
RAM-AIR GLOSSARY

RAM-AIR PARACHUTE
TRAINING MANUAL

BLM SMOKEJUMPERS

RAM-AIR GLOSSARY

AIRFOIL - A structure consisting of a curved surface on top and a flat surface on bottom designed to generate lift due to the difference in the pressure of the air flowing over the two surfaces.

AIR SPEED - The horizontal speed the parachute is traveling through an air mass; in jumper jargon, same as forward speed.

ALLEYWAY - A gap or series of openings in timber leading to the jump spot.

ALTERNATE SPOT - Another place to land if conditions or parachute technique cause the jumper to miss the designated primary jump spot.

ARE YOU READY - A question the spotter will ask the first person in the stick prior to hooking up the static line requiring an answer for all jumpers in that stick. Followed by, "Are your leg straps tight?."

AUTOMATIC ACTIVATION DEVICE (AAD) - A device designed to automatically activate a parachute.

BASE LEG - The part of the formal landing pattern in which the jumper is flying cross wind in preparation to making the turn for final approach to landing.

BLEEDING OFF ALTITUDE - Losing altitude while on final approach using techniques such as the S-turn, stall or sink in order to establish the proper

sight picture for descending to the spot.

BODY POSITION - The posture assumed by the jumper at the moment of exit from the aircraft and held until the canopy begins deployment.

BOTTOM SKIN - The lower surface of the Ram-air canopy.

BOW TIE TURNS - A maneuver in which the jumper weaves back and forth while on final approach in order to bleed off altitude to avoid overshooting the jump spot; similar to S-turns, but slightly more radical as the jumper turns farther into the S, turning away from the jump spot.

BRAKE LINES - See Control Lines (also known as Steering Lines).

BRIDLE - The material connecting the drogue parachute to the main parachute deployment bag.

BROKEN LINES - A malfunction involving separation of suspension lines between the risers and the canopy during the deployment, likely to induce a turn or spin.

BURBLE - A disturbed airmass occurring on the lee side of an object.

CANOPY SURGE - The momentary acceleration and descent of the canopy as it comes out of a stall or when the control lines are quickly brought to full run position from a deep brake

setting, will cause the jumper to oscillate as the canopy centers itself.

CASCADE LINES - Suspension lines that merge with other lines below the canopy and above the connector links designed to distribute the line load.

CELL - A chamber formed between the fabric of two load bearing ribs and the top and bottom skin of the ram-air canopy. Each cell is divided by one or more non-load bearing ribs forming lobes.

CHASING THE WIND LINE - Also known as Chasing the Wind Sock, a flight technique mistake of changing direction of the final approach too low to the ground based on slight fluctuations of ground wind.

CHECK YOUR CANOPY - The opening check procedure of visually inspecting the condition of your parachute canopy immediately after deployment.

CHECK YOUR AIRSPACE - The opening check procedure of scanning the area in your immediate path to verify safe maneuvering space; the continuing awareness of location of all other jumpers during descent to the ground.

CHECK YOUR CONTROLS - The procedure of verifying that your canopy is functioning properly after opening. It involves pulling a full right turn, left turn, and stall.

CHORD - The measured distance from the canopy nose to the canopy tail.

CLUTCH - See Main Release Handle.

COLLISION - Entanglement of two or more canopies while in the air caused by inattentive jumper(s).

COLLISION AVOIDANCE - A quick maneuver to avoid a canopy collision, usually involving one or both jumpers making a right turn when approaching head on.

COMING UP SHORT - A flight technique error occurring on final when the jumper misjudges the sight picture and is unable to penetrate the existing wind or make it back to the desired jump spot due to traveling too far on the downwind leg.

CONNECTOR LINKS - Oval metal attachment rings also called French links joining the suspension lines to the risers.

CONTROLLABILITY CHECK - See CHECK YOUR CONTROLS.

CONTROL LINES - Control lines (Also known as Steering Lines or Brake Lines) are used to steer and modulate the forward speed of the parachute; attached to the trailing edge of the canopy in distinct left and right groups, the control lines are cascaded in the upper section joined to a single line attached to a steering toggle in the lower section.

CONTROL TOGGLES - See

Steering Toggles.

CRABBING - A flight technique used in higher wind situations to move sideways in a vector by pointing the nose of the canopy off of the wind line.

CRABBING FINAL - A non-conventional pattern involving making a final approach in higher wind where the jumper moves sideways by vectoring the canopy off the wind line; useful when the jump spot is a ridge perpendicular to the wind line, allowing the jumper to avoid going downwind of the jump spot due to the hazard of the lee slope.

CRACK THE WHIP - A flight technique error occurring when a jumper following another jumper does not allow for descent rate and goes too far downwind while mimicking the perceived pattern.

CROSS-PORTS - Small holes cut in the rib sections to balance the air pressure within the cells across the full span of the canopy.

CROSS WIND - Refers to flying the canopy at approximately 90 degrees to wind line; also refers to wind blowing at right angles to final approach.

CROSS WIND LANDING - Landing the parachute at right angles to the wind, usually to take advantage of the longest part of the opening of the jump spot.

CUT-AWAY RELEASE HANDLE - See Main Release Handle.

DEEP BRAKES - Pulling down the control lines to a point where the canopy is in a slow flight mode and minimally flying forward.

DEPLOYMENT - The sequence of events occurring as the parachute is extracted from a packed container until it is fully open.

DEPLOYMENT BAG - The bag which holds the folded parachute inside the container to facilitate the deployment of the suspension lines and the canopy in the proper, predetermined sequence.

DESCENT RATE - The vertical speed at which the jumper approaches the ground while descending during the parachute jump.

DIVE LOOPS - Webbing handles sewn on the front parachute risers when pulled allow the jumper to bring the nose of the canopy down for increased wind penetration or to steer with the front risers.

DOWN AIR - A mass of air that is moving down due to atmospheric instability or terrain features, considered to be a hazard to aircraft and parachutes when occurring near the ground.

DOWN WIND - Refers to any point down wind of the designated jump spot.

DOWN WIND LANDING - A flight technique mistake of landing while running with the wind.

DOWN WIND LEG - During the parachute descent, the part of the formal pattern where the jumper is traveling (running) with the wind to a distance far enough to allow the proper angle for descent to the jump spot after turning to the base leg and the final approach.

DRIFT - Also known as Wind Drift, refers to a wind speed measurement as determined by the horizontal distance traveled by drift streamers to assist the jumpers in making a plan about the jump; drift is expressed in estimated yards by the spotter to the jumpers before exit.

DRIFT STREAMER - Lengths of weighted crepe paper used to determine the wind speed (drift) and wind direction (wind line) in the area of the jump spot; also can be hand held by the first jumpers to indicate local ground winds to jumpers that proceed to land after them.

DROGUE - A small parachute designed to stabilize the body position of a jumper during the exit from the aircraft and then to act as a pilot chute to extract the main from the container when the drogue release handle is pulled.

DROGUE-IN-TOW - A deployment malfunction occurring when the drogue parachute fails to properly deploy or release, thus preventing the main canopy from being extracted from the container.

DROGUE KILL LINE - A line routed inside the bridle, connecting the top of the main canopy to the apex of the

drogue chute, used to deflate the drogue during the main parachute deployment.

DROGUE OVER THE NOSE - Usually caused by holding a prolonged stall, the drogue is draped over the nose of the canopy.

DROGUE RELEASE - The stage in the deployment sequence when the drogue release handle is pulled allowing the three-ring attachment holding the inflated drogue to release, allowing the drogue to feed out the remaining bridle to pull the locking pin on the parachute container.

DROGUE RELEASE HANDLE - The green handle located on the left side of the harness attached to a cable routed to the three-ring assembly of the drogue parachute bridle and harness; when pulled, the handle removes the cable from the nylon locking loop allowing the three-ring assembly to release.

DYNAMIC FLARE - A flight technique involving converting the forward speed of the ram-air parachute into lift for the purpose of gaining a momentary reduction of descent rate; used to effect a soft landing by moving the steering toggles from full run or quarter-brakes to a full brake position using proper timing and technique to allow aerodynamics to have full effect.

EASE THE TOGGLES UP - A flight technique involving slowly raising the steering toggles in order to gain sufficient forward speed to regain safe flight but without inducing a surge or oscillation associated with radical toggle movements.

EDDY - Same as Rotor, the swirling air of turbulence associated with conditions found on the leeward side of an obstruction.

EMERGENCY PROCEDURE - Refers to a standard procedure for a jumper to employ after experiencing an uncontrollable malfunction involving the proper technique and sequence for deploying the reserve parachute; after identifying the need to deploy the reserve, the jumper throws away the drogue release handle, places left hand on hip, pulls the main release handle, (look, reach pull), throws away main release handle, pulls the reserve handle (look, reach, pull).

END CELL CLOSURE - A term to describe a cell or number of cells not fully inflated in the ram-air canopy.

ENTANGLED DROGUE - Refers to a drogue parachute or bridle assembly that becomes entangled with the jumper during the exit from the aircraft.

EXIT POINT - The point at which the spotter signals the jumper to exit the aircraft; the point located directly on a line upwind from the jump spot calculated by the spotter to be the same distance traveled downwind by the drift streamers when released over the jump spot.

EXTENDING THE BASE LEG - A flight technique of flying a longer base leg to bleed off altitude in order to gain a better sight picture for final approach.

F-111 - Trade name for the 1.11 ounce per square yard non-porosity rip stop nylon used in most Ram-air canopy construction.

FALL OFF - The backward oscillation and rapid descent rate of the parachute when the transition is made from a forward flying condition to a stall.

FEEL FOR THE CANOPY - A term for the subjective analysis of the aerodynamic forces acting on the canopy; the ability of the jumper to anticipate the flight performance of the parachute as commands are given through the control lines.

FINAL APPROACH - The part of the formal pattern in which the jumper has completed all major changes in direction of the canopy and makes the descent to landing, faced into the wind.

FLARE - The process of pulling down both control lines simultaneously, changing the angle of attack of the canopy and thereby transforming any available forward speed into lift. (See Dynamic Flare.)

FLARE WITH RISERS - A technique for flaring the canopy involving pulling down simultaneously on the rear parachute risers.

FLARES - Sections of fabric on the bottom skin used as suspension line attachment points to distribute line loads

along the length of the load bearing rib.

FLOAT - The lift and change in glide angle occurring when pulling down the steering toggles from full run.

FLOATING HANDLE - A term for a deployment handle which is loose from its pouch on the harness and thereby "floating" during the exit from the aircraft.

FORMAL PATTERN - The route of the parachute jump made in relation to the direction of the wind, consisting of a downwind leg, base leg and final approach.

FORWARD SPEED - Same as Air Speed, the horizontal speed the parachute is moving ahead in an air mass.

FOUR-POINT CHECK - The equipment check done by the jumper when the spotter says "Get in the Door".

FREE BAG - A parachute deployment bag, bridle and pilot chute system used on the ram-air reserve parachute that is not connected to the canopy and floats free when the canopy is deployed.

FRENCH LINKS - Oval metal connectors used to join parachute components. (See Connector Links.)

FULL RUN - The setting of the trailing edge of the canopy with the steering toggles in the full up position; also known as Full

Glide.

GLIDE ANGLE - The angle of descent, i.e. the ratio of forward speed to vertical descent.

GOLIATH - The name given the Paraflite MT-1X Ram-air parachute due to its relatively large 375 sq-ft. size, first used as an operational main smokejumper parachute by the BLM 1984.

GOOD CANOPY - A reference to a properly deployed and properly functioning parachute.

GROUND SPEED - The horizontal speed the jumper is traveling relative to the ground while under canopy.

HALF-BRAKES - A flight technique involving lowering the control lines to the half-way point where the canopy forward speed and angle of attack is reduced by half and the glide angle is deemed most efficient; the control line setting used when encountering turbulence, impending tree landing and other situations requiring no bone head moves.

HALF-BRAKE LANDING - A flight technique of holding a half-brake control line setting during the landing of the parachute.

HARD OPENING - A subjective term for a faster than normal parachute deployment which induces greater opening shock associated with greater line loading.

HAZARDS - Refers to any physical object or local weather condition in the vicinity of the jump spot which would make for an unsafe parachute landing.

HOLDING INTO THE WIND - A flight technique involving facing the canopy into the wind, thus subtracting the wind speed from the forward speed of the canopy to reduce ground speed; the desired position of the jumper for final approach and landing.

HOLDING THE SINK - A technique for maintaining the canopy in a deep brake "sink" mode for an extended time in order to bleed off altitude and adjust the angle of descent for final approach.

HOLDING WHAT YOU'VE GOT - Similar to a half-brake landing, a flight technique rule of thumb to maintain a safe brake setting of the control lines in order to keep the canopy flying, i.e. avoid a stalled landing, and to reduce pilot error resulting from radical toggle movements near the ground.

HOOK TURN - A radical turn made by rapidly pulling down one control line which induces a rapid spiral and rate of descent; a dangerous flight technique error when made low to the ground, associated with a jumper who is attempting to salvage an attempt to land in the jump spot after overshooting.

HORSESHOE - A parachute malfunction when any part of the parachute system has entangled with the jumper

during deployment; the resulting mess would resemble a horseshoe shape.

HORSESHOED DROGUE - Improper jargon for entangled drogue.

HUNG SLIDER - A condition where the slider has not fully descended down the suspension lines.

JALBERT, DOMINA - French kite and parachute designer, "inventor" of the ram-air parachute.

JUMP COUNT - The procedural count the jumper uses when exiting the aircraft to insure the proper time frame for drogue deployment and reinforce the mechanics of looking for and pulling the drogue release handle; the count is : Jump thousand, look thousand, reach thousand, wait thousand, pull thousand.

JUMP SPOT - The primary location selected for landing the parachute.

JUMP SPOT FIXATION - A flight technique error involving a jumper's fixating on the primary jump spot, losing awareness of airspace, brake settings, and alternate jump spots.

JUMP SPOT WEATHER - Local atmospheric conditions in the vicinity of the jump spot which affect the aerodynamics and performance of the parachute and influence the planning and flight techniques used to make the jump.

KEEP THE CANOPY FLYING- A flight technique rule of thumb to remind the jumper to maintain sufficient safe flying speed near the ground to avoid a stalled landing.

KEY-POINT - The point at which the jumper enters the pattern.

LANDING ROLL - The mandatory procedural landing where the jumper distributes the shock of landing by getting off the feet and rolling along the side of the body; also known as the PLF or parachute landing fall.

LEADING EDGE - The front or nose of the ram-air canopy.

LEE SIDE - The downwind side of an area that is blocked by a terrain feature or other obstacle, usually associated with turbulent air.

LEE SLOPE - The downwind or back side of a ridge that is blocked by the rising terrain of the ridge line and likely containing a hazard of turbulent air.

LET-DOWN - The procedure for rappelling from a tree or other obstacle in the event of a landing where the parachute is snagged leaving the jumper off the ground.

LINE OVER - A specific type of malfunction occurring on deployment where a suspension line or lines are misrouted over the canopy, likely to induce a turn or spin.

LINE STRETCH - The point in the parachute deployment sequence where the suspension lines and canopy have been extracted from the deployment bag but the canopy has not begun to inflate.

LOAD BEARING RIBS - A rib of the ram-air canopy where the suspension lines are attached.

LOBE - A part of a ram-air cell enclosed by at least one non-load bearing rib.

LOOKING A TURN - A flight technique error where the jumper perceives a turn has been made by inadvertently turning the head.

LOOK, REACH, PULL - The procedural mechanics of the steps involved anytime you pull a handle on the ram-air system.

LOST HANDLE - A malfunction involving the jumper not being able to locate the drogue release handle after exiting the aircraft.

LOW FLARE - Misjudging a flare by initiating too close to the ground for the full flare dynamics to take effect.

LOW PATTERN - A flight technique error involving a jumper who flies a conventional landing pattern too low, has to hurry through each leg of the pattern and doesn't have time to make adjustments to the sight picture on final approach.

LOW SPEED FLARE - A flight technique error in flaring (i.e. punching out) from a deep brake setting with little forward speed available to convert into lift,

usually precipitating a hard landing.

MAIN RELEASE HANDLE - The orange handle located on the right side of the harness attached to cables routed to the three-ring assemblies of the main parachute risers and harness; when pulled, the handle removes the cables from the nylon locking loops, allowing the three-ring assemblies to release.

MALFUNCTION - Any problem involving the proper deployment of the parachute.

MILITARY POSITION - Same as Tight Body Position, a term for the posture required for a safe and consistent exit from an airplane when using a static line system.

MUSHING THE CANOPY - Also known as Riding the Ball, a flight technique term for a deep brake setting where the canopy is held in transition between slow flight, sink and stall; a controlled way to bleed off altitude on final without turning away from the jump spot.

NO-MAN'S LAND - A flight technique error where the jumper is directly over the jump spot but is still too high to safely land in the spot due to the forward momentum required for landing a ram-air parachute.

NO WIND DAY - A situation where there is little or no ground wind blowing in the vicinity of the jump spot, thus making it more difficult to slow the canopy horizontally for landing.

NON LOAD BEARING RIB - A rib in the canopy where no

suspension lines are attached.

NOSE - The open leading edge or front of the Ram-air canopy.

NYLON RING LOCKING LOOP - The nylon loop used in the 3-ring attachment system that secures the third ring in place by use of mechanical advantage; held in place by cables from the drogue release handle and the main release handle.

OFF-HAND TURNS - A flight technique of inducing a smooth and stable turn while flying the canopy in a partially braked mode by letting up the steering toggle on the side opposite you wish to turn.

OPENING CHECKS - The procedural sequence of checks required of jumpers immediately upon full deployment of the parachute.

ORIENT TO THE SPOT - A flight technique of locating and steering the parachute toward the jump spot after the opening checks in order to stay in the ball park while beginning to gauge the wind during descent to the ground.

OSCILLATION - Rocking the parachute (and the jumper) side to side or back and forth caused by radical toggle movements or air turbulence.

OVERCONTROL - Excessively quick or deep steering toggle movements made before the canopy has had a chance to react to a prior command.

OVERSHOOTING - A flight technique problem where the jumper has too much altitude, is

already flying over the primary jump spot and has forward momentum likely to carry the jumper to another location.

PATTERN - A formal plan of guiding the parachute to a landing where the jumper takes into account the direction of the wind and flies in a sequence of downwind leg, base leg and final approach in order to have the proper angle of descent and be faced into the wind on landing.

PENETRATING - A flight technique term that applies to the degree that the jumper is able to move forward relative to the ground while facing into the wind.

PITCH OSCILLATION - The back and forth movement of a jump under canopy associated with an induced stall or radical toggle movements.

PLAN B - An optional plan for steering and landing the parachute the jumper should make in the airplane and be ready to implement if wind conditions, hazards or the flight of jump partners change.

PLF - Parachute Landing Fall, same as a Landing Roll, a method of distributing the force of landing along the length of the body.

PRE-JUMP PLAN - A plan made while in the airplane with all members of the stick to identify the jump spot, hazards, alternate spots, location of the pattern, who is to go low and any other pertinent factors regarding the jump.

PRESSURE KNOT - A tangle or knot held together by tension on the suspension lines during deployment which would likely result in a turn or a spinning malfunction.

PULL THOUSAND, PULL THOUSAND, PULL THOUSAND - The procedural sequence involving three attempts to locate and pull a lost drogue release handle during exit.

PULL YOUR MAIN - RELEASE - During a malfunction procedure, activating the main-release handle that would jettison the main parachute.

PUMPING THE TOGGLES - Refers to rapidly extending the steering toggles in order to facilitate inflation of the canopy; also refers to minor up and down steering toggle movements used while in deep brakes to keep the canopy from falling off into a stall.

PUNCHING OUT - A flight technique term for quickly bringing the steering toggles all the way down for the purpose of transferring any remaining forward speed into lift for a softer landing.

QUARTER-BRAKES - A flight technique term for pulling down the steering toggles one-quarter of the distance from full run.

QUARTERING - Also known as Crabbing, a technique of pointing the nose of the canopy off of the wind line for purpose of vectoring the canopy.

RADICAL TOGGLE MOVEMENTS - Any rapid movement of the steering toggles that induces the canopy to turn, surge, oscillate or descend rapidly; a flight technique error if associated with late decision-making while on final approach.

RAM-AIR PARACHUTE - A parachute inflated by air "rammed" into the leading edge of joined cells forming a rigid, pressurized airfoil with flight characteristics associated with a winged surface.

RELEASE YOUR RSL - Releasing the RSL snap shackle on the left riser after performing a wind check and before beginning the pattern.

RELEASED THREE-RING - Refers to a malfunction where the three-ring attachment assembly has inadvertently released a main parachute riser during deployment.

RESERVE HANDLE - The red handle located on the front of the reserve container; when pulled, the reserve parachute begins the deployment sequence.

REVERSE FLIGHT - A flight technique of holding the canopy in a prolonged stall until the canopy is moving backward and with a high rate of descent.

RIBS - Sections of fabric attached to the top and bottom skin of the canopy running from nose to tail of canopy to form the cell structure and establish the airfoil shape of the canopy.

RIDING THE BALL - Also known as Mushing The Canopy, a flight technique maneuver involving keeping the canopy in a stable condition while being on the verge of slow flight, sink or stall.

RIGHT TURN, LEFT TURN, STALL CHECK - The controllability check made during the opening check procedure for verifying a good canopy after deployment.

RIPS AND TEARS - Refers to a parachute malfunction involving separated fabric damage sustained to a canopy during the opening sequence.

RISERS - Webbing assemblies used primarily to transfer the load of the suspension lines to the parachute harness, incorporating a three-ring attachment/release mechanism and Velcro to stow the steering control toggles.

ROTOR - The same as Eddy, refers to turbulence or down air associated with wind swirling on the lee side of an obstacle.

RESERVE STATIC LINE (RSL)-A line attached from the riser of the main parachute to the handle of the reserve parachute designed to deploy the reserve automatically if the main jettisoned during a malfunction.

RUNNING WITH THE WIND - A flight technique for pointing the canopy in the same direction of the wind thus adding the wind speed to the forward speed of the canopy and increasing ground speed.

SAFE FLIGHT - Flight technique jargon for maintaining sufficient forward speed in an air mass near the ground to keep the instructors from getting nervous about the jumper stalling out the canopy from a deep brake setting.

SAIL BRIDLE - The part of the drogue bridle attached at the base of the drogue canopy sewn with material to act as a sail to facilitate clearance from the jumper during deployment.

SET-UP POINT - The optimum position to begin the final approach for landing, this position in the pattern begins after the last directional turn of the base leg. In a formal pattern this point would be at the junction of the base and final.

SIGHT PICTURE - A flight technique referring to the judgement by the jumper of the forward speed and descent rate at a fixed brake setting while on final approach for landing; estimation of the glide angle to the jump spot.

SINK - A flight technique of using deep brakes to induce a stable vertical descent without appreciably moving horizontally, can be used to bleed off altitude while on final approach to obtain the desired sight picture; a sink should be considered the initial stage of a stall, with rate of descent likely to increase the longer the sink is held; a dangerous flight technique error if used near the ground, the jumper should ease the toggles up with sufficient altitude to gain safe flying speed for landing, the longer the sink being held, the higher the steering toggles will

need to be raised and they must be eased up slowly to prevent a severe oscillation.

SLIDER - Also known as Sail Slider, a reefing device used on the ram-air parachute used to slow the opening of the canopy to prevent excessive opening shock.

SLOW FLIGHT - A flight technique term involving a general philosophy of slowing the canopy down during the parachute jump by performing maneuvers at half brakes or more to be able to make decisions and adjustments with more thought and foresight than someone zooming around at full run.

SNIVEL - Jargon for a slower-than-normal deployment of the parachute.

SPAN - The width of the canopy, measured from the one side to the other side.

SPECIAL SITUATIONS - A term for malfunctions or other conditions of the parachute which are sometimes encountered during the parachute jump.

SPINNING - Refers to a malfunction involving a partially or fully open canopy that goes into a rapid, uncontrollable turn immediately upon deployment.

SPOTTER - The head dude in charge of gathering and disseminating information about the jump, monitoring procedures and directing the jumping operation from the aircraft.

SPOTTING - Refers primarily to spotter responsibilities to find the fire, select a jump spot, recognize and avoid jump spot hazards, analyze the wind speed, direction and line and generally see to it the jumpers are properly briefed, prepared and released from the aircraft to facilitate a successful descent by parachute.

S-TURNS - A flight technique maneuver in which the jumper weaves back and forth while on final approach in order to bleed off altitude to avoid overshooting the jump spot.

STABILIZER - Canopy material extending below the bottom skin on each side of the canopy designed to provide stability while flying in a deep brake setting.

STAGED FLARE - Refers to a flight technique of stopping or slowing the pulling of the steering toggles at half brakes during a flared landing, allowing most of the forward speed to be converted to lift for soft landing and also maintain safe flying speed to avoid a stall.

STAIR-STEPPING - Over controlling the canopy by moving the steering toggles up or down abruptly with the resulting commands to accelerate and decelerate causing a series of floating and sinking while on final approach.

STALL - A flight technique involving slowing the air speed of the canopy to where it is no longer flying; accomplished by pulling the steering toggles to a 100% brake setting thus lowering the tail, increasing the

drag on the airfoil to the point where it overcomes the lift, causing a rapid descent rate; can be a useful method for maneuvering when performed at high altitude but is extremely dangerous if done close to the ground.

STALL CHECK - An opening check procedure to quickly determine the controllability of the canopy; A flight technique involving slowly lowering the steering toggles to gauge the point at which the canopy will fall off into a stall for the primary purpose of avoiding a stalled landing and for the secondary purpose of being able to use the sink or stall as a maneuvering technique on final approach.

STALLING OUT - Flight technique error of inducing a stall and impacting the ground.

STALL POINT - Refers to the distance needed to pull down the steering toggles to the point where the canopy will cease forward flight and begin to go into a stall.

STEERING LINES - See Control Lines (also known as Brake Lines).

STEERING TOGGLES - Also known as Control Toggles, the webbing loops attached to the end of the control lines for the purpose of holding while making maneuvers.

STEERING WITH RISERS - A flight technique involving maneuvering the canopy by pulling down on parachute risers and thereby moving entire suspension line groups; used in

the event of a broken control line.

STICK - Jump partners who will exit the aircraft on the same pass and generally descend to the jump spot as a team.

STREAMER - Refers to a malfunction involving a parachute where the lines have stretched out but the canopy has not inflated, with the jumper streaming to the earth at a fast rate and the canopy material flapping in the windstream.

SUSPENSION LINES - The lines attaching the canopy to the connector links, transfer the load from the bottom skin of the parachute to the risers.

TAIL - Also known as the trailing edge, refers to the rear of the ram-air canopy where the cascaded control lines are attached.

TAIL WIND - Refers to the wind blowing in the same direction of the horizontal travel of the jumper (see Running with the Wind).

THERMAL - Upward rising air caused by heating of the earth surface.

THREE PUMPS AND A DUMP - The procedure for a spinning malfunction, or streamer, of fully extending the steering toggles three times then pulling the clutch release handle to jettison the main parachute if the malfunction does not clear.

THREE-RING ATTACHMENT SYSTEM - A system of three overlapping metal rings held in place by a nylon ring locking loop that employs mechanical advantage to securely attach the parachute risers and the drogue attachment and also allow for easy disconnection when released.

THROW AWAY THE HANDLE - The step in the emergency procedure to follow during a malfunction before pulling the next handle in sequence.

THROWING YOUR HANDS UP - Refers to rapidly moving the steering toggles upward from a deep brake setting to full run causing the canopy to momentarily surge forward and rapidly descend, causing the jumper to oscillate.

TIGHT BODY POSITION - Same as Military Position, refers to a "fetal position" body posture used during exit from the aircraft with hands on butt, feet and legs held together, bent at the waist.

TOGGLE JERKS - Refers to abrupt steering toggle movements which lead to overcontrol of the canopy.

TOP SKIN - The top surface of the Ram-air canopy.

TURBULENCE - Unstable air mass caused by atmospheric conditions or terrain obstacles requiring Ram-air jumpers to assume a half-brake setting of the control lines.

TURNING FINAL - The jump technique term for the last leg of

the flight pattern; making the last major turn to descend toward the jump spot, facing the canopy into the wind.

TWISTS - Refers to a canopy that has opened but there are twists in the suspension lines, caused by the d-bag or jumper spinning or uneven suspension line tension during deployment.

TWO CANOPIES - Refers to a malfunction where the main and reserve parachute have both deployed.

UNDERSHOOTING - See Coming Up Short.

UPWIND - Refers to any point upwind of the designated jump spot.

VERTICAL SEPARATION - Elevation difference established and maintained between jump partners to give all jumpers safe maneuvering room close to the ground.

WEAK LINK - Material sewn into a static line assembly to allow disconnection in the event of extreme loading due to a parachute opening but not separating from the aircraft.

WHIPPING A 360 - Improper flight technique for a jumper making a 360-degree turn while on final approach to avoid overshooting the jump spot.

WIND CHECK - The jump technique procedure of facing the canopy into the wind at or before the mid-point of the jump in order to estimate the velocity and verify the direction of the wind likely to be encountered on final approach.

WIND DRIFT - See Drift.

WIND SHEAR - The turbulent area between two air masses moving at different speeds or in different directions.

WIND LINE - An imaginary line that runs parallel to the direction the wind is blowing; the wind line intersecting the jump spot is of importance to the jumper for determining the approach to landing.

WIND BREAK - Refers to a blockage of the wind or wind shadow occurring due to timber obstacles on the edge of a jump spot, usually associated with increased ground speed as the jumper encounters less wind or a tail wind below the tree line.

WIND SPEED - The velocity of the wind.

WINDS ALOFT - A term for wind conditions measured at varying distances above ground level.

WINDWARD SIDE - The area on the upwind side of an obstacle or terrain feature associated with conditions allowing for a smooth, laminar flow of air or reduced turbulence.