

Ramp Handling

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Introduction

Aircraft ramp areas have been described as one of the most dangerous places in the world. Fuelers, caterers, baggage and freight vehicles all have their own agenda. Add maintenance vans, high lifts, tugs, and pickups – throw in the airplanes – and you have an environment that requires a 360 degree awareness level in order to keep track of everything. There is no room for complacency.

Working conditions on an airport ramp will vary from day to day, from hour to hour, and even from minute to minute. These varying conditions will encompass anything from the pace of the work, the weather conditions, new or different situations that may arise, and perhaps most importantly, the continual need for safety awareness around you.

Webster's Dictionary defines safety as the condition of being safe from undergoing or causing hurt, injury, or loss. We must exceed our own expectations and demonstrate that we have a safe operation for our customers as well as ourselves.

Choice Aviation Services does not own or operate aircraft, but as a major part of our airline services, we provide ground support equipment and trained employees to service customer owned and operated aircraft. Where a customer's procedures differs from the Choice ground handling procedures the customer's procedures will prevail.

This training will provide you with some basic safety information from both an operational and procedural perspective. How well you apply this training to your job will determine the safety of yourself and your fellow employees.



Glossary

Allowable Cargo Load (ACL) – The maximum amount of freight which can be loaded on the aircraft for each flight leg. Such conditions as runway limits, aircraft climb limits, landing weight limits are used to calculate the ACL.

Air Cargo – In the United States and Canada any mail, freight moving by air. In other countries, freight only.

Aircraft Configuration – Refers to the interior structural arrangements of the main deck of the aircraft. Common configurations are:

- All Passenger Aircraft

- All Cargo Aircraft

- Combi Aircraft

Air Freight – Any commodity over 16 ounces transported by aircraft.

Air Waybill – A type of bill of lading made out by or on behalf of the shipper which evidences the legal contract between the shipper and the carrier for carriage of goods.



Glossary

Auxiliary Power Unit (APU) – A self contained engine inside the aircraft that provides electricity and pneumatic power while the aircraft is on the ground.

Actual Time of Arrival (ATA) – Indicates the actual touch down time of the aircraft upon landing followed by the block time upon arrival at the gate (i.e.: 0745/57)

Actual Time of Departure (ATD) – Indicates the actual block out time of the aircraft from the gate followed by the actual lift off time (i.e.: 1120/39)

Air Start – A mobile or towable device used to provide pneumatic air to aircraft engines during startup. (As requested by captain)

Ball Mat – Deck sections fitted with golf-sized steel balls that roll freely in sockets. The sections are installed in the aircraft doorway of the main deck allowing easy maneuvering of ULDs through the door.

Barrier Net – Heavy multi-layered nylon webbing strung across the fuselage from heavy shackles on fuselage walls. It is able to withstand 100,000 pounds or more at force 9 Gs. Designed to prevent freight from crashing forward into passenger or crew compartments in emergency landing situations.



Glossary

Belly – Cargo compartment located underneath the main deck.

Belt Loader – Know also as “Conveyor Belt”, it is a self-propelled, self-contained vehicle equipped with a mechanical drive conveyor belt which is designed for loading/unloading the belly compartments of the aircraft.

Block In – Indicates the official time the aircraft arrived at the gate. The word “block in” derives from placing blocks behind the wheels of the aircraft.

Block Out – Indicates the official departure time of the aircraft from the gate, which is the time the aircraft physically moves either under its own power or by pushback.

Bonded Area – An area of accommodations which Customs has authorized for the storage of un-cleared consignments.

Bonded Cargo – Goods which are imported to, or moving through, a country and have not been cleared by the local Customs authorities. The carrier must hold these goods in a bonded area until cleared by Customs or moved to other destinations.



Glossary

Bonded Warehouse – An airline terminal approved by the Treasury Department for the storage of goods until Customs duties are paid or the goods are otherwise released.

Breakdown – To unload freight from a ULD for delivery to consignees.

Built Up Container (BUC) – A term used in the international market to denote a container or pallet tendered to the carrier already built up by the shipper.

Bulk – a) Freight loaded loose on aircraft, b) A compartment on an aircraft designed to hold loose freight.

Cart – Four-wheeled vehicle for carrying freight or baggage. Designed to be towed singly or in a train.

Chocks – Hard blocks used to prevent the aircraft and ground equipment from rolling. Material can be hard rubber, wood or aluminum.

Comat – Short for **CO**mpany **MA**Terial transported on the carrier owned aircrafts.

Combi Aircraft – An aircraft in which both passengers and cargo are carried in the main aircraft



Glossary

Consignee – Refers to a person/company named as receiver of a shipment on the bill of lading.

Container – An aluminum unit carried on wide body aircrafts for carriage of baggage, cargo and mail.

Crew Stairs – A mobile or towable device used to deplane/board flight personnel from the aircraft.

Dolly – A four-wheeled vehicle designed to accept a ULD. Equipped with a free wheeling roller system and restraining pins to hold the ULD in place. Designed to be towed singly or in a train.

Estimated Time of Arrival (ETA) – The time that a flight is expected to arrive.

Elevated Traveling Vehicle (ETV) – Also referred to as a "Material Handling System". A warehouse system for transporting and storing ULDs. The ETV consists of a track-mounted shuttle car equipped with scale and power roller system. Can elevate to deposit ULDs in, or retrieve them from, a multi-level storage rack system.



Glossary

Fuel Tender – The vehicle used to fuel the aircraft

General Declaration (GenDec) – An international station to station document, used as the basic aircraft CLEARANCE DOCUMENT for international flights. Includes crewmembers, passengers and routing of flight.

Ground Power Unit (GPU) – A mobile or trailer unit used to supply electrical and/or pneumatic power for aircraft on the ground in the absence of an APU.

Ground Support Equipment (GSE) – Equipment such as aircraft loaders, transporters, belt loaders, fork lifts which supports the operation of the ramp.

Igloo – A shell made of fiberglass, metal or other suitable material. Its shape conforms to aircraft cargo compartment contours. It covers the maximum usable area of an aircraft pallet to which it is secured during flight.

Loader – Powerful lifting platform for raising and lowering ULDs to and from aircraft.



Glossary

- **Military Time** – A system by which time is based on a 2400 hour clock.
- **Nose Tether** – B747 device designed to prevent nose of aircraft from coming off ground during loading/unloading operations. Consist of heavy strap passed through nose landing gear assembly of aircraft and shackled to permanent ramp-mounted pad eyes.
- **Offload Control Sheet** – Document filled in by Import Agent depicting incoming aircraft load in order of pallet positions. Shows ULD number and other pertinent information (BUC, break down, etc.).
- **Pallet** – An open ULD measuring 125 x 88 or 96 inches as well as an open ULD measuring 20' by 96. Built of heavy aluminum, equipped with a circumferential notched slot for receiving and securing tie-down rings of a net for restraining freight.
- **Paymover** – Slang used to refer to a Tractor used in pushing or towing an aircraft



Glossary

Pushback – The moment when maintenance removes the wheel blocks and pushes the aircraft out on the ramp for engine start. Not an official term, it is synonymous with “Block Out”.

Ramp – Paved area outside the terminal where aircrafts are parked.

Sill Guard – Heavy aluminum shields set over sill of aircraft doors to prevent damage to sill, door locking spools and door sill locks.

Slave Pallet – A ULD sized steel framework, equipped with steel rollers and restraining pins. Low in profile. Designed to rest on ground and receive one ULD for transport by forklift.

Schedule Time of Arrival (STA) – Scheduled time of arrival of a flight

Schedule Time of Departure (STD) – Scheduled time of departure of a flight

Storage Rack – Steel framework equipped with rollers designed to hold ULDs for storage.



Glossary

Tail Stand – A device used to support the tail of an aircraft during loading/unloading operations which is essentially a pipe hooked onto a stub under the aircraft's tail to dangle free, or a pipe incorporated into a movable stand.

Tie-down Rings – Steel rings attached through a small fashioned steel block which can be secured into the notched circumferential track on a flat pallet. Freight is lashed down to these devices.

Transporter – Four wheeled powered vehicle driven like a car by operator who sits to one side of carrying platform. Designed to carry ULDs around. Equipped with a power driven roller system for depositing or retrieving ULDs to and from storage racks loaders, bypass, etc.

Tug – Small powered four wheeled ramp vehicle designed to pull carts or dollies singly or in a train.

Turnaround – Slang term meaning the complete handling of an aircraft, from block in to block out.

Unit Load Device (ULD) – Describes any structure designed to secure freight for unitized handling and shipping. Includes flat pallets, igloos, and containers.

Weight & Balance – A term used to describe the proper loading, distribution of weight and maximum weight allowed on an aircraft for it to be air worthy.



Purpose

Each aircraft represents a very sizable investment on the part of the customer. The customer expects and must receive safe, dependable, timely, and efficient handling of the aircraft. The customer does not expect any delay in aircraft handling, or damages.

Choice Aviation policy is to ensure that a safe, high quality, and consistent level of service is our number one priority.

Where a customer's procedures differ from Choice Aviation's procedures, the customer's procedures will prevail.



Fundamentals of Ramp Safety

Safety is the prime requirement in all activities connected with aircraft ground handling including loading and unloading of an aircraft.

An effective aircraft ground handling operation is accomplished solely by following safety rules listed below:

Only qualified personnel are permitted to operate the equipment. Only drive the equipment for which you have been properly trained and checked out to operate.

Do not drive any equipment underneath any aircraft.

Do not speed on the ramp, maximum speed limit when operating around an aircraft is 5 MPH. Adjust speeds according to conditions, i.e.: weather, ramp conditions, ramp activity.

Employees are required to wear hearing protection equipment when aircraft engines are running.

When vision is restricted in a critical area, i.e., positioning a piece of equipment to an aircraft, a guide-man must be utilized.

Approach and leave the aircraft cautiously. Check brakes before approaching an aircraft.

Powered equipment operators must perform a 50' and 10' brake check when approaching an aircraft.



Fundamentals of Ramp Safety

Any unsafe conditions of any equipment will be reported to the supervisor. The supervisor will remove from service any equipment determined to be a safety hazard.

Do not ride on any vehicle unless there is a seat provided for you.

When positioning vehicles at buildings, or parking areas, always back the vehicle into the parking position.

All aircraft and pedestrians have the right of way over all other equipment on the ramp. Caution should be exercised when operating behind a moving aircraft.

Do not leave any vehicle unattended without turning off the ignition. Put the gear selector in PARK. Apply the parking brake.

Do not smoke on the ramp or in any vehicle while on the ramp.

Do not leave chocks on the ramp after an aircraft has departed. They must be stowed in the proper place.



Working Conditions/Weather/Ramp Markings

The following is a sampling of the working conditions that you can expect and how they relate to safety on the ramp:

Varied Pace – This is the leading cause of accidents on airport ramps. It is not uncommon to go from a very slow period of activity to the very fast paced activity of the arrival and servicing of an aircraft. Ramp operations have been designed to try and keep extreme variances to a minimum. This makes it imperative that all ramp team members follow the operating plan and procedure.

Congestion – Because the ramp has such a small driving area in relation to the activity, congestion has become the second leading cause of accidents on the ramp. It is extremely important that safe driving practices be adhered to and that all drivers are fully and properly trained to operate the vehicles that they are driving.

Diversity of Vehicles – Each vehicle on the ramp has a different and unique work assignment, and each vehicle has varying operating characteristics and controls that differ. That is why it is worth repeating that all drivers be properly trained in the operation of the vehicle that they are assigned to, and that they are fully qualified to operate said vehicles.



Working Conditions/Weather/Ramp Markings

Unmarked Ramp Areas – Ramp operation, unlike public roadways, presents added hazards to drivers mainly due to the fact that the pavement is not marked with defined lanes or with movement guidelines. Although general rules of the road do apply on the ramp, extra caution must be taken in order to assure the safety of yourself and of others.

Jet Blast Contours – Never, let's repeat that, Never get in front of, behind, or along side of an aircraft engine while the anti-collision strobe lights are operating. These anti-collision red lights are located on the top and bottom centerline of the aircraft fuselage.

Weather Conditions

Snow – Observe winter driving rules. Windshields and windows must be kept clear and clean since visibility is essential for safe driving. Snow may conceal patches of ice, so extreme care must be taken when stopping and turning. All drivers must be trained in skid control techniques.



Working Conditions/Weather/Ramp Markings

Wind – Both aircraft and ramp vehicles are affected by extraordinary wind velocity. Most airports put a severe weather plan into effect when winds reach a velocity of 50 mph or more. The major reason for this precaution is to cut down on damage and/or injuries due to flying objects.

Fog/Rain – Headlights must be used at all times when fog or rain is present, regardless of time of day. In fog or in rainy conditions, particular attention should be paid to the distance that you follow other vehicles, and at intersections. The speed of your vehicle should always be reduced, based on the weather conditions.



Personal Safety

Personal protective equipment or PPE is designed to protect employees from potential injury or illness. The type of PPE you will be required to use will depend upon the task you are performing.

Examples of Personal Protective Equipment are:

Hearing Protection (Required for all ramp personnel)

Reflective Vests

Proper footwear such as work boots, work shoes, or safety toed shoes must be worn at all times.

Uniforms are a form of protective clothing to help keep chemicals from coming in contact with your skin.

All company issued personal protective equipment will be properly maintained, inspected regularly and replaced when necessary.

Proper use of required PPE is mandatory and failure to do so will result in disciplinary action.



Hearing Conservation

Since noise levels produced by operating aircraft differ from aircraft to aircraft and these noise levels are unpredictable, all company employees who work in close proximity of operating aircraft must be provided with, and wear, hearing protection. Compliance is mandatory.

Hearing protection is required whenever the noise level is greater than 85 decibels for an extended period of time. Prolonged exposure to noise above 85 db without hearing protection can cause hearing loss.

Exposure to loud noise is one of the most common causes of hearing loss, second only to aging. Noise induced hearing loss is preventable, but once acquired, it is permanent and irreversible.

Noise induced hearing loss is cumulative and progressive. It may occur so gradually you may not even realize you are losing your hearing. Over time, sounds may simply become muffled or distorted.

If you need to raise your voice to be heard by someone at arm's length, the noise level is probably too loud to be safe for an extended time. High noise levels can have effects beyond making communication difficult, it can cause hearing loss.

There are many different styles of hearing protection, but hearing protection doesn't work if you don't use it.

In addition to hearing protection, protective clothing issued by the company shall be worn at all times. Clothing should be proportioned to the weather elements; long hair should be tied back; loose clothing or scarves should be tucked in to avoid contact with mechanical moving parts.



Circle of Safety

The circle of safety is an imaginary line that surrounds every aircraft and extends 50 feet and 10 feet beyond the nose, tail and wing tips. The circle of safety is often painted on the ramp as an outline of the aircraft usually marking a 10-foot clear zone or buffer zone. All ground support equipment must be positioned and remain outside the buffer zone until the aircraft is parked, the engines have been shut down, the beacon light has been turned off and the aircraft has been chocked.

Ground equipment parked inside the marked area is encroaching on aircraft movement. Improper or premature positioning of ground equipment is a major factor contributing to incidents.

Worldwide, the dollar equivalent of 15 Boeing 747-400s is lost each year to equipment damage during ramp operations. During ramp operations, damage to aircraft and ground equipment occur more often during the arrival of an aircraft at the gate area than during a departure.

Remember, once inside the 10-foot zone of the circle of safety proceed at a dead slow speed and utilize a guide person when positioning equipment at the aircraft.



Defensive Driving

All vehicles need to be driven defensively with special attention to weather and ramp conditions. Defensive driving is a strategy that requires all drivers to think ahead. A safe driver practices defensive driving, which requires a driver to perfect his/her observation techniques, safety attitudes, driving courtesy, and communication with other drivers.

In general do everything possible to avoid accidents. The following points will aid your defensive driving skills by helping you to recognize a hazardous situation and allowing you to come up with a defensive course of action.

Combine awareness with good judgment

Use common sense at all times

Make sure that you are aware of current operating and safety procedures of the vehicle that you are driving.

Be extra cautious in congested areas where there are blind spots.

Be aware of changing weather conditions, and adjust your driving accordingly.

Anticipate what other drivers are going to do. Never assume how anyone will act or react in any given driving situation.



Defensive Driving

- Be particularly cautious around the aircraft.
- Do not allow yourself to be consumed by minor irritations while you are driving.
- Just because you may have the legal right of way in a driving situation, do not insist on it.
- It should go without saying that driving under the influence of drugs or alcohol impairs your ability to be behind the wheel of any vehicle. If you are found to be under the influence of drugs or alcohol while on duty, you will be immediately terminated.
- Refine your defensive driving technique by building good habits of “observation, communication, coordination, navigation and consideration.”



Defensive Driving

- **Observation** – Means “busy eyes”. A 360-degree, observation that provides awareness of what is going on to the front, back and sides of the vehicle. It also means “up-and-down” eyes to observe overhead clearances. Good observation means not just looking but also knowing what to look for. Because of the high noise level on an airport ramp, the driver’s sense of hearing as a warning device is limited. You are less likely to hear horns or other warning signals of other vehicles or the sound of their operation in the vicinity. The purpose of observation is to see.
- **Communication** – with other drivers or pedestrians on the ramp is essential. There is no better form of communication than to get the attention of other ramp personnel and try to establish eye contact. Flashing lights or the use of hand signals can attract attention. With eye contact, mutual recognition of each other’s presence takes place and an agreement reached with a gesture or hand signal about what each plans to do. The purpose of communication is to be seen, recognized and understood.



Defensive Driving

- **Coordination** – is adjusting one's speed and direction of movement with that of other vehicles so a collision can be avoided. Good coordination depends upon knowing the clearances, turning radius, braking capability and other operating characteristics of one's vehicle. It means controlled speed, keeping a safe following distance, and a willingness to yield the right of way to another driver if there is a breakdown in communication or a lack of observation on the part of the other driver.
- **Navigation** – means following a planned course on, across or around something. In highway driving, navigation is prescribed for the most part by lane markings, rules or right of way, traffic signs and signals, etc. On the airport ramp, few if any aids to navigation exist. The shortest route is not always the safest.



Defensive Driving

- **Consideration** – should be shown towards all other ramp personnel and a spirit of teamwork with other drivers and personnel working on the ramp.
- To service an aircraft within the allotted time can require as many as 25 persons and 15 different service vehicles. All have to get to and from the aircraft without conflict of movement to perform their assigned tasks. Job performance will be more efficient if all drivers practice consideration and teamwork.
- No matter how many times you operate a piece of equipment, always act like you're doing it for the first time. **THINK SAFETY!**



Safe Ramp Practices

Ramp safety is directly related to your conduct on the ramp. How you conduct yourself on the ramp can go a long way in ensuring an operation free from personal injury, aircraft damage and equipment damage.

Safe behavior is contagious. Performing your tasks in a professional manner can influence similar behavior from your fellow employees.

A few basic guidelines to ramp conduct are:

Avoid running (unless it is an extreme emergency)

No horseplay (maintain a professional appearance)

Ensure proper lifting techniques are utilized at all times. Twisting your body and sudden or jerky motions should be avoided. Strains and sprains are a result of improper manual handling of material and equipment.



Safe Ramp Practices

- The potential for a shock hazard can exist even though the circuit has been turned off. Heavy capacitors, such as ground power units can store and hold a charge for many hours.
- To avoid burns, extreme caution should be observed when working near exhaust nozzles and reactor areas after engine shutdown.
- Avoid any action that could create sparks or other ignition hazards during fueling operations. This includes connecting or disconnecting ground power units while fuel is being handled nearby.
- Remain alert to your surrounding.
- Head injuries and other parts of the body can be injured from bumping into protruding parts of an aircraft. It is essential to pay attention to your surroundings and never make sudden moves without checking to see that the area is clear of obstacles.



Safe Ramp Practices

Do not walk in between a train of baggage carts or dollies when traversing from one side to the other. Always walk around the end of the train. Serious injury can occur if the train is moved while walking between them.

Tripping hazards include ground power unit cables, grounding and bonding cables, fuel hoses, chocks and air conditioning ducts.

Slipping hazards include oil, fuel, wet painted ramp lines, aircraft de-icing fluid, ice and snow.

Falling or slipping off aircraft surfaces, ground equipment, fuel truck or work stand during cleaning, maintenance or de-icing operations are common, especially during rain, snow, high winds and darkness.

Careful consideration should be taken when climbing down ladders or from truck cabs. Use good balance and never jump down to the ground; many injuries have occurred by not using the equipment for its intended use. Driver and riders should mount and dismount equipment only when it is at a complete stop. Never jump off of moving equipment.



Engine Danger Zones

The invisible force of a jet engine intake or exhaust is one of the greatest hazards on the ramp. When aircraft beacon lights are illuminated, this indicates that:

The aircraft's electrical system is active and engines may start or are already running.

Maintenance functions may take place such as flaps, slats, and speed brakes being extended.

Aircraft pushback or towing may be about to commence

Jet blast is essentially the heat and wind that is emitted as aircraft engines exhaust. It can be a definite hazard to anyone or anything that gets in its way. Jet blast can generate velocities up to 590 MPH and temperatures of up to 370 degrees Fahrenheit at a point of 25 feet behind the engine. At a distance of 100 feet, the velocity is 95 MPH and the temperature is at 140 degrees. Jet blast can blow over ramp vehicles or equipment, hurl them into other equipment, against buildings, into aircraft or people.



Engine Danger Zones

In airports around the world, people have been injured or killed by jet blast. As a rule, you are to stay a minimum of 250 feet away from behind an aircraft engine at idle thrust. It is important to remember that a jet engine can go quickly, from an idle, to 90% power with a large increase in exhaust velocity. Red anti-collision strobe lights, located on top and bottom/center of the aircraft's fuselage will tell you when to beware.

Jet intake is the opposite action of jet blast as it is the sucking in of air into the engine, but does so at about the same velocity and is just as hazardous as jet blast. You need to stay at least 25 feet away from the engine intake at idle. The safe distance will increase as engine power increases.

It is essential that employees working around aircraft be aware of equipment and objects that could either be ingested into an engine or turned into a projectile. Do not assume that items located outside the buffer zone are free from consideration. If ramp surfaces are wet, additional precautions should be taken.



24 Hour Clock Conversion

Choice employees will find that many industry references are made utilizing the 24-hour clock or military time to eliminate confusion between A.M. and P.M. Under this system, time begins at one minute past midnight (0001) and continues through to midnight (0000). Note that there is no colon separating the hours from the minutes.

Under the 24-hour clock rule, time is always indicated in four digits. When spoken, 24-hour time is expressed in “hundreds”. For example, 2000 is verbalized as “twenty hundred.” Minutes are treated as “tens”. For example, 2350 is “twenty three fifty”.

In order to avoid confusion between A.M. and P.M., times of 1:00 P.M. and later are computed by adding 1200 to the P.M. hour. For example, 4:30 P.M. is computed by adding 1200 to 4:30 equaling 1630 or “sixteen thirty”.



Aircraft Arrival

Accidents during turnaround are frequent and can be severe. It is important that everyone working around and aircraft cooperates and coordinates their activities. Aircraft turnaround should be planned and supervised.

It is important to obtain as much information as possible to turn the aircraft in a safe and timely fashion.

The inbound/outbound load information will help to determine what ground equipment will be necessary, i.e. how many dollies are needed, whether an air start is needed, etc.

Employees should have their assigned tasks: prior to arrival discuss who are the marshaller and wing walkers, who will chock and cone the aircraft, who is assigned to which piece of equipment, who will deliver the offload. Ensure sufficient chocks, cones and wands are available.



Aircraft Arrival

- Once the information has been received and tasks assigned, the arrival area needs to be prepared by performing a FOD inspection and staging the necessary ground equipment outside the safety zone.
- Note: Always make sure the equipment is serviceable and have a back up plan if a particular unit goes out of service unexpectedly.
- When notification has been received that the aircraft has landed, the marshaller and wing walkers must be in position upon approach of the aircraft.



Marshaller / Wing Walking

Normally, three people will park an aircraft unless more are required due to congestion or facility constraints. It is never acceptable to use less than three persons, though. This parking crew will consist of the following:

Marshaller – This is the person who actively directs the aircraft to its final parking position using standard aircraft guidance hand signals. During the aircraft arrival, the marshaller will be in a position of the highest visibility to the captain. The marshaller must watch not only the aircraft but also the wing walkers, who may give the “amount of clearance” signal or the “stop” signal at any time. The marshaller is also responsible for ensuring that the aircraft clearance zone is free of obstructions prior to arrival.

Wing Walkers – These persons monitor wing clearance and potential ramp hazards during the aircraft’s approach. If the area is clear, each wing walker will respond with the “All Clear” signal. There is a minimum of one wing walker per wing. The wing walker must remain visible to the marshaller at all times. Two wing walkers are required on every aircraft movement.



Marshaller / Wing Walking

Note: If visual contact between the marshaller and the aircraft operator is lost or clearance is questionable, the maneuver must be stopped immediately until visual contact is re-established and/or appropriate clearance is verified.

In order to avoid any possible confusion with the aircraft operator, the marshaller must refrain from using any other hand signals to other ground personnel until the aircraft has completed its maneuver.

Wing walkers must be used any time the lateral clearance from the aircraft wingtip is less than 30 feet from another aircraft or object.

All marshallsers / wing walkers shall use the day fluorescent wands for all aircraft operations during daylight hours.



Marshaller / Wing Walking

- All marshaller/wing walkers shall use the night wands for all operations conducted during nighttime operations.
- **Note: If visual contact between the marshaller and wing walkers is lost or clearance is questionable, the maneuver must be stopped immediately until visual contact is re-established and/or appropriate clearance is verified.**



Glossary



All Clear – The all clear hand signal indicates that surroundings are good for aircraft movement. The signal is given and maintained with one hand pointing to the lead in line, the other held vertically above the head.



Wing Walking Hand Signals



Stop – The stop hand signal is used whenever the wing walker thinks that it is wise to stop movement of the aircraft due to a hazard or potential hazard. It is also used to hold the aircraft in position while the towbar and tractor are disconnected and clear the area. The signal is given and maintained with both wand crossed over the head of the wing walker.



Wing Walking Hand Signals



Emergency Stop – The emergency stop signal should only be used if the aircraft is in eminent danger of becoming involved in an accident. Response to the signal will be a sudden and possibly violent stopping of the aircraft. The signal is given by crossing the wand over head repeatedly several times then holding them in the stop position.



Glossary



Distance – The distance hand signal is used whenever the wing walker needs to communicate the amount of distance between the aircraft wingtip and a fixed object or parked aircraft. The signal is given by holding both wands overhead with approximately 2 feet of distance between the wands. The wands are brought together slowly indicating the amount of clearance remaining. If the clearance drops below 10 feet of clearance the wing walker will then give the stop signal. Communication between the marshaller and wing walker must occur to determine the next course of action to be taken.



Glossary



Hold Aircraft – The hold aircraft hand signal is used during the disconnect of the tow bar from the aircraft during pushback. The signal is given to advise the cockpit not to move during this procedure. The signal is given by holding both wands down and away from the body at a 45 degree angle.



Glossary



Choice Aviation Services policy requires the placement of safety cones around all parked aircraft on the ramp. These safety cones are orange in color and most are made of a hard plastic material. They may come in all heights but Choice Aviation Services policy dictates the use of 28 inch cones. The purpose of safety cones is simple; to keep any vehicle or ground service equipment far enough away from an aircraft to avoid possible damage.

At minimum, the following areas around the aircraft will require safety cones

- Wing Tips
- Forward all engines
- Nose
- Tail
- Under any protrusion under the aircraft fuselage

Safety cone placement will differ from station to station and from carrier to carrier. Once you know what the requirements are, it is your responsibility, along with all ramp personnel, to ensure that these cones are in place.



Aircraft Chocks

Chocks are blocks, wedges, or other types of obstructions that are placed on both sides of the tires of an aircraft or a ground service vehicle in order to keep it from rolling. All aircrafts must be chocked upon arrival.

Once the aircraft has come to a complete stop, it must be properly chocked and remain chocked until ready for departure, that is, until a tow tractor has been connected and the aircraft is ready for the pushback and all ground equipment has been removed.

The proper positioning of the wheel chocks is:

Fore and aft of nose wheel tire.

Perpendicular to tire treads.

Approximately one inch away from the tire.



Guide Person Policy

The marshaller/tractor operator must notify the captain that the wheels have been chocked.

Safety Precaution – When placing the chocks never put your hand between the chock and the tire. If the aircraft rolls back, you can be seriously injured. Do not toss chocks aside. They can bounce and cause damage to an aircraft or injury to yourself or another employee.

NEVER CHOCK THE CENTER MAIN GEAR SINCE THIS COULD DAMAGE THE AIRCRAFT.





Glossary

Driving equipment within close proximity of multi-million dollar aircraft can produce high repair costs if proper guidance is not attained. Ramp employees are constantly at risk of being run over during hectic ramp activity and during nighttime operations.

Never position equipment to an aircraft or reverse out of a fuel service point without the use of a guide person.

A guide person must be utilized whenever the vehicle operator has decreased or limited visibility. Any vehicle reversing toward an aircraft for servicing must utilize a guide person. If a vehicle must reverse, especially out of a servicing position, and the ramp is congested and/or clearance is questionable, a guide person must be utilized.



Guide Person Policy

When backing up a piece of equipment, the guide person must position themselves approximately 10 – 15 feet to the rear and roughly, 5 feet out to the left of the vehicle to be guided back. This will give the driver a clear view of any hand or wand signals establishing a “Safety Zone” off to the side.

The guide person must position themselves far enough away from the vehicle to be able to observe activity (in the vicinity) while backing the vehicle. By the same note, they should not be too far as to risk having a passing vehicle come between the backing vehicle and the guide person.

There are two important elements of guiding GSE that you must understand. These two factors are:



Guide Person Policy

Once you start the guide process, you assume the control of that vehicle. It now becomes your responsibility to ensure that the proper clearances are available for that vehicle to fit wherever you are trying to position it. It is also your responsibility to make sure that you locate that vehicle in a position that makes it accessible for your colleagues to perform their duties.

You do not guide GSE by verbal direction, you use hand signals. They are standardized signals that are universally recognized. These hand signals are used for several reasons. The primary reason is that, as you know by now, the ramp is a very noisy site. Verbal communication is near impossible over the roar of jet engines, or through constant din of service equipment and vehicles. These hand signals are meant to be given just as they are with no variation or personal interpretation by the guide-person.

Note: A guide person must always remember that when they are unable to see the operator, the operator is unable to see the guide person.



Equipment Safety Procedures

Choice Aviation Services considers safety a top priority that can not be over emphasized. We depend on your ability to operate GSE and vehicles properly. We also expect you to be aware of all required safety practices and to adhere to all policies and regulations. If everyone on the ramp complies with all rules and procedures, then safety becomes the norm, and we can operate as one cohesive ground support unit. The following guidelines will steer you in that direction. Many of the rules and procedures listed below will be repeated throughout this manual. The reason for this is that we at Choice are compelled to stress the safety aspects of our operation at every opportunity. This is important to our customers and to our staff.

An aircraft has the right of way over all vehicles

Use emergency stops only in emergencies

All employees driving any equipment must have a valid local driver's license. There is no special endorsement needed to operate ramp equipment.



Equipment Safety Procedures

The employee should be running safety checks on their equipment throughout the day. The first check should be the pre-operational safety inspection. If a vehicle has a malfunction, do not use it, tag it “Out of service” and report it to your supervisor at once.

Do not tamper with any governors or safety overrides on any vehicle.

All GSE must yield to responding emergency vehicles.

Drive within posted speed limits.

Do not drive underneath any portion of an aircraft, except when performing an assigned duty. If you are backing up to an aircraft, a guide person must be used.

GSE are not to be driven underneath a jet way. You are also prohibited from driving between an aircraft and the terminal building.

Any vehicle accidents, whether between another vehicle or an aircraft should be reported immediately to management or to airport authorities. Unless an emergency exists, the vehicles are not to be moved.



Equipment Safety Procedures

When the employee is finished with any GSE that they are using, return it to the correct parking area at the station, by backing it into the parking spot so that on its next use, it can be driven or towed out in a forward manner.



Bobtail





Bobtail

Often called the work horse of GSE, a bobtail is a tractor like vehicle used for towing baggage carts, dollies and other ground service equipment. This vehicle is without doubt the most used piece of equipment on the ramp. The engine is traditionally a six cylinder with an automatic transmission. The average bobtail is capable of towing between 30-50 thousand pounds.

Bobtails are rated by their drawbar pull and should not haul loads beyond their capability so as not to damage drive train components, transmission, clutch, rear end or axles.

Before operating a bobtail take a walk around the and note any new body damage that may have been caused by the person before you.

Start the engine and check the lights. Make sure that the has fuel.

Always use both hands while driving the Tug (The 10:00 and 14:00 positions



Bobtails

Always come to a complete stop before shifting into the forward or reverse gear.

Only carry passengers if a seat is provided: Remember: No seat, No ride.

Never drive with your foot or leg hanging outside of the any equipment.

Always set the parking brake before leaving the vehicle. Above all, use caution and common sense at all times.

Never drive underneath the wings of an aircraft or onto an area where safety cones have been placed.

Be aware that the weight you are towing has a direct effect on the distance that it will take to stop.

Be careful of hands and fingers during hook-up.

Be sure that the tow pin is secure, and that spring tension is adequate before moving your load.

A maximum of four dollies or baggage carts may be towed at once.

The heaviest load is placed in the front when making up a train of dollies or carts.

Note: Check E hitch before using. If broken, equipment is to be placed out of service.



Belt Loaders





Belt Loaders

The belt loader is a special purpose vehicle equipped with a conveyor belt to move cargo or baggage from a cart to the aircraft cargo hold. This vehicle can position itself to reach cargo compartments of all heights for accessible loading and unloading of the aircraft. As with most ground service equipment, the operation of certain models will differ, so check with your supervisor for the exact operating instructions. Note the following operating procedures:

Test both the foot and the hand brakes to make sure that the belt loader has a safe braking system.

Make sure that the conveyor belt is in the lowered , rest position as the vehicles have long bodies, and the driver's visibility can be limited.

Do not approach an aircraft until the engines have been shut down

Test the brakes 50 feet from the aircraft and again, 10 feet from the aircraft.



Belt Loaders

Raise the boom to the approximate height of the aircraft's door sill. Approach the aircraft slowly, position the belt loader and adjust the boom to the correct height at the final service position, and set the hand brake. The equipment should never come into contact with the aircraft. Never raise or lower the belt loader boom while the vehicle is in gear. The boom should only be positioned while the transmission is in neutral.

Place the gearshift into either the Parked or Neutral position, then chock the forward left tire, and set the hand brake.

Lift the safety guard rail, and open the aircraft cargo door.



Belt Loaders

Safety Precautions

Never ride the belt to enter or exit the cargo compartment

Keep in mind that the belt can only hold a maximum of 2,000 lbs. at any one given time.

The boom must be in the down, rest position while the belt loader is being driven. Do not use the boom as a lifting device to raise other vehicles or any other objects. The boom must not be used to push other equipment.

The belt loader becomes very slick in snowy or wet weather. Never ride the belt.

When driving, the belt loader is a one-person vehicle. No passengers.

Don't drive the belt loader by using the hand throttle. Make sure that the hand throttle is fully closed before starting the vehicle.

Always chock the wheels when positioned at an aircraft.

Do not leave the belt loader unattended with the engine running.

Always lower the boom when work is completed.

Note: Safety rail must be in the up position when servicing an aircraft



Belt Loaders



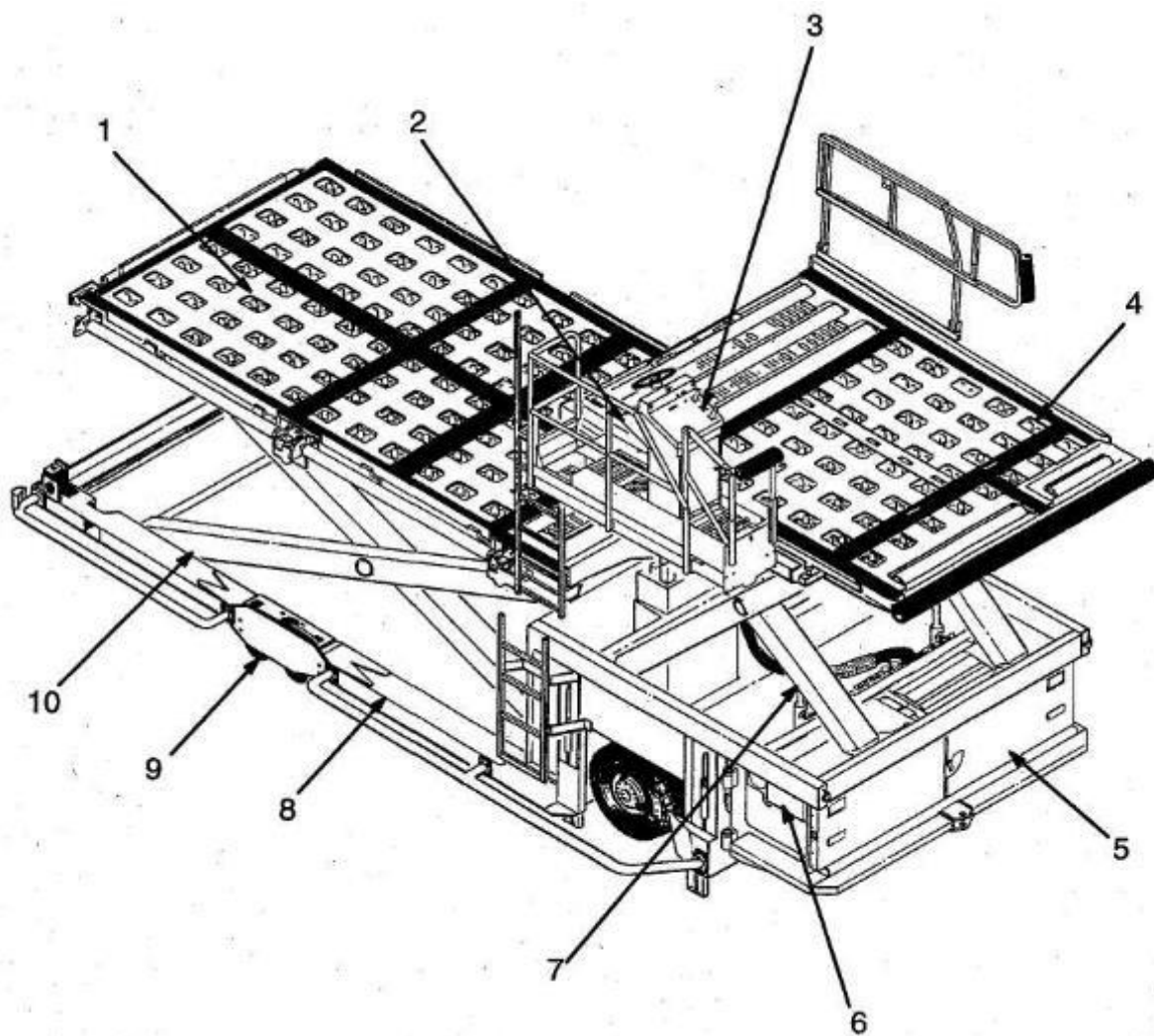


Pallet-Container Loaders





Pallet-Container Loaders



1. Platform

2. Driver's Panel

3. Operator's Panel

4. Bridge

5. Power Unit

6. Gauge Panel

7. Forward Scissors

8. Chassis

9. Bogie Wheel

10. Rear Scissors



Pallet-Containers Loaders

Are self-propelled mobile units which can accept containers and pallets at ground level to lift them to the aircraft cargo door and by conveying them into the aircraft to the point where they are accepted by the in-plane container system.

This unit will handle two half size (LD3-type) containers or one full size (LD8-type) or one pallet (PAG, PAP, and PMC).

ENGINE

Beware of “**HOT**” exhaust on side of loader opposite driver's cab



Pallet-Containers Loaders

VEHICLE OPERATIONS

Warning:

Do not attempt to operate the Loader without having been properly trained in operation and safety requirements.

Do not operate loader while under influence of drugs, alcohol, or medication that may prevent full ability to control loader.

Be alert at all times during loader operation.

It is permissible to perform normal loading operations while the aircraft is being refueled if facility or regulatory rules do not prohibit and the operator has ensured that there are no hydraulic leaks, or unsafe conditions present. Caution should be taken to assure that possible fuel spills will not splash or drain on the engine exhaust system.

When using bridge tilt ensure adequate clearance between loader and aircraft. Failure to do so could cause damage to aircraft or loader.



Pallet-Container Loaders

The Loader is not designed for use as a transporting vehicle. Any attempt to use it for operations other than cargo transfer may result in injury to personnel or damage to equipment.

The Loader is designed to be driven on paved or cement surfaces approved to support the weight and use of ground support equipment vehicles. Driving the Loader on other than these approved surfaces could result in injury to personnel and serious damage to the vehicle.

Do not allow personnel under bridge or platform unless adequate supports are in place. Failure to support bridge or platform may allow bridge or platform to fall, resulting in death or injury to personnel and / or damage to equipment.

Use extreme caution when walking on bridge or platform at all times. Avoid stepping on rollers or cluster roller assemblies. Failure to do so could result in personal injury or death.

Use extreme caution when walking in areas marked by stripped warning tape.



Pallet-Container Loaders

Observe all instructions in airport operations manual when driving loader. Failure to do so may result in injury to personnel or damage to equipment.

Do not exceed 11 km (7 mph) when towing loader. Exceeding speed limit may cause injury to personnel or damage to equipment.

Do not allow personnel directly in front of loader. Keep area clear during lifting.

Caution:

Do not use maximum speed range (rabbit) if loader is closer than 3 meters (10 ft.) to aircraft.

Open door carefully. Failure to use care may result in damage to aircraft or loader.

For shoot-the-gap operation, position the loader so that rubber bumpers on bridge face are close to but do not touch the aircraft.

To prevent damage to the stabilizer cylinder assemblies, it is recommended the stabilizers not be extended when the unit is parked.



Pallet-Container Loaders

CRITICAL SAFETY PRECAUTIONS PLATFORM

Because of casters and rollers on deck, tripping or having a foot caught between or under a container is possible.

When rear platform is raised to join front platform, having a foot caught between the two is possible. Do not ride platform.

Guard rails around rear platform can fail, falling on fingers or allowing a container to fall off platform.

Keep hands and feet clear when hooking front platform to aircraft.

STABILIZER LEGS

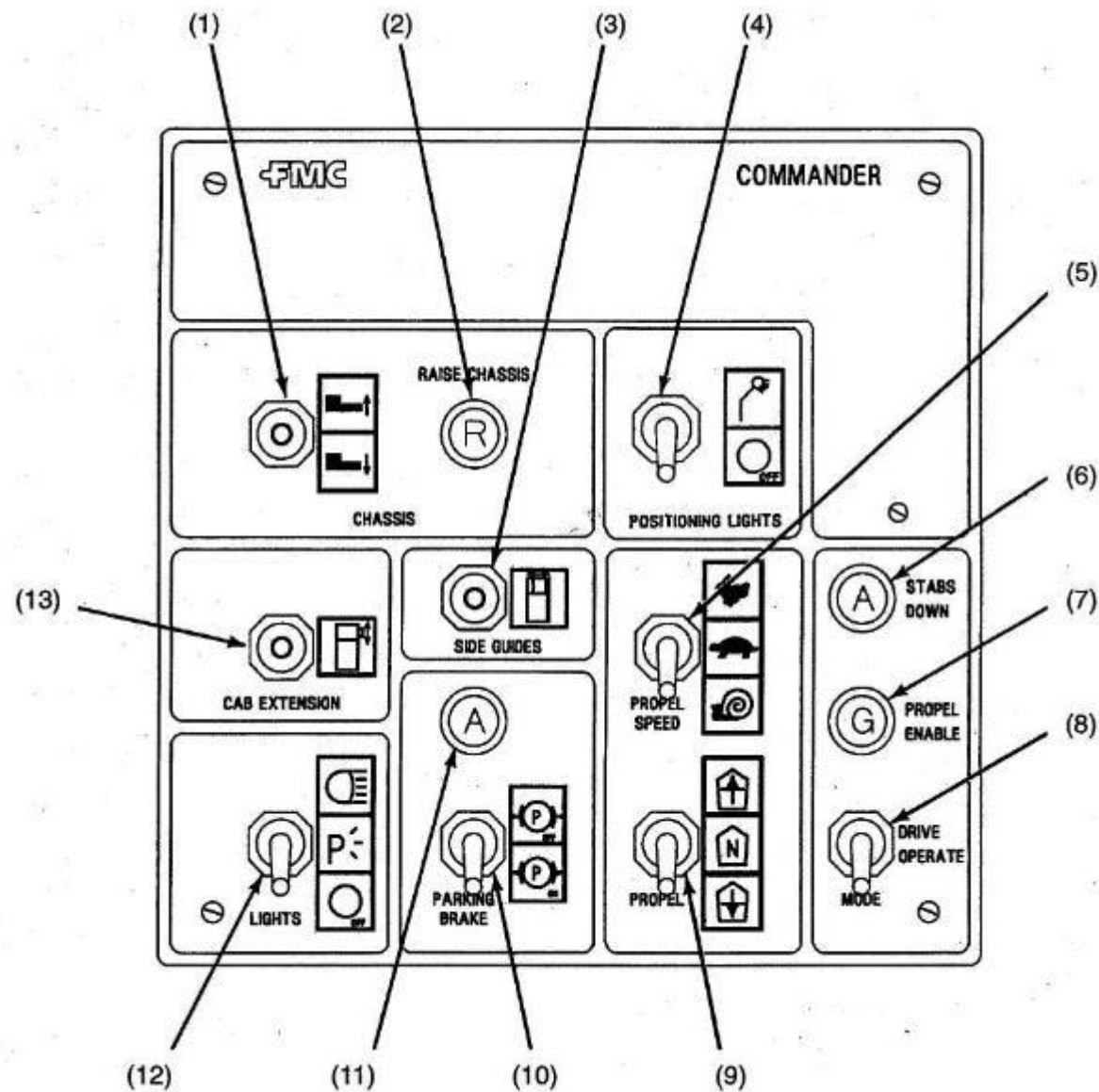
Must be in down position when working cargo and up when moving loader

Must be in down position when working under loader.

Keep feet clear when they are being lowered.

Pallet-Container Loaders

Driver's Panel
Figure one (1)





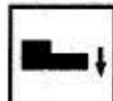




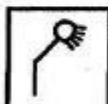







Pallet-Container Loaders

1. CHASSIS SWITCH - three-position momentary switch (center position = off). Raises or lowers the rear chassis by extending or retracting boggy wheel cylinders.
2. RAISE CHASSIS INDICATOR (OPTION) (flashing red) - illuminates unless chassis is raised.
3. BRIDGE SIDE GUIDES SWITCH - three-position switch spring-loaded to center (off) position; shifts guides left when momentarily placed in left position, or to right when placed in right position.
4. POSITIONING LIGHTS SWITCH (OPTION) - two-position toggle switch lights area in front of bridge.
5. PROPEL SPEED SWITCH - three-position control used to select ranges of speed in forward and reverse direction. The fast (rabbit) position provides maximum speed for direction selected with drive control, slow (turtle) position provides a medium speed, and creep (snail) position provides minimum speed control.
6. STABILIZERS DOWN INDICATOR (amber) - illuminates when stabilizers are down.
7. PROPEL ENABLE INDICATOR (green) - illuminates when loader is ready to drive.
8. MODE SWITCH - two-position switch: extends (lowers) stabilizers and rear chassis when placed in operate position, and retracts stabilizers when placed in drive position. Amber indicator illuminates when stabilizers are fully extended. Locking switch standard. Switch must be lifted out of position prior to changing selection or damage could result to switch if excessive force is used.
9. PROPEL SWITCH - three-position control used to select a forward direction, a neutral position, and a reverse direction.
10. PARKING BRAKE SWITCH - two-position switch. Applies parking brake when set to ON and illuminates amber indicator to show that brake is applied. Releases brake when set to OFF and causes amber indicator to go out. Parking brake is automatically applied when mode switch is set to operate position.
11. PARKING BRAKE INDICATOR (amber) - illuminates when parking brake is ON.
12. LIGHTS SWITCH - three-position switch turns headlamps and running lights on when switch is up; turns parking lights on when switch is in center position; turns lights off when switch is down.
13. CAB EXTENSION SWITCH - three-position switch spring-loaded to OFF position; extends operator's cab when switch is up; retracts operator's cab when switch is down.

Pallet-Container Loaders

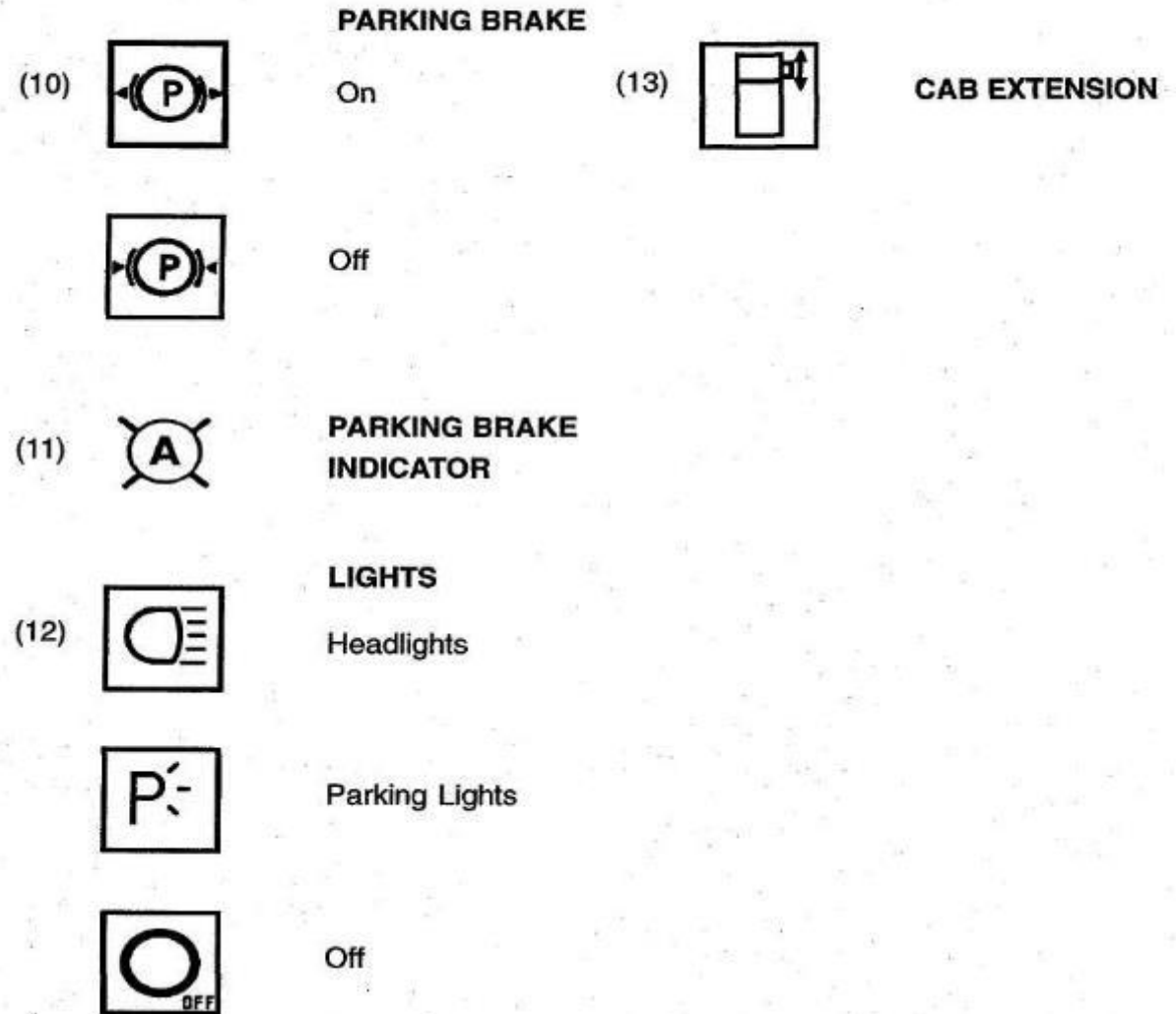
- International Symbols for Driver's Panel controls
 - Figure Two (2)

		CHASSIS			
(1)		Raise	(5)		Creep – Snail
		Lower	(6)		STABILIZERS DOWN INDICATOR
(2)		RAISE CHASSIS INDICATOR	(7)		PROPEL ENABLE INDICATOR
(3)		BRIDGE SIDE GUIDES	(8)	NO SYMBOL	DRIVE/OPERATE MODE
(4)		POSITIONING LIGHT	(9)		PROPEL Forward
		PROPEL SPEED			Neutral
(5)		Fast – Rabbit			Reverse
		Slow – Turtle			



Pallet-Container Loaders

- International Symbols for Driver's Panel controls
 - Figure Three (3)

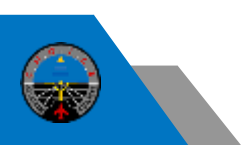




Tow Bars

- **747 TOW BAR**
- Note: Check the tow bar for broken shear bolts, cracks, fluid leaks and missing parts.





Tow Bars

The Tow Bar is essentially just that, a heavy metal bar with hitching attachments on both ends used solely for the purpose of pushing or towing an aircraft. The bar is connected on one end to the pushback vehicle, and on the other end to the nose wheel of the aircraft. As is the case with most ramp equipment, there are different types and manufactures of Tow Bars. Different aircraft require different Tow Bars, so your first caution in towing an aircraft is to make sure that you are using the tow bar.

Use of the Tow Bar

Before pushing back: Check the head of the Tow Bar to ensure that the shear bolts are intact. There should never be play in the Tow Bar head. Inspect the Tow Bar for any leaks, cracks, holes or flat tires. Attach the Tow Bar to the nose gear assembly of the aircraft. Push the handle of the Tow Bar down locking it in place. Then using a guide person, the paymover/tug is led in to connect to the other end of the tow bar.

After pushing back = disconnect the tow bar from the paymover.

General Precautions

Ground personnel crossing over the tow bar of a moving aircraft is strictly prohibited and must be enforced.

Make sure the paymover comes to a complete stop before disconnecting the Tow Bar.

Make sure that you are using the correct equipment at all times, If you are not quite clear on the choice of Tow Bar ask your supervisor



AIRSTART UNIT

- An air start unit is an electric starter that starts the turbine and turns the fan supplying air at 32 psi which starts the jet engine.
- **OPERATING INSTRUCTIONS**
- Set the brake. If this procedure is ignored serious injury to aircraft and personnel may result.
- The "**B**" (GST) must be in contact with flight crew via headsets at ALL times during this procedure.
- Open air start access panel.
- Lay down hose without kinks or twists.
- Connect starter coupling into aircraft air start access panel.
- **Note: *STARTING SEQUENCE IS FROM LEFT TO RIGHT***
- Turn the "**run / stop**" switch to the "**run**" position, this activates the battery.
- Turn the "**Turbine Run**" switch which will start the engine. Wait until "**ready to charge light**" comes on and that the temperature is at or above 500 degrees.
- Once lit, await signal from the headset man indicating that cockpit crew is ready to begin air start.
- Turn the "**output air**" switch on.
- **CAUTION:**
- *BE CAREFUL OF EXHAUST AND POSSIBLE FLAME*
- **WARNING:**
- *EAR PROTECTION MUST BE WORN.*
- **NEVER:**
- *PLACE TURBINE UNIT UNDER AIRCRAFT WING OR NEAR FUSELAGE.*



AIRSTART UNIT

TERMINATING INSTRUCTIONS:

When signaled by the headset man that engines are started, and the Captain has given the "**OK**" to disconnect the Air start Unit, you should follow the directions below:

Turn the "**output air**" switch to off. This will stop the flow of air through the hose and make it safe for you to disconnect the coupling.

CAUTION;

*DO NOT RELEASE THE HOSE UNTIL THE "**OUTPUT AIR**" SWITCH IS OFF.*

WARNING:

DO NOT SHUT OFF THE UNIT UNTIL THE TURBINE TEMPERATURE GAUGE IS AT OR BELOW 500 DEGREES.

NOTE:

With the narrow body aircrafts, the unit needs to be disconnected and moved away from the aircraft before beginning the pushback / tow out however, it is still important not to shut the unit off until the temperature gauge is at or below 500 degrees (approximately five (5) minutes).

GPU Ground Power Unit





GPU

- A four-wheel unit powered by a diesel engine. The purpose of the Ground Power Unit (GPU) generator is to produce and deliver regulated 400-HZ, 115 / 200 volts, to a parked aircraft for operation of the aircraft's electrical equipment.
- **NOTE:**
- *READ ALL THE OPERATING INSTRUCTIONS BEFORE ATTEMPTING TO OPERATE THE EQUIPMENT.*
- **WARNING:**
- *EAR PROTECTION IS NECESSARY WHEN WORKING WITH THIS PIECE OF EQUIPMENT.*
- **OPERATING INSTRUCTIONS**
- Turn "**engine run**" switch to the "**on**" position (pull throttle handle out 1).
- Press "**start**" button on panel (for 3 to 5 seconds or until the engine catches).
- Adjust the throttle until indicator clearly vibrates to 400 cycles by rotating the throttle knob handle counter clockwise.
- Adjust the voltage regulator to 115 / 200 volts by rotating the increase / decrease knob only if the proper voltage is not indicated.
- Hit the "**Trouble Reset**" button after Ground Power Unit (GPU) has been prepared.
- If there are no red trouble lights, the Ground Power Unit (GPU) is now ready to be plugged in to the A/C.
- Plug into the aircraft and press load contactor closed to start the flow of electricity from the Ground Power Unit (GPU) to the aircraft.
- If the aircraft is accepting power, the connecting light on the panel will light up.

TERMINATING INSTRUCTIONS

Procedure for removing 115 / 200 volts AC from the aircraft.

Note:

Never disconnect the ground Power Unit (GPU) unless authorization is given from the captain.

Press the Contactor "**Open button**". The Load Contactor Closed light should turn off.

Press start button on panel (for 3 to 5 seconds or until the engine catches).

Procedure for shutdown

Turn Throttle Control to "**IDLE**" position.

Allow diesel engine to idle approximately five (5) minutes.

Turn Engine Run switch to "**off**" position.

Connect hose coupling into aircraft air start panel.

Press "**starter**" button.

When cockpit crew signals to the headsets man (B GST) that they are ready to initiate a start, pull out throttle completely and turn switch from unload to jet start.

This will supply regulating air at a rate of 30 to 40 psi and engine RPM to 2100.

TERMINATING OPERATIONS

At a signal from cockpit crew to the headsets man (B (B GST), turn the switch to the "**unload**" position. The ground crew should immediately remove the supply hose coupling from the A/C making sure to avoid engine intake.

The supply hose should be returned to its storage area on top of the unit (especially important in below- freezing temperature due to possible damage to the hose).

It is important to let unit idle for five (5) minutes before shutting it off.

Note:

Always have tug attached to air start unit for quick movement away from aircraft and to assist in aircraft departure. (Especially important for narrow body operations)

DO NOT POINT THE EXHAUST STACK (THE HORN ON TOP) AT THE AIRCRAFT, IT CAN CAUSE SEVERE DAMAGE TO THE STRUCTURE AND THE PAINT.



Container Dollies





Slave Dollies





Slave Dollies





Container Dollies

Dollies are large towed type trailers with roller beds designed to move ULD containers (Unit Load Device), and freight pallets to and from wide bodied aircraft. The most common dollies used are; LD3, LD7, LD8 and the LD11. Choice will also use a 20 foot dolly for towing large freight pallets off of freighters. The basic difference between these dollies is their size. The LD3 being the smaller of these units. The dolly that is used is determined by the container or pallet that is called for. Here are some examples: An LD3 container will be loaded on an LD3 dolly. An LD7 container will be loaded on an LD7 dolly. An LD7 dolly can also, if necessary, be used to haul up to 4 LD3 containers. LD7 dollies are also used to carry cargo pallets.

On any of these dollies, the container or pallet are loaded, locked into place; (locking devices will vary by dolly type), and brought out to the aircraft. The dolly is towed by being hitched to a tug. Again, the hook up system will vary by tug and dolly type. Check with your supervisor for details. Most types of dollies have a tongue system where the brake is applied when the tongue is raised, while other dolly types have a hand brake.

Safety Precautions

Be extra careful of your hands, fingers, and feet when hooking the dolly to the tug.

Don't walk between a train of dollies (two or more dollies hitched together being pulled by one tug) during the loading or unloading process.

Make sure that brakes are set when loading or unloading a dolly that is not hooked up to a tug or any other vehicle.

When pulled in a train policy is that no more than four carts or dollies will be towed at once.

Unit Load Devices (ULDs)



- UNIT LOAD DEVICE – LD3



Unit Load Devices (ULDs)

Unit Load Devices or ULDs are an integral part of aircraft handling. The loading and handling of ULD's should be carried out with extreme care to ensure in-flight safety, reliability and to maximize equipment life.

There are 3 types of ULD;

Containers

Pallets

Igloos

Containers – are regarded as small aircraft holds in themselves, which can be removed from the aircraft and loaded/unloaded in the bag-room or warehouse area. Like conventional holds, containers have certain structural limits that must not be exceeded, unless the correct procedures are followed.

Containers are classified in 2 main groups:

- Certified Containers – These are strong enough in themselves to restrain the load they carry and protect the aircraft from damage.
- Non-Certified Containers – These are convenient containers or “over packs” used for the ease of loading and the protection of cargo: They are not strong enough to retain loads during any violent in-flight conditions and may only be loaded on aircraft with holds that are certified as having walls and ceilings that permit bulk loading.

Note: Certified containers must be locked into the aircraft restraint system to ensure movement does not occur during flight.



Unit Load Devices (ULDs)

- **Pallets** – are certified units that can be regarded as sections of the aircraft floor, which can be removed from the aircraft to ease the loading and unloading. Like the aircraft floor, pallets have certain structural limits that must not be exceeded, unless the correct procedures are followed. Pallets normally arrive at the aircraft side with the load restrained by a certified net. The net must be tensioned firmly in all directions so the load is restrained to the pallet to meet the minimum 3G factors. However, tensioning should not bend the pallet and special consideration should be given to securing low profile loads.
- **Note: Certified pallets must be locked into the aircraft restraint system to ensure movement does not occur during flight.**
- **Igloos** – are not subject to airworthiness requirements and must always be used in conjunction with a certified aircraft pallet and net. The purpose of an igloo is that it is a load-forming device that defines the maximum loading contours of the aircraft. It also serves as a protector for the aircraft interiors and the cargo that is in transit. High-density items should be individually secured at all times
- **Note: Igloos must be locked into the aircraft restraint system to ensure movement does not occur during flight.**



Unit Load Devices (ULDs)

- The identification code of a ULD describes the type, size and contour of each unit.
- The first character is the type.
- A = Aircraft container
- P = Aircraft pallet
- The second character gives the base size
- A = 88 x 125
- B = 88 x 108
- K = 60.4 x 61.5
- L = 60.4 x 125
- M = 96 x 125
- N = 61.5 x 96
- P = 47 x 60.4
- Q = 60.4 x 96
- R = 96 x 196
- The third character describes the contour of container and compatibility of pallets
- C & E = Half Width
- U & F = Full Width
- P = Box
- K = Igloo



Unit Load Devices (ULDs)

ULD Description	US ID Code	IATA ID Code
Containers		
Full Profile	LD29	AAU
Full Profile	LD26	AAF
Full Profile	LD6	ALF
Full Profile	LD8	AQF
Full Profile	LD29	RAU
Box Profile	LD9	AAP
Box Profile	LD11	ALP
Box Profile	LD10	AAK
Half Profile	LD1	AKC
Half Profile	LD3	AKE
Half Profile	LD2	APE
Half Profile	LD1	AKD

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Unit Load Devices (ULDs)

Pallets

ULD Description	US ID Code	IATA ID Code
88 x 125		PAD
88 x 125		PAG
88 x 125		PAP
88 x 125		XAW
60.4 x 125		PLA
60.4 x 125		PLB
96 x 125		PMA
96 x 125		PMC



Container/Pallet Loading

- Proper aircraft loading is a basic responsibility for every ramp agent. An aircraft must be loaded in a manner to guarantee correct balance, therefore ensuring flight safety. Loading must always be done according to the load plan prepared for each particular flight.
- The loading and unloading of cargo is conducted through the use of either an automated system operated by the cargo ramp agent or by manually positioning the unit into their assigned positions. To avoid injury or damage, loaded units should always be positioned using at least two people.
- Always push or pull the containers at a moderate, steady pace when offloading or uploading ULDs in order to ensure the safety of personnel and to prevent damage to the aircraft. Pulling or pushing a container or pallet too fast may cause the ULD to hit the container locking devices with excessive force causing damage to the locks or the interior bulkhead walls.
- When pulling a container from its position on the aircraft, ensure that you pull with your legs and not your back. Straps are attached to either side of a container so that even force can be applied to both sides of the container to prevent the container from tracking unevenly. Never pull the container by the door latch handle. Remember to disengage floor locks and container stops as you unload each position on the aircraft.



Container/Pallet Loading

Once the aircraft has been unloaded, a compartment inspection should be performed.

Confirm that all floor locks have been retracted

Check for any pallet locks that are missing or damaged

Report any damage or suspected damage to your supervisor immediately.

Prior to uploading any container or pallet, a brief inspection should be made. Ensure that all containers and pallets are properly contoured and that the load and door are secured. Cargo loaded onto pallets should not hang over the sides of the pallet, as this could impede the loading process. Pallet nets should be tight around the cargo to keep the cargo from shifting during flight. All containers and pallets should be properly labeled.

Once the cargo containers or pallet has been inspected and found to meet the carrier's specification, it can be loaded. Containers and pallets must be first transferred from the dollies or transporters to the loader and then again from the loader into the aircraft.

Push containers and pallets with the help of other cargo ramp agents. Avoid pulling the containers if possible. Push the container or pallet forward with your back against the container or pallet using your legs. Once the ULD begins to move freely, turn and push it firmly into position. Once in position, raise the locks or stops to secure the ULD in place.



Bulk Loading

Narrow bodied aircraft and a few wide body aircraft as well, do not have the capability to utilize containers for loading cargo. Bulk loading is the terminology used when baggage and cargo must be hand loaded inside the bins. Depending on the size of the aircraft and whether it is equipped with the sliding carpet system, you may require one to two employees inside the aircraft bin to stack it appropriately.

When bulk loading an aircraft be sure to:

Position the belt loader correctly

Utilize proper back lifting techniques

Follow the load plan given for the flight and keep an accurate account of how many pieces have entered the bin being loaded. It will be crucial when providing a precise weight calculation for the aircraft's departure.

Ensure that the cargo is kept together according to the load plan. Normally, a cargo load will have numerous pieces to be loaded and the weight calculated for the load will not be broken down into each individual piece. If the load must be split apart in a separate bin, then an accurate weight must be ascertained for each individual piece in order to provide a precise weight calculation for the aircraft's departure.

Never throw or toss freight. Observe package instruction labels, directional arrows, fragile stickers and tags, and hazardous materials/dangerous goods.



Bulk Loading

Keep a steady flow of pieces into the bin from the belt loader. When positioning bags and cargo on the belt loader, allow a gap between each piece. Pieces piling up at the top of the belt loader will allow the pieces to fall to the ground and damage may occur.

Maximize the amount of cargo placed in a compartment by using all space available. Some carriers require a 2-inch space between freight and the ceiling of the compartment. The purpose of this space is so smoke detection units are not hindered. Check specific carrier requirements.

Stack cargo symmetrically in order to load as much cargo as needed. Load large, heavy and long cargo on the bottom of the compartment and place smaller and lighter pieces on top.

Even if the load will not fill the entire bin, you must stack the load appropriate to ensure the load will not shift during flight.

Be sure to load any live animals in the appropriate compartment (varies on different aircrafts) and report the location of the animal on the load sheet provided by the airline. Ensure the animal container is loaded on the floor and NEVER stack any cargo on top of the container. Ensure proper restraints are used. The animal should be placed near the door, facing outward and properly secured with proper ventilation.

Utilize the cargo nets inside the bin and secure properly before exiting the aircraft. It doesn't matter if the bin is completely full, partially full or completely empty, the nets must ALWAYS be properly locked and secured.

Leave enough space at the door opening in order to be able to properly close and secure the cargo door. Ensure the nets, baggage straps, etc. are not within the doorframe. Damage may occur to the door upon closing if the frame is not completely clear.



Securing of Loads (Restraints)

The movement of load in cargo holds can easily damage an aircraft, jeopardize safety, and may prevent the hold doors being opened on arrival at its destination. Therefore, it is necessary for loads to be adequately secured to prevent any movement.

Stationary objects in a moving aircraft will be traveling at the same speed as the aircraft. If the aircraft decelerates rapidly, the objects will continue with the same speed and in the same direction as before, unless restraint is applied.

This is most noticeable when heavy braking or reverse thrust is applied after touchdown on the runway. The effect of sudden deceleration or bumpy air conditions (turbulence) tends to make the objects move in the aircraft unless they are restrained.

All loads on an aircraft must be secured because of the forces imposed on them by the movement of the aircraft on the (i.e. take-off and landing), and in the air.

There are four reasons, which can cause a load to shift during flight;

- Acceleration on take-off – Can cause backwards movement.

- Yawing (normally occurs during turbulent conditions) – Can cause sideways movement.

- Slowing down (severe in emergencies) – Can cause the load to move forward.

- Vertical drops (Experienced during bumpy, turbulent conditions) – The load can leave the floor.



Securing of Loads (Restraints)

The load must be secured to prevent movement in those conditions

Lashing is required to restrain against:

Forward movement

Backward movement

Upward movement

Sideways movement

Items Requiring Individual Restraint

Compartments, net sections and ULDs that are filled up to three-quarters of their height are considered to be full.

Pieces weighing 150 kg or more, when bulk-loaded in compartments or net sections, should always be tied down (secured)

Particular attention must be given to restraining dangerous goods. In general, all packages containing dangerous goods must:

Be stowed in an upright position (if so indicated)

Have the hazard label visible

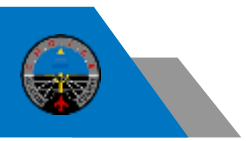
Should be restrained to prevent movement and tipping or from being damaged by other loads.

Approved Material For Restraint

Polypropylene Rope

Tie Down Strap

Note: Ensure specific Airline procedures and guidelines are followed.



Tie Down Fitting

Securing cargo to the compartment floor is accomplished through tie down fittings. It is important to ensure that the rope or strap is securely fastened to the tie down fitting.

The industry uses two types of tie down fittings. They are:

Single stud fittings – maximum of two ropes per restraint direction allowed

Double stud fittings – maximum of one strap per restraint direction is allowed.



How to Lash

It is not permitted to tie-down a load with DIFFERENT equipment (fittings, ropes, straps): tie-down must be performed either with straps or with ropes, without any mixing. Except in absolute necessity (no other equipment available), single stud fittings and ropes may be used only for tie-down in bulk compartments or inside containers.

Minimum distance between two adjacent tie-down points should be:

12 inches between two single stud fittings

20 inches between two double stud fittings

Tie-down must ensure restraint in at least three directions: forward, aft, and upwards in relation to the aircraft.

Standard lashing requires four tie-down rings, four lashing ropes and one security rope. Two lashing ropes or straps will be used against upward forces, one lashing rope or strap each against forward and backward forces. The security rope is necessary to prevent sliding down of the lashing ropes/straps used against forward and backward forces. As the sideward forces are already included in the standard lashing, no individual lashing against sideward forces is normally required



Departure Activity

The pushback procedure for departure is basically the same for most aircraft, the premise of which is the exertion of force by a mobile vehicle (pushback tractor) against a movable object, the aircraft. A tow bar is used to link the pushback tractor and the aircraft for the safe movement to the predetermined area.

The minimum pushback crew is comprised of two (2) wing walkers, and a tractor driver. Each member of the wing walking crew must have two (2) wands (illuminated for night use), and headsets for the tractor driver.



Pre-departure Duties

Pre-departure activities involve the accomplishment of numerous tasks necessary to dispatch an aircraft at the planned departure time. All crew members are responsible for the accomplishment of assigned duties and the safe handling and movement of the aircraft.

Ground to Cockpit Communication

Five minutes before planned departure, establish ground to cockpit communications with the captain via interphone. All communications originating from the ground during pushback operations shall be made from the pushback tractor. No person may walk in the vicinity of the nose gear during aircraft movement.

All conversation with the captain shall be conducted professionally and with the knowledge that often times customers are capable of overhearing these communications.

Profanity or other inappropriate language or conversation outside that which is required to accomplish the order of business is strictly forbidden.

In the event that ground to cockpit communication cannot be established due to malfunction the tractor operator will proceed to the cockpit five minutes prior to departure to coordinate the hand signals planned to be used during pushback operations.

The tractor operator will remain on the headset for continuous communications with the cockpit up to the point of planned departure time. During this time the tractor operator should not leave the headset without first advising the captain of the reason for disconnecting and estimated return.



Walk around

A walk-around must be accomplished prior to departure. This walk-around includes a visual check of the following items and confirmation from the tractor operator to the captain when accomplished with the verbiage “All Secure Below”

Ensure all passenger, cargo doors, and stairs are closed and secured.

Ensure all maintenance and service access panels are closed and secured.

Ensure all ground equipment are parked behind safety clearance lines.

Ensure all maintenance stands and ladders are stowed behind safety clearance lines while not in use.

Ensure the ramp area in the vicinity of the aircraft is free of FOD

Ensure no visible aircraft damage or excessive fluid leaks are present. The captain and supervisor must be notified if any of these conditions are present.



Aircraft Brakes/Wheel Chocks

After the walk-around is completed, the pushback tractor operator will request “Set Brakes” to the captain. The captain will acknowledge with “Parking Brakes Set”. This conversation confirms that the aircraft is securely parked so that the wheel chocks may be safely removed.

The Tractor operator will then execute the “Parking Brake Set” hand signal to the left side wing walker. The left side wing walker will then remove all wheel chocks. If more than one set of chocks is in place, the right side wing walker will assist in their removal and stowage.



Engine Start

Initiation of the aircraft engine starting sequence is the sole responsibility of the cockpit crew members. Cargo Ramp personnel will only advise clearance to start.

Engine start is prohibited during push-out if the ramp surface is slippery (ice or other material accumulations). Engine forces acting as resistance to the rearward movement of the aircraft may cause the pushback tractor / towbar and aircraft to jackknife.



Approved Hand Signals

Interphone communications are normally used when communicating between the ground and cockpit. When the interphone system is inoperative, or communications devices are not available, approved hand signals must be used to direct the movement of the aircraft or to relay information between the ground and cockpit. The marshaller will proceed to the cockpit five minutes prior to departure to coordinate the hand signals planned to be used during push-back or power-back operations.

Each aircraft marshaller / push-back operator and wing walkers is responsible for the safe operation in his assigned area when an aircraft is in motion. Personnel must immediately execute the “Stop” signal whenever directions are not being followed

Personnel displaying hand signals must remain visible to the intended recipient of the signal.

During night time hours, between sunset and sunrise, all signals will be given with approved illuminated flashlights (2 each person). During daylight hours, between sunrise and sunset, hand signals may be given either with approved day-glow orange safety wands or with illuminated wands.



Safety Precautions

Prior to pushback and/or towing of any aircraft the following minimum criteria must be met:

Determine the path in which the aircraft will be pushed/pulled is clear and of sufficient size to allow the safe movement of the aircraft

Determine that the draw bar pull of the tow vehicle, vehicle weight and horsepower is sufficient enough to successfully move the aircraft without incident.

Perform an aircraft walk around inspection.

Examine the vehicle tow hitch to make sure it is properly secured to the tow vehicle.

Examine the tow-bar prior to installing it on the aircraft and connecting it to the tow vehicle. Note: It is mandatory where aircraft require a bypass pin; install the bypass pin prior to attaching the tow-bar.

Examine the tow-bar connection at the aircraft nose wheel to determine that the tow-bar will properly mate to the connection on the nose wheel.

It is very important to examine the aircraft nose wheel at this point to determine if there was any prior damage. If damage is detected, do not move the aircraft. Bring the damage to the attention of the pilot or aircraft maintenance technician.



Safety Precautions

Once these operational checks have been successfully performed, the tow vehicle operator can then proceed to coordinate the movement of the aircraft with the wing walkers.

To conduct the pushback/tow operation attach the proper tow-bar to the nose gear of the aircraft first and then to the tractor.

Once the tow vehicle is fully connected to the aircraft and the chocks removed, the headset operator will be in positive control of the pushback/tow personnel, aircraft clearance, and maintain contact with the aircraft crew.

During pushback, the employee operating the headset is prohibited from crossing over the tow-bar to the other side of the aircraft or walking behind or in the path of the aircraft nose-wheel. In addition, the headset operator must maintain sufficient clearance between himself and the nose-wheel to avoid possible injury.

Disconnect the tow-bar from the tow vehicle, and then disconnect the tow-bar from the aircraft. Remove the bypass pin and or other pins as applicable.

Note: When the aircraft is ready to be pushed / towed, it is prohibited for any employee to be within ten (10) feet of the aircraft nose or main gear.



Safety Precautions

Only those employees designated to handle the aircraft pushback/tow will be allowed to follow the aircraft.



Aircraft Identification

The aircraft that you encounter on the ramp will have as many distinguishing features as the cars that you see driving on the freeway. Aircraft have distinct body styles, different engine types, various load capacities, and they may perform different functions. Your need to be able to identify the different aircraft is necessary for the performance of your duties on the ramp. For instance, the aircraft type will tell you what type of container loader to use, or which passenger stair unit you may need. If you were unloading a DC-8 cargo aircraft, you would need dollies, but, if you were unloading a B-737, you would need carts.

There are many reasons why being able to identify aircraft is essential. The following will give you a brief description of most of the aircraft types that you will be working with on the ramp. They will be classified by style; Narrow-body vs. Wide-body.

B = Boeing (DC), **MD** = MacDonald Douglas **A** = Airbus **L** = Lockheed

Narrow – Body

B-727
B-737
B-757
DC-8
DC-9
MD-80
A-320

Wide-Body

B-747
B-767
B-777
DC-10
MD-11
L-1011
A-300



Towing Non-Motorized Equipment

When towing ground equipment, taking the proper safety precautions can and will help avoid serious injury to you and other ramp personnel, and will also help avoid damage to equipment and to any aircraft. Some of the information mentioned here is material that may have already been covered, but because of its importance, it bears repeating. You may also be hearing about equipment that hasn't been introduced yet, but hearing about their safety precautions first will help you later.

As you know, the tug is the primary self propelled vehicle that is used for towing ground service equipment. Always double-check to make sure that the towing pin is secure before pulling the load. When operating the tug, remember that the weight of the load you are towing will determine how much distance it will take to stop. One of the reasons for ramp mishaps is not knowing, the dimensions and specification of your individual vehicle, and judging distance on the ramp can be very deceptive.



Towing Non-Motorized Equipment

The following information addresses safety concerns regarding equipment that the tug will tow.

Towing safety begins with the hooking up of equipment and ends with the disconnecting of equipment. During these procedures, be very careful of your fingers, hands, and feet.

No more than four (4) carts or dollies may be towed at any one time. Keep in mind that the swing of the last cart or container during a turn can be hard to judge. Limit your speed greatly on turns, when pulling a “train”. You don’t want to “fish Tail” and overturn the dollies.

When hooking up a dolly make sure that the safety locking pin is in place before towing.

When towing more than one dolly always hook the largest or heaviest unit to the tug. The lighter units should be at the end of the train.

When towing GPUs, Air Start Units, Water Carts, Lavatory Carts, or Tail Stands, be extremely careful on turns. Watch both your speed and the turning radius. You don’t want to tip this equipment over. These units are all top heavy.

Tail Stands will reach upwards of 17 1/2 feet tall, so know what your clearances are on the ramp. Serious damage and possible injury can occur if the Tail Stand that you are towing does clear a bridge or an aircraft wing.



Equipment Abuse and Neglect

Abuse, as it applies to ground equipment, is any improper treatment or use of equipment which creates maintenance expense beyond normal wear. The following will be considered equipment abuse by company standards:

Service calls or malfunctions due to equipment being out of fuel.

Broken glass, lights, and reflectors.

Broken door handles and window regulators

Tire damage due to vehicle operating on low or flat tires

Engine failure due to no oil or coolant

Dead batteries due to leaving lights or ignition switch on

Damage due to dragging power cables or service hoses, fuel hoses, or driving from aircraft or fuel farm with cables or hoses still connected

Service calls due to operator not knowing equipment operation

Repairs caused by operator tampering with adjustments.

Transmission, clutch and drive line parts that fail abnormally.

Damage due to equipment operating with emergency brake on.

Damage to upholstery caused by puncture or tearing (which is not attributable to normal wear).

Replacement or repair of missing equipment or accessories (windshield wiper blades, radiator cap, fuel caps, nozzle dust caps, etc.).



Equipment Abuse and Neglect

Damage to paint that is not attributable to normal wear.

Repairs caused by adding wrong fluids to fuel tank, hydraulic tanks, engine oil, or radiators.

Repairs to sheet metal or structural parts bent or damaged in accidents or through negligent operation.

Failure to tag out an unserviceable piece of equipment.

Operating tagged out piece of equipment.

Under no circumstances shall a piece of equipment be utilized to push another piece of equipment, unless for the purpose of vehicle maintenance, pr approval from a supervisor.

Failure to notify maintenance of equipment discrepancies.

The company strives to provide their employees with safe, mechanically sound equipment for their use, and expects each employee to treat such equipment with the same care as though it were their own.



Aircraft Fuel Spills

Fuel spills represent a real danger of fire. For this reason, all equipment within 100 feet of the fuel spill must shut down immediately. No vehicle, except emergency response vehicles, will be allowed to operate within that 100-foot radius of the spill. No vehicle of any type shall drive through a fuel spill. If a spill occurs, observe the following procedure:

Avoid use of all ground service equipment near the aircraft

Position a fire bottle near the fuel spill

Notify your supervisor

Notify the airline representative

Oil spills on the ramp can cause disabling injuries due to falls or can cause vehicles to skid into parked aircraft. Oil spills should be cleaned up immediately by the use of an approved compound or an absorbent material that is to be picked up as soon as the oil is absorbed. A “fire guard” should be assigned with an extinguisher until the clean up is complete. The oil absorbent material that was used for the clean up must then be disposed of in accordance with EPA regulations.



Foreign Object Debris (FOD)

Modern jet engines are extremely vulnerable to FOD. The powerful engine intakes can ingest heavy objects and debris left on the ramp causing damage to the engines. This damage could potentially cost millions of dollars and possible loss of life due to engine failure, all because someone failed to pick up debris that was left lying on the ramp. A tool thoughtlessly left behind can have the same damaging effect. And by the way, one of those heavy objects that an engine can ingest could be an inattentive ramp agent. FOD is serious business. On the other side of the engine, jet blast can hurl debris or heavy objects with missile like velocity, causing damage to aircraft or equipment, or causing injury or death to anyone who gets caught in its path. This may sound dramatic, but for good cause; it does happen. Obviously, don't let it happen to you.

FOD prevention can be achieved by good housekeeping discipline on the part of all personnel. The best cure for FOD is "no debris on the ramp". You are required to use the garbage cans and FOD bins that are provided to keep the ramp area clean. If you see debris lying on the ramp, pick it up, regardless of who left it. Try to also be aware of any stray animals that may be found loose on the ramp or taxiways.

This being said, perhaps the greatest source of FOD comes from each and every member of the ramp team who leave behind soda cans, candy wrappers, leftover pieces of food, etc. inside, on top of, and around the equipment and vehicles that they have just used. FOD buckets should be used for discarding any trash that you might generate on the ramp. When equipment is taken out, a preoperational check should be made for any loose debris left behind.



Incident and Accident Reporting Procedures

In the event of an incident or accident involving an aircraft or company equipment, local and company procedures must be activated. These procedures will ensure that all emergencies are handled safely, expeditiously and are coordinated with the Airport Operations Emergency Plan.

Each vehicle operator shall notify their supervisor at once of any accident in which their vehicle is involved regardless of whether injury or damage is or is not apparent.

All injuries, no matter how minor, are to be immediately reported to your supervisor.

Immediate Emergency Notification

Immediate emergency notification by phone is mandatory for:

Any aircraft accident involving any aircraft damage or serious bodily injury

An aircraft crash of an aircraft serviced by Choice Aviation Services

Fuel/chemical spill, in any quantity reaching a storm drain, waterway, soil, or vegetated area.

Fuel or chemical spill requiring notification to State environmental agency.

Auto accident with serious injuries or heavy property damage.

Multiple injuries or deaths involving company employees or customers



Aircraft Security

All cargo ramp personnel working in and around a customer's aircraft must uphold their security responsibilities. These security responsibilities are:

The proper display of airport ID badges while working on the ramp. The ID badge must be worn facing out, above the waist, below the neck, and on the outermost garment.

Challenge all individuals entering onto the ramp without proper airport identification.

To ensure on all layover aircrafts, all cargo and passenger doors are properly secured against entry, when no one is working on, around, or nearby the aircraft.

Designated facility employees shall ensure that daily inspections are made of cargo and ramp premises, noting and reporting unaccounted-for packages or bags, to responsible local authorities.



Customs Clearance

No cargo is to be offloaded from an inbound flight until the carrier has received clearance from U.S. Customs. Failing to follow this procedure can expose the company to un-necessary Customs fines and penalties



LOAD PLANS

Load Plans or LIRs (Load Information Reports) are printed reports from the airline to the servicing company describing and charting in detail how each aircraft is to be loaded or unloaded by weight distribution in each section or compartment of the aircraft. The Load Plan design will vary from airline to airline, but all will generally include a very detailed compartment by compartment schematic of the interior of the aircraft with a configuration plan by pallets as to:

How the load should be distributed for departure.

How the load was distributed at arrival; and a section for any special instructions for loading. These load plans will be displayed prominently in your station office, and they are expected to be followed as outlined.

The offload will simply reverse the above process. An off-load plan will show the weight distribution at the aircraft's arrival. You will find examples of various Load Plans/Off Load Plans from different airlines in the following pages. Make sure that you familiarize yourself with them. Each airline will have a slightly different format or layout to their individual Load Plan.

The End

