked like a normal roadway with white road paint. Vehicles operating on the apron other than directly involved in servicing an aircraft on the apron (obeying all rules regarding approach to aircraft) MUST always remain on the airside road. Note that where part of the airside road impinges onto a live taxiway, the pattern above will be incorporated into the border of the roadway.

Apron Service Road



2.1.7.8 Hold Point for Apron Service Road

At various points on the apron, vehicles operating on the marked service roads must stop and observe aircraft. Vehicles may only proceed if no aircraft are approaching.

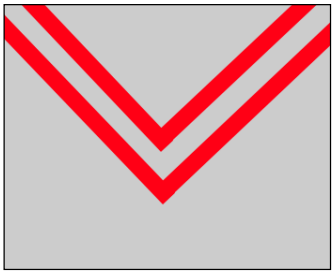
2.1.7.9 Equipment Parking Areas

An area contained within either a single solid red line or double red lines defines equipment parking areas. This area may also be known as Equipment Storage Area.

Equipment parking areas are those where vehicles and equipment may be parked clear of aircraft. Vehicles MUST ALWAYS be stored behind these lines.

Parking areas designated for a specific item of equipment MUST NOT be utilised for parking of other equipment.

Equipment Parking Area (Boundary Lines)



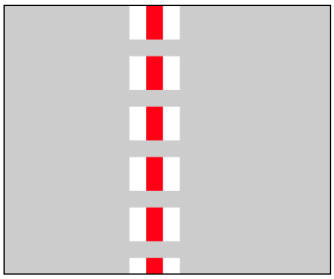
2.1.7.10 Equipment Clearance Line(s)

A broken red line that defines the limit beyond which vehicles and equipment MUST NOT cross while aircraft are taxiing onto the apron/parking position and departing from position.

The illustration below shows white borders on either side of the red broken line and this format is an option available to airports to ensure that the red line is clearly visible against a 'non-contrasting' apron background.

Equipment Clearance Line may also be known as Equipment Restraint Area or Staging Areas.

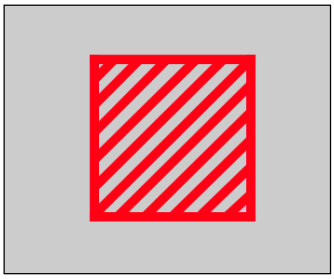
Equipment Clearance Line (During Movement of Aircraft)



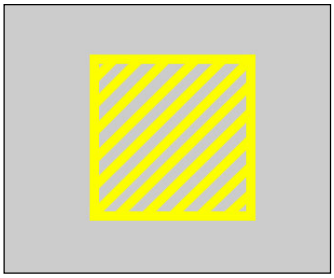
2.1.7.11 Safety Area

Red or yellow 'hatching' defines safety areas that MUST REMAIN CLEAR AT ALL TIMES. Vehicles MUST NOT park, transit or stand in these areas.

Red Hatched Area



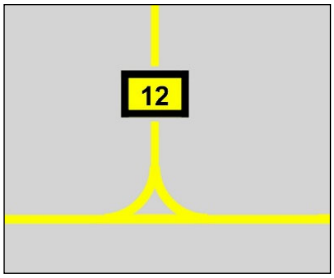
Yellow Hatched Area



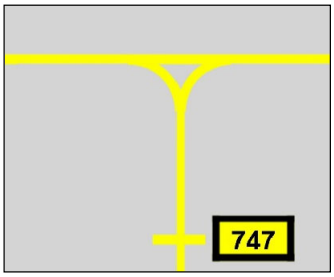
2.1.7.12 Aircraft Guidance Lines (For Taxiing)

Some examples of aircraft taxi lines on aprons are shown below. These are shown for information purposes. Note that on lighter pavements (concrete as opposed to bitumen), the yellow line may be bordered by black lines either side to improve visibility. The second example features the aircraft type apparently upside down, however, this is so the marshaller can read the label easily.

Basic Nose Wheel Guideline



Stop Marker on Nose Guidance Line (Not To Scale)



2.1.8 Fire Extinguishers

Maintained according to company, local airport and client requirements (where fitted).

2.1.9 Vehicle and GSE positioning

GSE must never be positioned in a manner that obstructs areas (specifically under cabin doors) which may be required for emergency evacuation of the aircraft, or in a manner which impedes the emergency exit route of an aircraft fuelling vehicle.

GSE shall be positioned, secured with the parking brakes set with gear selector in park (or neutral, if park is not equipped), wheel chock installed and remain behind ramp safety lines or according to local airport regulation, prior to any aircraft movement, arrival, and departure.

When aircraft loading operations are completed, all GSE shall be removed from the ERA.

When not servicing aircraft, all GSE shall be parked in a designated parking area and secured. It must be ensured that GSE does not obstruct access to fire equipment and the fuel hydrant emergency stop switch.

2.1.10 Foreign Object Debris/Damage (FOD) Prevention Program

Damage to aircraft, equipment, property, and injury to personnel caused by foreign object debris is not only a serious threat to safety but continues to cost aircraft operators annually in direct losses resulting from aircraft and/or equipment out of service and disruption of schedules.

Foreign object damage is defined as damage to aircraft, aircraft engines, tyres, or aircraft components caused by foreign object debris; in other words, FOD (foreign object debris) can cause FOD (foreign object damage).

The objective of this program is to eliminate FOD by identifying and eliminating conditions, that if not corrected, could cause damage.

2.1.10.1 Causes of FOD

FOD may result from:

Foreign object debris is any object that is left in an area where it could possibly cause foreign object damage. Foreign object debris includes materials such as:

- Metal (e.g., nuts, bolts, tools, wire)
- Plastic (e.g., drink bottles, cups)
- Wood
- Stones
- Pavements fragments
- Paper
- Baggage components (locks, tags, wheels, buckles, handles)
- Aircraft Waste
- Inadequate housekeeping
- Clean-up operations after severe weather
- Failure to account for tools and parts
- Failure to maintain ground support equipment
- Apron works in progress/construction sites

FOD is most often caused by the carelessness of personnel airside, and their lack of understanding of its consequences, or its movement caused by high winds or jet blast, this can cause not just equipment, facilities, and aircraft damage, however, can cause serious injury. Every individual has a responsibility to ensure that the risk of damage or injury from FOD is minimized. All FOD must be removed and properly disposed of as soon as it is discovered.

FOD may be sucked into aircraft engines causing damage leading to engine failure. This is especially critical if it occurs in flight, particularly during the take-off phase. In addition, FOD can damage tires, the undercarriage, control systems and other parts of the airframe, which can lead to in-flight failures.

2.1.10.2 FOD Prevention

Note: Although not identified in the above list, when placed at bottom of the stairs aircraft rubbish bags have the potential to cause FOD. Where there is a delay in collecting rubbish bags, ground staff must notify relevant personnel for their removal. The following checks must be conducted prior to any aircraft movement and after servicing operations:

- Ensure personnel working airside has received training and awareness of FOD
- Ensure that ground support equipment is always free of FOD
- Prior to aircraft arrivals, a FOD check should be conducted on the bay and in the surrounding areas
- Check ground equipment staging and parking areas in proximity to area of operation
- Do routine checks of ground equipment (including floors of enclosed cabins) to ensure that everything is secure and operational and not about to fall off and become FOD
- In ramp areas ensure that anything carried in or on a vehicle is secured
- Pick up and dispose of all FOD in designated FOD bins, where provided
- Where FOD bins are not provided, ensure the item is discarded in a responsible manner away from aircraft operations

2.1.10.3 FOD Promotion

There are several methods available to promote FOD. Promotional efforts should be an integral part of the operation. Proactive strategies can be, but are not limited to:

- FOD walks
- Safety meetings
- Notices
- Forums
- Shift briefings/ Toolbox
- Posters, stickers, banners
- Star Aviation Safety Days
- Airport Safety Weeks
- Shared learnings

Where FOD is found, it must be reported through a SIREN (or to flight crew if there is a possibility the FOD came from or impacted the aircraft).

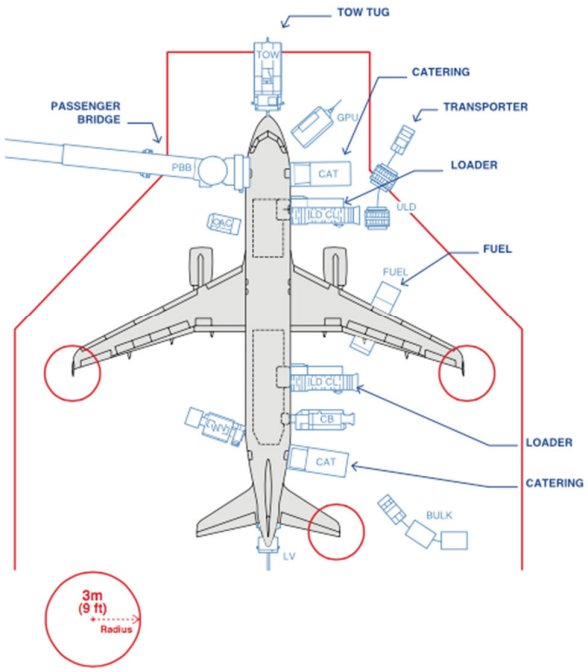
2.1.11 Aircraft Refuelling

Whilst on the ground, aircraft will often require refuelling which can be done in one of two ways depending on the airport setup:

- **Tanker** – Fuel is pumped from truck's tank into the aircraft
- **Hydrant** – Fuel is pumped by a vehicle which has an on-board pump directly from the underground fuel tank into the aircraft.

In any case, whilst the aircraft is refuelling the fuel truck must not be impeded from making an emergency exit from the aircraft's vicinity. Due to the high amount of fuel vapours in the air whilst refuelling naked flames from smoking or any current-arcing devices such as mobile phones or cameras are strictly prohibited on the tarmac. There is also a possibility that whilst refuelling a fuel spill on the tarmac may occur. If a staff member witnesses, or is near a fuel spill, the refueler must be notified immediately. Staff must also be aware of the emergency fuel stop button's use and where it is located, the stop button is intended to stop the flow of fuel. Additionally, team members must also be aware of where to locate the airside fuel/hazardous spill kit to contain such spills.

Example of safety zone for A320



The Fuelling Safety Zone (FSZ) is defined as an area of at least 3 meters in any direction from the centre-point of all fuel vent exits, refuelling plugs, aircraft refuelling ports, fuel hydrants, fuel hoses and fuelling vehicles. This distance may be further increased as required by local airport or civil aviation regulations.

Within the Fuelling Safety Zone (FSZ), all personnel must ensure that they:

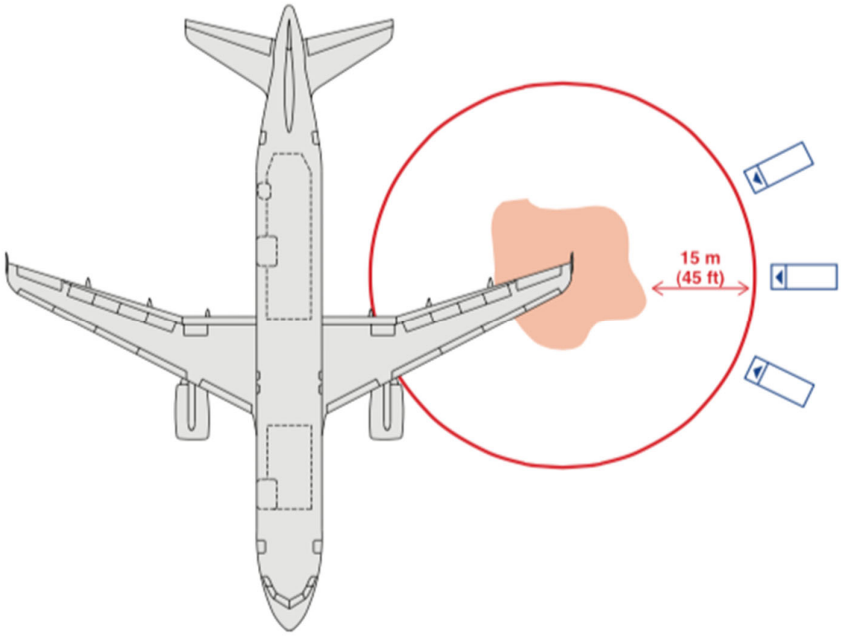
- Do NOT smoke
- Only use company issued and approved radios, radio telephones, pagers, torches, lamps, and lighting systems. Battery chargers must not be operated
- Enter the FSZ only when required by your present job task responsibility
- Assume that fuelling is taking place anytime a fuel vehicle is on the stand during aircraft servicing and fuel hoses connected
- Do not leave vehicle engines running unnecessarily
- Position all GSE and vehicles so they do not obstruct the fuelling vehicles' escape route
- Do not allow any passengers to enter the FSZ
- Avoid the use of motorized GSE within the FSZ
- Do not park any equipment in the FSZ
- Ensure fuel hoses are protected and all ground equipment is kept a minimum of 1 metre (3 ft) away from any fuel hose on the stand that is connected between a fuel truck and an aircraft

2.1.11.1 Fuel Spillage

Take the following safety measures whenever a fuel spill occurs:

- Activate the emergency shut-off valve (where installed)
- Alert the person in charge of fuelling and/or the Pilot in Command of the spillage
- Contact the local fire service if not already done
- Verify with authorities/supervisor whether to stop all activity around the aircraft.

- As far as possible, restrict all activities inside and outside the spill area to reduce the risk of ignition
- Secure the area 15 metres from the contaminated area



2.1.11.2 Refuelling/ Defueling with Passengers on Board

When fuelling with passengers on board you must:

- Keep designated escape exits clear. An escape exit may either be a bridge into a terminal building, a cabin door or a passenger stair truck positioned on an open cabin door.
- Ensure that all areas on stand below designated escape exits are kept free of any equipment and vehicles which would impede the deployment of an escape slide.
- Not hinder escape routes of passengers on board by ensuring that passenger stairs and bridges are clear of FOD.

Refer to the operating airlines' policy regarding fuelling as well as local airports and regulatory requirements. The above is applicable as a minimum standard.

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