Airborne Systems Products

Launch Stabilize Deliver Save Recover

Setting the standard for parachute technology and parachute products
About Airborne Systems

Our history and legacy began in 1919, when Leslie Irvin, the founder of the Irvin Air Chute Company, made the first ever freefall parachute jump with a parachute that was manually releasable in freefall. From the beginning with the Irvin Air Chute Company, we have well established roots in North America. Para-Flite was founded in 1969 and led the development of ram air and gliding parachutes. Our roots in the United Kingdom date back to 1932, when GQ Parachutes was established by James Gregory and Sir Raymond Quilter. Aircraft Materials (AML) was later founded in 1953.

As the world’s first parachute designer and manufacturer, we cherish and honor the history and multitude of past achievements of these individual companies. From that first historic jump and our early beginnings, we have joined all these companies together as one global company with one common set of objectives, all focused around an uncompromising commitment to provide best of class parachute products and services to customers worldwide. Welcome to Airborne Systems.

Welcome, welkom, willkommen, bienvenido, tere tulemast, tervitama, ottaa vastaan, bienvenue, dobro došao, szívesen látott, benvenuto, 奉迎, gratus, feestelijk inhalen, velkommen, boa vinda, binevenit, bun venit, dobrodošli, dobrodošao, välkommen, こんにちは, vitaje, tervetuloa, 歡迎, begrüßen
Airborne Systems Products

Dedicated to Preserving the Safety of the Mission and Its People

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### Airborne Systems Products

**Products Designed to Safely Carry Today's Warfighter Into Tomorrow's Battle**

### GPADS - Guided Precision Aerial Delivery Systems

<table>
<thead>
<tr>
<th></th>
<th>MicroFly™</th>
<th>FireFly™</th>
<th>DragonFly™</th>
<th>MegaFly™</th>
<th>GigaFly™</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Payload Capacity</strong></td>
<td>200 lb to 500 lb</td>
<td>700 lb to 2,200 lb</td>
<td>5,000 lb to 10,000 lb</td>
<td>20,000 lb to 30,000 lb</td>
<td>30,000 lb to 42,000 lb</td>
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<tr>
<td></td>
<td>90 kg to 225 kg</td>
<td>315 kg to 1,000 kg</td>
<td>2,250 kg to 4,550 kg</td>
<td>9,100 kg to 13,600 kg</td>
<td>13,600 kg to 19,000 kg</td>
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<tr>
<td><strong>Surface Area</strong></td>
<td>Variable (Depending on Canopy)</td>
<td>1,025 sq ft</td>
<td>3,500 sq ft</td>
<td>9,000 sq ft</td>
<td>10,400 sq ft</td>
</tr>
<tr>
<td></td>
<td>99.23 sq m</td>
<td>325.16 sq m</td>
<td>836.13 sq m</td>
<td>966.16 sq m</td>
<td></td>
</tr>
<tr>
<td><strong>Span</strong></td>
<td>Variable (Depending on Canopy)</td>
<td>56 ft</td>
<td>110 ft</td>
<td>170 ft</td>
<td>195 ft</td>
</tr>
<tr>
<td></td>
<td>17 m</td>
<td>33.5 m</td>
<td>51.8 m</td>
<td>59.4 m</td>
<td></td>
</tr>
<tr>
<td><strong>Chord</strong></td>
<td>Variable (Depending on Canopy)</td>
<td>18 ft</td>
<td>33 ft</td>
<td>56 ft</td>
<td>64 ft</td>
</tr>
<tr>
<td></td>
<td>5.48 m</td>
<td>10 m</td>
<td>17.0 m</td>
<td>19.5 m</td>
<td></td>
</tr>
<tr>
<td><strong>Cell Count</strong></td>
<td>Variable (Depending on Canopy)</td>
<td>19</td>
<td>35</td>
<td>63</td>
<td>71</td>
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<tr>
<td><strong>Max Release Altitude</strong></td>
<td>24,500 ft</td>
<td>24,500 ft</td>
<td>24,500 ft</td>
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<td>24,500 ft</td>
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<tr>
<td></td>
<td>7,467.6 m</td>
<td>7,467.6 m</td>
<td>7,467.6 m</td>
<td>7,467.6 m</td>
<td>7,467.6 m</td>
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<tr>
<td><strong>Max Glide, L/D (no wind)</strong></td>
<td>Up to 6.0 : 1</td>
<td>3.5 : 1</td>
<td>3.5 : 1</td>
<td>3.5 : 1</td>
<td>3.5 : 1</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>100-150 m 80% CEP</td>
<td>&lt;150 m 80% CEP</td>
<td>&lt;250 m 80% CEP</td>
<td>&lt;250 m 80% CEP</td>
<td>&lt;250 m 80% CEP</td>
</tr>
</tbody>
</table>

**Featured on**

Airborne Systems proudly offers the industry’s largest family of Guided Precision Aerial Delivery Systems (GPADS) capabilities. The five systems, MicroFly™, FireFly™, DragonFly™, MegaFly™, and GigaFly™ span an operational payload range from 200 to 42,000 lb (90 to 19,000 kg) and are certified for airdrop from up to 24,500 ft (7,467.6 m) MSL from high performance transport aircraft.

The Airborne Systems precision aerial delivery systems consist of high performance ram-air parachutes, light-weight rugged airborne guidance units (AGU), and robust autonomous navigation software. These state of the art components have proven to be reliable and robust over hundreds of flights in rugged conditions.

For a complete list and detailed product information on all products available from Airborne Systems, visit: www.airborne-sys.com
Ease of Use

All of Airborne Systems GPADS systems are designed around a common system architecture focused on maximum commonality between platforms with respect to user interface, packing, rigging, and maintenance. This approach minimizes training burden and facilitates easy transition from one system to another.

The user interface is comprised of an LCD screen and keypad and is common to all of Airborne Systems GPADS platforms. This easy to operate interface provides concise and intuitive information about the status and readiness of the Autonomous Guidance Unit (AGU). The LCD screen provides a textual display of any warnings or errors avoiding the need to interpret the meaning of flashing LED’s during critical task phases of high altitude missions. Displays for status, rigging, mission programming and location are common to all five platforms. This functional similarity allows the user to operate all of the systems after receiving instruction on any one of the five platforms.

Remote Control Handheld Unit

The optional remote control handheld unit allows the operators to wirelessly communicate with one or more AGUs. The handheld is extremely rugged and has been designed for use in operational environments. Using standard 1.5 volt AA batteries, the remote control handheld weighs less than 2 lb (1 kg) and has a line of sight up to 12 miles (20 km). The handheld may be used to program the AGU with new landing coordinates, manually override to take over control from the ground or in the air (via an accompanying airborne jumper), or simply view the systems’ status or mission progress before or during a mission. Up to 100 uniquely identified Airborne Systems GPADS systems can be tracked with a single handheld unit.

Mission Programming GPADS-MP Compatibility

Airborne Systems offers the simplest and most flexible options for mission programming and planning. The system requires only the impact coordinates and specification of landing direction (in lieu of standard into-wind landing). Input of wind information is not required. Programming of the IP can be done directly on the AGU via the LCD screen and keypad, through the Remote Control Handheld Unit, or via the GPADS Mission Planner (GPADS-MP). All of Airborne Systems AGUs are fully integrated with the latest version of the GPADS-MP for wired and wireless mission transfer and health status monitoring while onboard the aircraft.

Autonomous Guidance System

Airborne Systems universal guidance software flies each of the 9 canopies that have been integrated into our 5 system GPADS family. The software relies on a fusion of data from GPS (either commercial or MIL GPS), inertially compensated compass, and barometric sensor to autonomously guide the ram-air parachute and cargo from as far as 25 km (15.5 mi) from the intended point of impact. Airborne Systems has met the US Army’s 2K JPADS requirement for 150 m (492.1 ft) 80% CEP across the broadest range of drop conditions and has demonstrated sub 100 m (328 ft) CEP accuracy results on our MicroFly™ and FireFly™ systems.
Non-Steerable Troop Parachutes

T-11 Advanced Tactical Parachute System

The T-11 is the most advanced non-steerable troop parachute system in the world. The U.S. Army is currently in the process of replacing more than 52,000 T-10 parachute systems with the new T-11. Slower rates of descent and decreased oscillation under canopy will result in fewer jumper injuries and greater equipment carrying capacity for the modern warfighter.

The T-11 is intended to be used in mass parachute assaults from altitudes as low as 500 feet (152.4 meters) Above Ground Level (AGL) at speeds up to 150 Knots Indicated Airspeed (KIAS). The T-11 maximum deployment altitude is 7500 ft (2286 m) Above Sea Level (AMSL), ensuring the combat force retains all insertion options even at extreme elevations.

The T-11 consists of three components: the main canopy, the T-11R reserve canopy and the T-11 harness. Both the T-11R and the T-11 harness have been placed into service with the MC-6 steerable parachute system.

T-11 Main Canopy
The T-11 main canopy is a highly modified and refined version of the cross/cruciform planform parachute and it exploits two of the most important characteristics of cross parachutes: inherent stability and inherent gentle opening. Unlike the T-10, the T-11 also incorporates a slider which controls the opening of the canopy and eliminates the possibility of a canopy inversion or line over malfunction. The T-11 is designed to carry an all up weight of 400 lb. (181.44 kg).

T-11 Harness
The T-11 harness is extremely adjustable, capable of being sized to the 5th percentile female to the 97th percentile male. The reserve attachment points are close to the same location as the main riser attachment points. These close attachment points allow the force of the reserve deployment to be transmitted through the long axis of the jumper’s body. In addition, the jumper is able to maintain a vertical orientation under a reserve canopy which enables a proper landing attitude.

T-11R Reserve Parachute
The T-11R, provides a significant decrease in the rate of descent when compared with the T-10R. For an AUW of 382 lb (173 kg), the T-11R rate of descent is less than 27 ft/sec (8.22 m/sec). The T-11R has a maximum weight carrying capability of 400 lb (181.44 kg) and opens rapidly with minimum post inflation collapse. The T-11R incorporates a center mount reserve handle which can be operated by either hand and pulled in any direction to activate the opening sequence. Frangible skirt assist lines allow minimum opening height loss for both high speed and low speed malfunctions. Due to the technical innovations incorporated into the T-11R, the jumper makes no decisions after the initiation of the reserve and takes no actions other than pulling the deployment handle. The T-11R opening sequence automatically adapts itself to both high speed and low speed malfunctions.

<table>
<thead>
<tr>
<th>T-11R Reserve Parachute Physical Characteristics</th>
<th>T-11R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td></td>
</tr>
<tr>
<td>Hem Diameter:</td>
<td>20.3 ft (6.18 m)</td>
</tr>
<tr>
<td>Suspension Line:</td>
<td>20.3 ft (6.18 m)</td>
</tr>
<tr>
<td>Fabric Area:</td>
<td>180 ft² (16.72 m²)</td>
</tr>
<tr>
<td>Apex Vent Area:</td>
<td>3.5 ft² (0.33 m²)</td>
</tr>
<tr>
<td>Number of Gores:</td>
<td>20</td>
</tr>
<tr>
<td>Number of Suspension Lines:</td>
<td>20</td>
</tr>
</tbody>
</table>
**8m Low Level Parachute Assembly**

- Low Level Parachute Assembly
- Static line operated – designed for mass tactical assaults
- Capable of drop heights as low as 250 ft (76 m)
- Uses the pack/harness assembly from the LLP Mk1 (in-service with the UK Airborne Forces)
- 3-point split saddle harness

The 8m Low Level Parachute Assembly is a combination of the 8m Low Level Conical Canopy with the pack/harness assembly of the in-service LLP Mk1. The 8m Low Level Parachute Assembly is a static line operated paratroop parachute assembly that allows fully equipped airborne troops to carry out massed tactical parachute assaults from jump heights as low as 76 m (250 ft). The assembly can be deployed at speeds up to 140 knots (260 km/h / 161.5 mph) from tactical transport aircraft onto Drop Zones up to 7,000 ft (2133.6 m) AMSL.

**LLRP (Low Level Reserve Parachute)**

The LLRP (Low Level Reserve Parachute) is a low profile, chest-mounted reserve assembly designed as a back-up system for use with troop parachutes that are cleared for drops from altitudes as low as 76 m (250 ft). A variant of the LLRP is available with water pockets fitted to the canopy to permit use into water.

The 8m Low level parachute is a highly developed conical shaped canopy fitted with air scoops to give positive opening characteristics and resistance to line twists which ensures repeatable inflation and excellent height loss performance. In addition, the conical canopy does not suffer from post inflation collapse thus reducing further, the height loss performance. Four mesh covered stability slots ensure rapid damping of canopy oscillation, a critical feature in a low level parachute. Canopy control is via liftweb technique and a net skirt is incorporated to eliminate blown peripheries.
Steerable Troop Parachutes

MC-6 Parachute System

Designed for precision infiltration of Airborne Forces, the MC-6 features the latest in advanced design for steerable troop parachutes. It was developed through the Special Operations Forces Tactical Assault Parachute System (SOFTAPS) program. The MC-6 utilizes the same SF-10 canopy that has been in use by US special operations. In service for over ten years, the SF-10 has proven itself to be a safe and reliable design.

**MC-6 SUB-SYSTEMS** - The MC-6 is a compilation of three sub-systems: the SF-10 Main Canopy, the T-11R reserve and the T-11 Harness.

**Main Canopy (SF-10)**
The SF-10 Canopy is a highly modified, 28 gore polyconical parachute. The canopy has a nominal diameter of 32 ft (9.75 m) which includes a unique drive system that enables the canopy to turn quickly with minimum pendular motion. The forward speed can be controlled in-flight as can the turn-rate. The low descent rate demonstrated by this canopy allows safe infiltration into all types of drop-zones, including those at high elevations.

**Harness**
The MC-6 uses the same harness as the T-11 listed on page 6 under non-steerable parachutes.

**T-11R Reserve Parachute**
The MC-6 uses the T-11R reserve parachute which is also used in the T-11 system. A further description can be found on page 6 under non-steerable troop parachutes.

<table>
<thead>
<tr>
<th>Item</th>
<th>MC-6</th>
<th>MC1-1C</th>
</tr>
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<tbody>
<tr>
<td>Parachute Assembly Number</td>
<td>11-1-7400</td>
<td>11-1-900-2</td>
</tr>
<tr>
<td>NATO Sock Number</td>
<td>1670-01-527-7537</td>
<td>1670-01-262-2359</td>
</tr>
<tr>
<td>Nominal Diameter</td>
<td>9.8 meters (32 ft)</td>
<td>10.7 meters (35 ft)</td>
</tr>
<tr>
<td>Number of Gores</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td>Canopy Material</td>
<td>MIL/PIA-C-44378 T4, Low Porosity Nylon</td>
<td>MIL/PIA-C-44378 T1, Low Porosity Nylon</td>
</tr>
<tr>
<td>Standard Color</td>
<td>CG483 Green or Foilage Green</td>
<td>CG483 Green or Foilage Green</td>
</tr>
<tr>
<td>Suspension Line Material</td>
<td>PIA-C-5040 Type II</td>
<td>PIA-C-5040 Type II</td>
</tr>
<tr>
<td>Suspension Line Length</td>
<td>6.5 meters (21.3 ft)</td>
<td>6.7 meters (22 ft)</td>
</tr>
<tr>
<td>Suspension Line Tensile Strength</td>
<td>1780N (400 lb)</td>
<td>1780N (400 lb)</td>
</tr>
<tr>
<td>Time for 360° Turn</td>
<td>4 seconds</td>
<td>9 seconds</td>
</tr>
<tr>
<td>Assembled Weight</td>
<td>13 kg (29 lb)</td>
<td>13 kg (29 lb)</td>
</tr>
<tr>
<td>Maximum Exit Weight</td>
<td>181 kg (400 lb)</td>
<td>163 kg (360 lb)</td>
</tr>
<tr>
<td>Minimum Exit Altitude</td>
<td>152 m (500 ft) AGL</td>
<td>152 m (500 ft) AGL</td>
</tr>
<tr>
<td>Maximum Exit Velocity</td>
<td>150 KEAS</td>
<td>150 KEAS</td>
</tr>
<tr>
<td>Rate of Descent</td>
<td>See SF-10 Chart</td>
<td>See SF-10 Chart</td>
</tr>
</tbody>
</table>
SF-10A and SF-10N Parachute Systems

- Next generation Steerable Parachute System replacing the MC1-1 Steerable Troop Parachute System
- Demonstrated superior performance characteristics over the MC1-1
- Utilizes SF-10 canopy – proven reliability and performance
- Capable of backing up in deep brakes
- Softer opening at higher elevation over MC1-1

The Airborne Systems SF-10 is a static line deployed parachute, designed for units that require a robust parachute capable of safely delivering paratroopers onto small, rugged drop zones at high elevations. The SF-10 parachute is a state-of-the-art system, in service with U.S. Forces. This system offers the paratrooper improved openings, greater maneuverability and softer landings than any other steerable round parachute system. The SF-10 is available in different configurations; each offers the military user the same main parachute with optional harness/container and reserve parachute.

The SF-10A complete system includes the Main Parachute System, Harness, Pack D-Bag and Static Line. The SF-10A utilizes the standard MC-1-1 / T-10 parachute harness, container and deployment bag. It is compatible with the T-10R MIRPS and T-10R Reserve.

The SF-10N system incorporates the GQ designed split saddle harness with 3-point attachment. The three-point closure harness is of the split-saddle type and is fully adjustable to provide a correct fit for all sizes of paratrooper. The harness incorporates canopy ground disconnects, two sets of D-ring anchorage points for the attachment of a reserve parachute assembly and the weapons/equipment container, a central equipment sling for suspension of the deployed weapons/equipment container. An integral carrying bag is fitted to the side of the outer pack. The outer pack fully encloses the deployment bag. The harness has been designed for maximum comfort and the minimum restriction to the paratrooper’s mobility on the ground.

FS-14 Plus Steerable Parachute

- Demonstrated superior performance characteristics over the current FS-14 / SF-10 canopies
- Ideal for water landing applications
- Retrofitable canopy for MC-6 Systems
- Softer profile has reduced drag and improved wind penetration
- Soar Coat cloth gives increased flight performance and increased longevity
- Construction simplification for easy repairs
- Control line modification to reduce breakages
- New break Cord Vent Loop to reduce recoil damage

Designed for precision insertion, the FS-14 Plus features the latest in advanced design for steerable parachutes. The FS-14 Plus is an upgraded version of the highly successfully FS-14 and SF-10A parachutes currently in service with the USDA Forest Service and the US Army Special Forces.

FS-14 Plus performance is sharper in all areas, it has more drive, quicker turns and improved braking through to reverse, all with good stability.

FS-14 Plus Data for 425 lb (192.7 kg) has been extrapolated 8,000 ft (2,438.4 m) MSL to show Altitude capability. RoD @ 0 ft MSL = 17.3 fps (5.27 mps) RoD @ 8,000 ft (2,438.4 m) MSL = 19.5 fps (5.94 mps)

<table>
<thead>
<tr>
<th>Glide Ratio</th>
<th>Weight: 250 lb (113.4 kg)</th>
<th>Weight: FS-14 &amp; SF 10A RoD fps @ 0 ft MSL</th>
<th>FS-14 Plus RoD fps @ 0 ft MSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS-14 &amp; SF 10A</td>
<td>213 lb (96.6 kg)</td>
<td>21.5</td>
<td>12.0</td>
</tr>
<tr>
<td>FS-14 Plus</td>
<td>425 lb (192.7 kg)</td>
<td>19.1</td>
<td>17.3</td>
</tr>
</tbody>
</table>

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Airborne Systems Products

Products Designed to Safely Carry Today’s Warfighter Into Tomorrow’s Battle

Ram-Air Personnel Parachutes

Raider Intruder System - HAHO / HALO

- Higher AUW with softer landing
- Ease of control
- Light steering toggle pressure
- Highest glide ratios
- Greater offset capability and stability
- Improved maneuverability (steerable)

The Intruder is a revolutionary ram-air parachute system designed to fly further, carry more and land softly.

The Raider Intruder has been designed within the framework of requirements submitted by a wide variety of international military users. Designed for military use from its inception, the Raider Intruder is a free fall / static line convertible ram air system that allows the user to fly further, carry more, and land softly. Although the Raider Intruder provides the high performance required for operational use, its docile handling characteristics also make it suitable for novice and student jumpers.

The Raider Intruder system consists of the Raider harness container and the Intruder main and reserve canopies.

Intruder Main Canopy:
The Intruder Main canopy is a fully elliptical nine cell hybrid canopy (zero porosity topskin). It provides a glide ratio of up to 4:1, is certified to a maximum All Up Weight (AUW) of 450 lb (205 kg), and is extremely resistant to stall. The inability to stall the Intruder canopy allows a jumper to land on the drop zone in deep brakes at a very slow vertical rate of descent while maintaining a stable canopy. The greatest benefit the Intruder canopy provides to a jumper is stability at deep brakes which reduces jump injuries.

The toggle pressure on the Intruder is relatively light and the control stroke is relatively long. This makes deep brake maneuvers smooth and easy to hold, even when steep approaches demand deep brakes for extended periods. Recovery from deep braking is also smooth and easy.

The Intruder canopy is also capable of being configured with Airborne System’s MicroFly Ultra Lightweight Equipment Delivery System. This integration allows a Military Free Fall team to insert into an operational environment with an accompanying bundle of up to 500 lb (225 kg).

Intruder Reserve Canopy:
The Intruder Reserve is identical to the Intruder Main canopy in terms of performance and capability. The reserve canopy is manufactured entirely from 1.1 oz fabric. This ensures that the reserve packing can be carried out with ease. The performance of a new 1.1 oz reserve canopy that is not subjected to multiple jumps is comparable to the flight performance of the main canopy. This combination ensures that the integrity of the mission is maintained, if one jumper were to deploy his reserve parachute.

The Intruder Reserve canopy is intended to be used with the Raider harness container. The Intruder Reserve canopy has been tested with the Raider harness container and has received TSO C23d certification for weights up to 555 lb (252 kg).

Raider Harness Container:
The RAIDER Harness/Container is the newest innovation in tactical parachute harness systems. Designed to improve comfort and jumper safety, the Raider is also designed to reduce maintenance requirements. The Raider harness container has been tested with the Intruder Reserve canopy and has received TSO C23d standards for an All Up Weight of 555 lb (252 kg).

For a complete list and detailed product information on all products available from Airborne Systems, visit: www.airborne-sys.com
**Hi Glide Parachute System - HAHO**

The Hi-Glide is a revolutionary ram-air parachute system designed to fly further, carry more and land softly. The Hi Glide free fall ram air parachute system has been developed to provide the greatest glide and carry jumpers further than any other parachute system in the world.

With a 6:1 glide ratio, the Hi Glide canopy has the highest glide ratio of any military parachute in the world. Used in mission specific applications, primarily for HAHO operations. Exceptional performance characteristics combining parachute and paraglide design techniques.

The Hi Glide has been developed with the objective of offering Special Operations elements a specific HAHO (High Altitude High Opening) mission canopy. The Hi Glide offers the ultimate in glide performance while maintaining handling docility and ease of use. The Hi Glide Canopy has been selected by the U.S. Marine Corps as their Special Application Parachute for missions requiring increased standoff.

**HI GLIDE SYSTEM INCLUDES THE FOLLOWING:**
- Hi Glide main canopy
- Intruder reserve
- Raider harness / container

**AS33-Intruder**

- Next generation Static Line operated Ram Air Parachute.
- Designed for low – medium level drops 1,500 - 12,000 ft (457.2 - 3,657.6 m) AMSL
- Incorporates very latest ergonomically designed harness.
- Purpose built for UK Special Forces.
- Designed to incorporate an AAD for descents above 3,500 ft (1,066.8 m) AGL.
- Identical main and reserve parachute performance.
- Fully salt-water descent capable.

The AS33-Intruder is the very latest Ram Air parachute system to be designed and developed by Airborne Systems. It has been developed specifically for the UK Special Forces and incorporates an improved ergonomic designed ‘Raider’ Harness. The system utilises the ‘Intruder’ main canopy and a reserve parachute that has identical performance to maintain mission integrity. Other applications include search and rescue. This new static line deployed system has an all up weight capability of 420 lbs (190.5 kg) and is designed to land parachutists safely onto Drop Zones up to 10,000 ft (3,048 m) AMSL.

Part of its development included its ability to be jumped regularly into a salt water environment. As it incorporates a static line deployment system it also allows individuals to conduct operational land and water parachute insertions without the need to be freefall trained. This new parachute system incorporates all the latest safety design features; an AAD fitted to the reserve, a main canopy that is resistant to stall and a harness that has been ergonomically designed specifically for the inexperienced military parachutist.
Airborne Systems Products

Products Designed to Safely Carry Today’s Warfighter Into Tomorrow’s Battle

Parachutists Oxygen Systems

PHAOS / OXCON Oxygen Systems

- High altitude use for HAHO/HALO up to 35,000 ft (10,668 m) MSL
- Certified for use by US Military
- 2, 6, or 8 man OXCON pre-breather systems
- Various PHAOS bottle sizes
- Low profile diluter demand PHAOS mask

Designed to meet the high altitude parachutist’s mission requirements, the PHAOS and OXCON are the only certified systems that deliver a complete qualified solution for the High Altitude Parachutists.

High altitude parachute operations require supplemental oxygen. Current US military regulations allow no more than 30 minutes without supplemental oxygen between 10,000 ft (3,048 m) and 13,000 ft (3,962.4 m) MSL (Mean Sea Level).

Above 13,000 ft (3,962.4m) MSL, all US military parachutists and aircrew must have a dedicated oxygen supply. To maximize the operational capabilities of a military ram air canopy, a safe and efficient oxygen system is an absolute necessity.

Airborne System’s OXCON and PHAOS systems have been certified by the US Military for operations to 35,000 ft (10,668 meters). No other parachutist oxygen system has received this certification and the OXCON and PHAOS are currently the only fully qualified systems available to the US military.

Airborne Systems has been making supplemental oxygen systems since 1988. Continual improvements and product development have made these systems the continual choice of US Special Operations units since their inception. Airborne System’s oxygen systems are broken down into two major components – the OXCON and the PHAOS.

PHAOS - Parachutists’ High Altitude Oxygen System - The Airborne Systems PHAOS system is designed and certified by the US Military to meet the high altitude parachutist’s mission requirements. The PHAOS System integrates its mask with an automatic diluter/demand regulator automatic, 100% oxygen breathing when connected to a pre-breathing oxygen console and programmed dilution when breathing from the individual oxygen supply.

OXCON - Oxygen Console - 2-Man, 6-Man, and 8-Man - The Airborne Systems OXCON Oxygen Console is a self-contained multi-station, portable unit that stores and distributes regulated breathing oxygen for one to eight persons.

UNIQUE FEATURES INCLUDE
- A user friendly and extremely reliable system
- Preserving personal oxygen during the jump using PHAOS's unique mask that allows controlled dilution during the high altitude descent
Ideal for use in Special Operations missions, the PRIBAD and PURIBAD systems enable Rigid Inflatable Boats to be parachute dropped into the water, ready for immediate use.

A range of platform configurations can accommodate boats from 6.5 to 11 metres (21.32 to 36 ft) in length. The platforms are compatible with C130, C17, C5 and the future A400M aircraft.

An extractor parachute pulls the load from the aircraft. The boat and platform separate immediately after leaving the aircraft and both descend to the water under their own parachutes. The system can be used with a variety of supply dropping parachutes of the required capacity.

The boat is ready for immediate use on landing and parachutists, who are able to exit the aircraft following the load, can land near to the boat in the water. The platform lands separately and in the operational role will sink immediately without trace. In the training role, the platform floats for recovery and re-use.

<table>
<thead>
<tr>
<th>Technical Specifications</th>
<th>PRIBAD 21</th>
<th>PURIBAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Platform, Rigid Inflatable Boat, Aerial Delivery, 21 ft (6.4 m)</td>
<td>Platform, Universal, Rigid Inflatable Boat, Aerial Delivery</td>
</tr>
<tr>
<td>NATO Stock Number</td>
<td>Not yet assigned</td>
<td>Not yet assigned</td>
</tr>
<tr>
<td>Part Number</td>
<td>AML 59000</td>
<td>ASE 02767</td>
</tr>
<tr>
<td>Length</td>
<td>6.40 m (252 in)</td>
<td>5.51 m (217 in)</td>
</tr>
<tr>
<td>Width</td>
<td>2.74 m (108 in)</td>
<td>2.74 m (108 in)</td>
</tr>
<tr>
<td>Depth (platform)</td>
<td>720 mm (28.3 in)</td>
<td>Variable - Adjustable</td>
</tr>
</tbody>
</table>
Airborne Systems Products

Products Designed to Safely Carry Today’s Warfighter Into Tomorrow’s Battle

Cargo Delivery Parachutes

UNICROSS Low Cost Cargo Delivery Parachutes
Airborne Systems has introduced a new family of low cost parachutes, called the “UNICROSS”. The family consists of a UNICROSS 150, 500, 2200, and 5000 lb payload design, with each version simply containing more and/or larger panels. The UNICROSS family has a number of unique attributes: only polypropylene material used (slings, deployment bag, lines, risers, and canopy); modular square panels form the canopy; panels are not sewn but rather tied together with simple knots; packing is simple; and repairs involve nothing more than undoing knots of a panel and replacing with another.

SC8, SC14, SC15, SC20 Parachutes
SC8, SC14 SC15, SC20 Parachutes - The SC series of cargo delivery parachutes are re-usable assemblies of cruciform construction, which give low level capability together with good stability. The parachutes are currently in-service with the UK armed forces. The SC15 parachute is currently being used for operational cargo resupply drops from drop altitudes up to 12,000 ft (3,657.6 m) Above Mean Sea Level (AMSL).

For a complete list and detailed product information on all products available from Airborne Systems, visit: www.airborne-sys.com
Cargo Parachute Releases

Designed to release more consistently in high wind conditions, the Airborne Systems family of cargo parachute releases separate the parachute from its cargo upon delivery and eliminates the possibility of the parachute dragging or tipping over the cargo in high winds and/or adverse weather conditions.

**Atlas Series - Cargo Parachute Releases**

**Atlas PR-A2** - An innovative parachute release for payloads ranging from 500 to 5,000 lb (226.8-2,268 kg) which is extremely durable, purely mechanical, highly reliable, impervious to water and easy to rig and maintain. It is lightweight 3 lbs (1.4 kg), compact and fits in the palm of your hand. It operates in high winds and under austere environmental conditions. It is a non-separable design made from non-corrosive materials of stainless steel and high-strength bronze.

<table>
<thead>
<tr>
<th>Atlas Series Products</th>
<th>Cargo Payload Range</th>
<th>Product Dimensions</th>
<th>Product Weight</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlas PR-A1*</td>
<td>75-500 lbs (34-226.8 kg)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Atlas PR-A2</td>
<td>500-5,000 lbs (226.8-2,268 kg)</td>
<td>4 x 3.5 x 1.15 in (10.1 x 8.89 x 2.92 cm)</td>
<td>3 lbs (1.4 kg)</td>
<td>ID-64-263</td>
</tr>
<tr>
<td>Atlas PR-A3*</td>
<td>5,000-25,000 lbs (2,268-11,340 kg)</td>
<td>8.5 x 5.5 x 1.5 in (20.3 x 13.9 x 3.8 cm)</td>
<td>10.8 lbs (4.9 Kg)</td>
<td>TBD</td>
</tr>
<tr>
<td>Atlas PR-A4*</td>
<td>25,000 + lbs (11,340 + kg)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>

*TBD – To be determined - specifications for products under development subject to change

**GD-500**

GD-500 - The Cargo Parachute Release is a disconnect mechanism that separates the parachute from its cargo upon delivery. The rugged features, reliability, and most importantly, the purely mechanical inner workings (no pyrotechnics or electronics involved) make the GD-500 the number one choice for a cargo parachute release.
Rescue, Safety and Survival

**ARK (Aerial Rescue Kit)**

- Survival equipment packed inside of life raft
- Automatically inflates upon immersion in water
- Can place up to 4 kits in the water
- Buoyant, connecting rope guides survivors to the nearest life raft
- Easily deployed from aircraft
- In service with Canadian Forces

The Aerial Rescue Kit is a hand-launched life saving system, which is capable of being deployed from a wide variety of aircraft utilizing the aft ramp or side door. The system delivers life rafts, complete with survival equipment inside, to survivors in the water. Connected to each other with buoyant rope, 2, 3 or even 4 kits can be placed in a straight line pattern on the water surface. The kits are dropped upwind of the survivors, allowing for natural drift and the interconnecting buoyant rope to provide maximum area coverage and easy survivor access.

The Airborne Systems ARK uses identical life saving kits, and is very effective in accurately delivering life saving equipment to survivors. Each life raft remains inside its valise until it is immersed in the water. At this time the water activated device will inflate the life raft, detaching the drogue parachute and valise from the life raft to avoid possible entanglement of the survivors.

**Technical Data**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Raft Separation:</td>
<td>Up to 560 ft (170.6 m) (2 kits) 1100 ft (335.2 m) (4 kits)</td>
</tr>
<tr>
<td>Rate of Descent</td>
<td>70 ft/sec (21.3m/sec)</td>
</tr>
<tr>
<td>Typical Single Kit Weight:</td>
<td>70-80 lb (31.7-36.2 kg) (subject to life raft/kit selection)</td>
</tr>
<tr>
<td>Deployment Speed/Altitude:</td>
<td>130-150 kts / 300-500 ft (91.4-152.4 m) MSL</td>
</tr>
</tbody>
</table>

**Survival Kit Air Droppable (SKAD)**

- Provides long range, fast response search and rescue
- Aircraft mounted survival kit (qualified on F-18, Fokker F-50, Orion and other aircraft)
- Highly reliable and accurate
- Can be used in arctic, desert, mountainous terrain or ocean

**SKAD - Survival Kit Air Droppable, Marine/Land** - Survival Kit Air Droppable is an aircraft-mounted survival kit that provides highly reliable and accurate aerial delivery of survival equipment. SKAD can be deployed during severe weather conditions and/or in remote locations and can be fitted onto military fighter aircraft for long ferry missions for potential rescue in case of ejection.

For a complete list and detailed product information on all products available from Airborne Systems, visit: [www.airborne-sys.com](http://www.airborne-sys.com)
Air Droppable Survival Kits

Small Pack Aerial Response Kit (SPARK)

- Easy to deploy
- Delayed streamer deployment and detachable streamer
- Automatic strobe and audio alarm activation
- Well equipped survival kit - vacuum sealed for a 5-year shelf life
- Cold weather version available

**SPARK** - The SPARK (Small Pack Aerial Response Kit) system provides Search & Rescue personnel the ability to aerial deliver a first response packet to survivors awaiting rescue. Hand-launched from small aircraft, the system provides life saving necessities such as water, food rations, radio, first aid and other essential items for survivors. Individual SPARK systems are intended for delivery of supplies to last 48 hours for 3 people, or 24 hours for 6 people.

**Cold Weather SPARK** is launched in the same manner as the original SPARK but provides equipment specifically needed by survivors in winter conditions or harsh northern areas. This cold weather supplement gives the survivors warm clothing, shelter, sleeping bag, heat source, cooking pot and stove, food – increasing the chances of survival until rescue can be completed.

*Sample contents can be customized*

**Technical Data**

<table>
<thead>
<tr>
<th>Approx. Rate of Descent:</th>
<th>45 ft / sec (13.7 m / sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Kit Weight:</td>
<td>5-6 lb (2.26 to 2.72 kg)</td>
</tr>
<tr>
<td>Deploy. Speed / Altitude:</td>
<td>80-100 kts / 300-1,000 ft AGL</td>
</tr>
<tr>
<td>Size:</td>
<td>13&quot;W X 10&quot;H X 4.5&quot;D</td>
</tr>
<tr>
<td></td>
<td>(33 cm w x 25.4 cm H x 11.4 cm D)</td>
</tr>
</tbody>
</table>

**Environmentally Tested**

<table>
<thead>
<tr>
<th>Temperature:</th>
<th>-40°C / +30°C (-40°F / +86°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude:</td>
<td>30,000 ft (9,144 m)</td>
</tr>
<tr>
<td>Humidity / Vibration tested</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Airborne Systems Products

Products Designed to Safely Carry Today’s Warfighter Into Tomorrow’s Battle

World Class Engineering Services

Solutions Engineered to Support Your Needs

For almost a century, Airborne Systems has been setting the standard for parachute design and performance. Our team of engineering professionals has hundreds of man years of experience and is capable of responding to any parachute and parachute related customer need regardless of size or scope.

Airborne Systems engineers bring unmatched technical skills, state of the art tools and innovative capabilities to solution requirements ranging from personnel, cargo delivery, decelerator systems, air launch, large spacecraft to spin/ stall recovery.

Systems Analysis

Using the most advanced systems analysis and predictive parachute performance technology, Airborne Systems provides unmatched analysis through parachute trajectory modeling and simulation, finite element analysis of metal parts, fabric structure and impact dynamics analysis, fluid structure interaction and floatation stability. These best-of-class analysis and predictive capabilities are used to optimize the parachute design, reduce cost and development time and speed time to delivery and use.

Airborne Systems provides the most extensive range of parachute engineering services available to meet your specific product needs. We can customize a solution to your requirements utilizing a turn key approach, covering all aspects of design and test. The application of innovative ideas to solve the problem and effectively respond to the request. All engineered solutions utilize a systems approach and capability to engineering the product.

Our parachute designs have been selected by the U.S. Army, the U.K. MoD, the Canadian DND and other world class militaries around the globe. We are very proud to have been chosen to preserve the safety of their missions.

Airborne Systems engineers can simulate small modifications in canopy size and form to optimize the design and improve performance instead of unnecessary cost and time consuming flight tests.

AIRBORNE SYSTEM’S ENGINEERING SERVICES INCLUDE:
• Fabric design
• Computer modeling and systems analysis
• System engineering
• Mechanical design
• Control systems
• Product testing
• Program management
• Packing and rigging

The ability to visualize the airflow around this personnel parachute provides the designers with a new perspective and the ability to optimize the design.
Airborne Systems Products

Dedicated to Preserving the Safety of the Mission and Its People

A History of Service and Milestones

Singularly Contributing To The Development of the Industry

For almost a century, no other company has compiled a proven track record and precedent setting milestones that demonstrate scope of capability, quality of product and successful performance.

Milestones:

1919 Leslie Irvin makes the first freefall parachute descent; the Irvin Air chute Company is formed in Buffalo, NY.
1922 Leslie Irvin forms the “Caterpillar Club” for airmen saved by a parachute.
1926 Leslie Irvin establishes the first European factory in Hertfordshire, UK for the mass production of parachutes.
1932 James Gregory and Sir Raymond Quilter establish GQ Parachutes, foreseeing the need for widely available and dependable aircrew parachute systems.
1933 The Irvin Parachute officially adopted by 37 air forces worldwide.
1940 Irvin and GQ collaborate to produce the X-type Paratroop Parachute Assembly to meet the need for a safe and reliable static line assembly for the new and rapidly expanding Army Airborne Forces. This assembly, with minor modifications, is used throughout WWII and for 20 years beyond.
1944 D-Day, the largest liberation force in human history is launched with the Allied airborne forces using Irvin designed parachutes.
1946 The first “live” ejection is made from an aircraft using a Martin-Baker ejection seat fitted with an Irvin parachute assembly.
1951 Martin-Baker, in collaboration with Irvin, develops the first autonomous pilot seat ejection system.
1960 First aerial recovery of a space capsule launched from an orbiting satellite (Discoverer 13) uses an Irvin parachute recovery system.
1963 Landing brake-parachute is developed by Irvin for SR-71.
1965 Irvin’s first mortar deployed Spin/Stall Parachute Recovery System is used on DC9 development aircraft.
1968 Para-Flite founded to develop, manufacture and market gliding parachutes.
1976 Irvin develops and qualifies parachute system for the NASA Pioneer Venus program.
1976 Goodyear, in collaboration with Irvin, uses a parachute decelerator system to safely land the Viking spacecraft on Mars.
1978 Irvin flight termination & mid-air recovery system is used on the Air Launched Cruise Missile (ALCM).
1991 Space Shuttle Endeavor successfully lands using an Irvin brake-parachute.
1996 Irvin designs and tests a cluster of 3 Ringsail parachutes to recover the Boeing EELV concept’s 20,000 lb. propulsion module demonstrating the technology to successfully return the first stage rocket engine to a water landing for subsequent recovery, refurbishment and re-use.
1998 World-record largest parachute cluster flight for the Kistler K-1 development using 6, 156 ft ringsail parachutes. Irvin advances the state-of-the-art of large spacecraft recovery systems.
1999 F-22 development aircraft successfully conducts flight tests with Irvin’s self-monitoring, pilot-actuated Spin/Stall Parachute Recovery System.
2003 NASA Pad Abort Demonstrator program flies 4, 156 ft diameter Ringsail cluster—recovery system test, demonstrating technology for a future manned spacecraft crew.
2005 SpaceX—Irvin develops the parachute recovery system for 1st stage recovery of Falcon I commercial launch vehicle for low cost transport of satellites to low earth orbit.
2006 Irvin awarded development of parachute program for NASA Orion spacecraft replacing the space shuttle in 2010.
2007 Airborne Systems combines the legacy and core technologies of GQ Parachutes, Irvin Aerospace, Para-Flite, and Aircraft Materials (AMU) into one single company.
2008 Airborne Systems successfully tests the “GigaFly”, setting the world record for the largest ram air canopy carrying the heaviest weight ever flown (40,000 lb).
www.airborne-sys.com

The Airborne Systems Family of Brands
- GQ Parachutes
- Irvin Aerospace
- Para-Flite
- Aircraft Materials (AML)

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