



Performance Designs, Inc.

POWERED PARACHUTE CANOPY
USER/OWNER MANUAL

Performance Designs, Inc.

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Dear User/Owner;

Welcome to the world of Powered Parachute flight!

This document does not represent a complete owner's manual for your powered parachute system. The following information is provided as a supplement to your ultralight owner's manual (supplied by your ultralight manufacturer). It is not meant to be an instructional manual on how to fly a powered parachute.

The information contained in this manual will help you understand some of the technical terminology used, as it applies to the canopy portion of your powered parachute system. Please take note of the care and maintenance information included, so that you may enjoy your powered parachute for hundreds of hours of flight.

Performance Designs hopes you enjoy your canopy and that you always fly safely.

Thank you,

PERFORMANCE DESIGNS, INC.

TO THE NEW OWNER

INSTALLATION

The canopy comes with a card that is attached to the quick links for easy identification and installation.

Take the canopy out of the plastic bag. Place the unfolded canopy on the ground behind the machine. Unfolding the canopy carefully, locate the daisy-chained lines and slide them out of the folds of the canopy. **Do Not** remove the card from the links at this time. **Do Not** remove the lines from the quick links.

Stand behind the machine with your back to the machine facing the canopy with the card and the quick links in your hand. Hold the printed part of the card facing the canopy and the writing on the card upside down. Holding the card in this manner places the leading edge links (front of the canopy) on the top and the trailing edge (back of the canopy) on the bottom. Lay the card on the ground and take out the daisy chain and resume unfolding the parachute. Turn the canopy so that as you continue to unfold it the leading edge lines are straight leading to the top of the canopy and the trailing edge lines are straight leading to the tail of the canopy.

Take the links off the card one at a time as you attach the canopy to the machine following the manufacturer's instructions.

Resume unfolding the canopy with the top skin on the ground and the bottom skin and lines on top. Starting at the machine, take the top link and follow the lines with your eyes making sure that the lines are leading straight to the parachute and not tangled with the trailing lines. If they are, shake the lines lightly and the top and bottom lines will separate.



PERFORMANCE DESIGNS, INC.
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DISCLAIMER – NO WARRANTY

Because of the unavoidable danger associated with the use of this parachute, the manufacturer makes no warranty, either express or implied. It is sold with all faults and without any warranty of fitness for any purpose. The manufacturer also disclaims any liability in tort for damages, direct or consequential, including personal injuries resulting from a defect in design, material or workmanship or manufacturing whether caused by negligence on the part of the manufacturer or otherwise. By using this parachute assembly, or allowing it to be used by others, the user waives any liability of the manufacturer for personal injuries or other damages arising from such use.

If the buyer declines to waive liability on the part of the manufacturer, buyer may obtain a full refund of the purchase price by returning the parachute before it is used to the manufacturer within 15 days from the date of the original purchase with a letter stating why it was returned.

WARNING!

Each time you use this parachute you risk serious bodily injury or death.

You can substantially reduce this risk by:

- 1) assuring that every component of the parachute system has been assembled and packed in strict compliance with the manufacturer's instructions.
- 2) obtaining proper instruction in the use of this canopy and the rest of your equipment.
- 3) and by operating each component of the system in strict compliance with the owner's manual and safe parachuting practices.

However, parachute systems sometimes fail to operate properly - even when properly assembled, packed and operated - so you risk serious injury or death each time you use the system.



Performance Designs, Inc. Powered Parachute Canopy

Care and Maintenance

The canopy of your powered parachute system should be inspected before and after each flight.

Inspection Procedure *(Performed before and after each flight)*

Preflight:

1. Make sure there is no debris inside the canopy by lifting at the tail and shaking down towards the leading edge.
2. Lay the canopy flat, with the bottom surface down on a table or any clean, flat surface. Begin at one end, visually inspecting each panel and seam thoroughly, one panel at a time. Check for any burns, rips, tears, failed seams, etc.
3. Turn the canopy over and repeat the above procedure for the bottom surface. Included in the inspection of the bottom surface will be the line attachments and lines themselves.
4. Ensure that there are no twists in the line groups. Look for frayed lines. Try to keep the lines clean. Dirt that gets into the lines abrades the lines from inside.
5. Connect the canopy to the machine ensuring that the control lines are routed through the proper pulleys and that they travel freely. Tighten the quick links following the manufacturers recommendations for tightness.

Post flight:

- 1-4. Repeat steps 1, 2, 3 and 4 above.
5. Periodically check the fabric strength after use. (See *fabric information*).

Your canopy can be wiped down, when needed, with a damp (not wet) soft cloth.

Avoid getting any petroleum-based substances on your canopy or lines. These agents can do a great deal of damage!

Avoid contact with the prop and exhaust.



Fabric Information

Although the fabric used in your powered parachute is UV resistant, it has been our experience that sunlight will have a detrimental effect on the fabric. *The longer the exposure to sunlight, the shorter the life span of the fabric.* This is more noticeable on the neon colors. Neon colors will show fading faster. Neon's include lime green, lemon, watermelon, and tangerine

When new the *tensile* strength of the fabric is specified to be 47 psi. The *tear* strength is specified at 12 psi. After use, the user can check the fabric strength as follows:

1. Select a section of the top or bottom skin, as far away from seam lines as is feasible.
2. Grasp the fabric with both hands approximately six inches apart.
3. Pull the fabric tight and apply pressure to the fabric with the thumbs; the fabric should take some stress (20 -25 lbs. pressure). Use caution when performing tests...fingernail and thumbnails are sharp objects and could do damage.

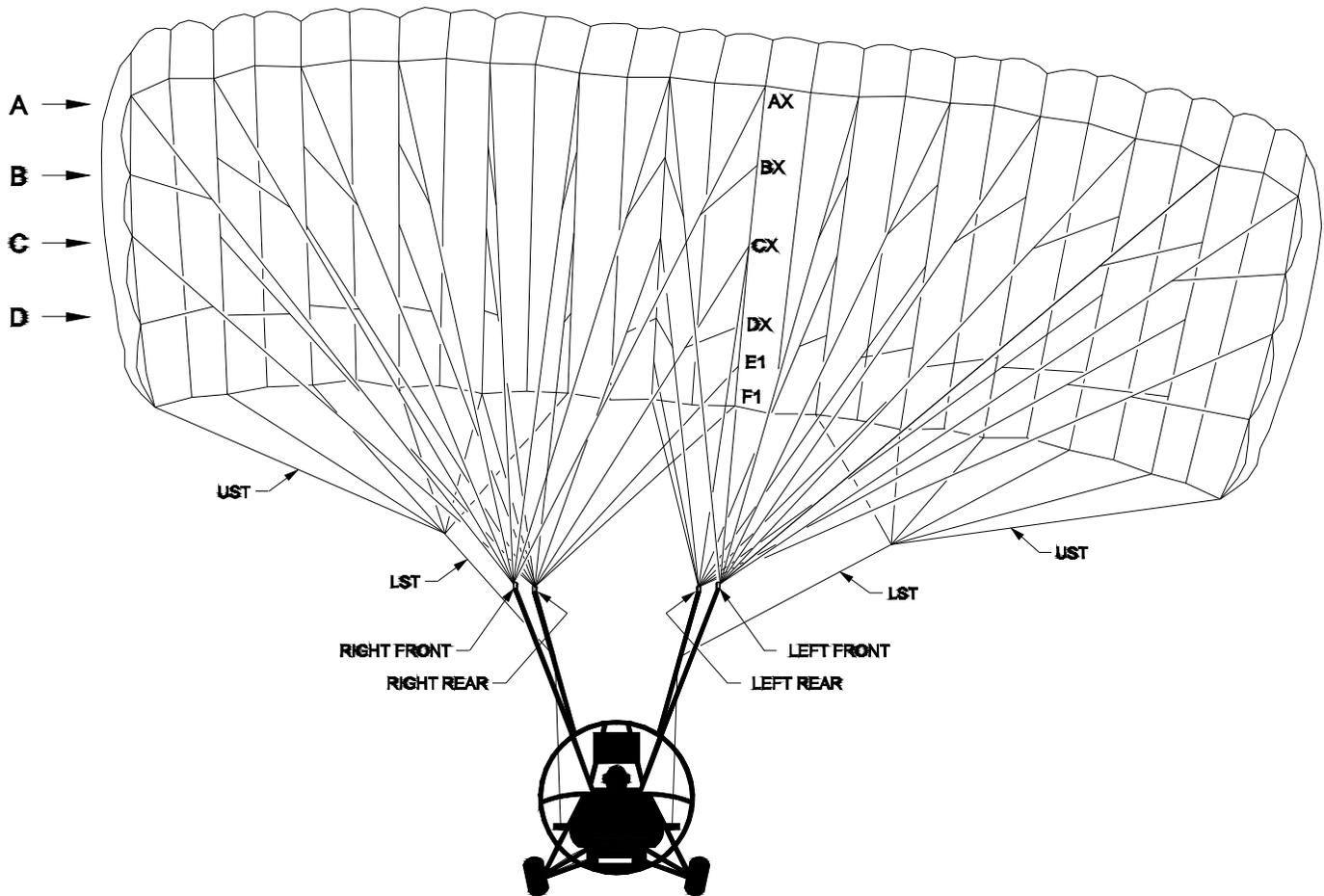
Factory Maintenance

Your canopy should be returned to the factory for any of the following maintenance needs:

1. Upper suspension line replacement.
2. Any rips, tears, etc. to the canopy fabric.
3. Every 100 flight hours for a full airworthiness inspection.
4. Anytime contamination is suspected.



Performance Designs, Inc. Powered Parachutes Typical Line Configuration



Performance Designs, Inc.
500 Square Foot Powered Parachutes
(Sunriser)
Technical Data Sheet

Fabric Type

Silicone coated 1.1 oz. ripstop nylon

Reinforcing Tapes

3/8" MIL-T-5038 200 lb. min. breaking strength

1/2" nylon 200 lb. min. breaking strength

3/8" nylon 150 lb. min. breaking strength

Line Attachment Tapes

3/4" MIL-W-4088 600 lb. min. breaking strength

Threads

Size E MIL-T-7807 8.5 lb. min. breaking strength

Size F MIL-T-7807 11 lb. min. breaking strength

Suspension Lines/ Upper Control Lines

A lines - Vectran - 1050 lb. Tensile strength

C, B, D, E, F, UST – Vectran – 750 lb. Tensile strength

Lower Control Lines - (red lines)

Polyester - 1,000 lb. Tensile strength

Description

The canopy consists of: 13 cells or chambers, 12 loaded ribs, 13 non loaded ribs, 2 Inflatable stabilizers, 14 ea A, B, C and D lines, 2 ea. AX, BX, CX, DX, E, F lines, 12 upper control lines, 2 lower control lines (red lines).



Canopy Shape and Construction Method

Rectangular shape with 13 top skins, 13 bottom skins, 2 inflated stabilizers.

Flight Performance Data

Speed Range - 26 to 30 mph.

Ascent Rate -Depends @ what weight is suspended.

Descent Rate - Minimum 10 feet per second @ what weight
Maximum 13 feet per second @ what weight

Canopy Size - 500 Sq. Ft./ 46.44 sq. M.

Chord - 12.60 Ft. / 3.84 M.

Span - 39.5 Ft. / 12.06 M.

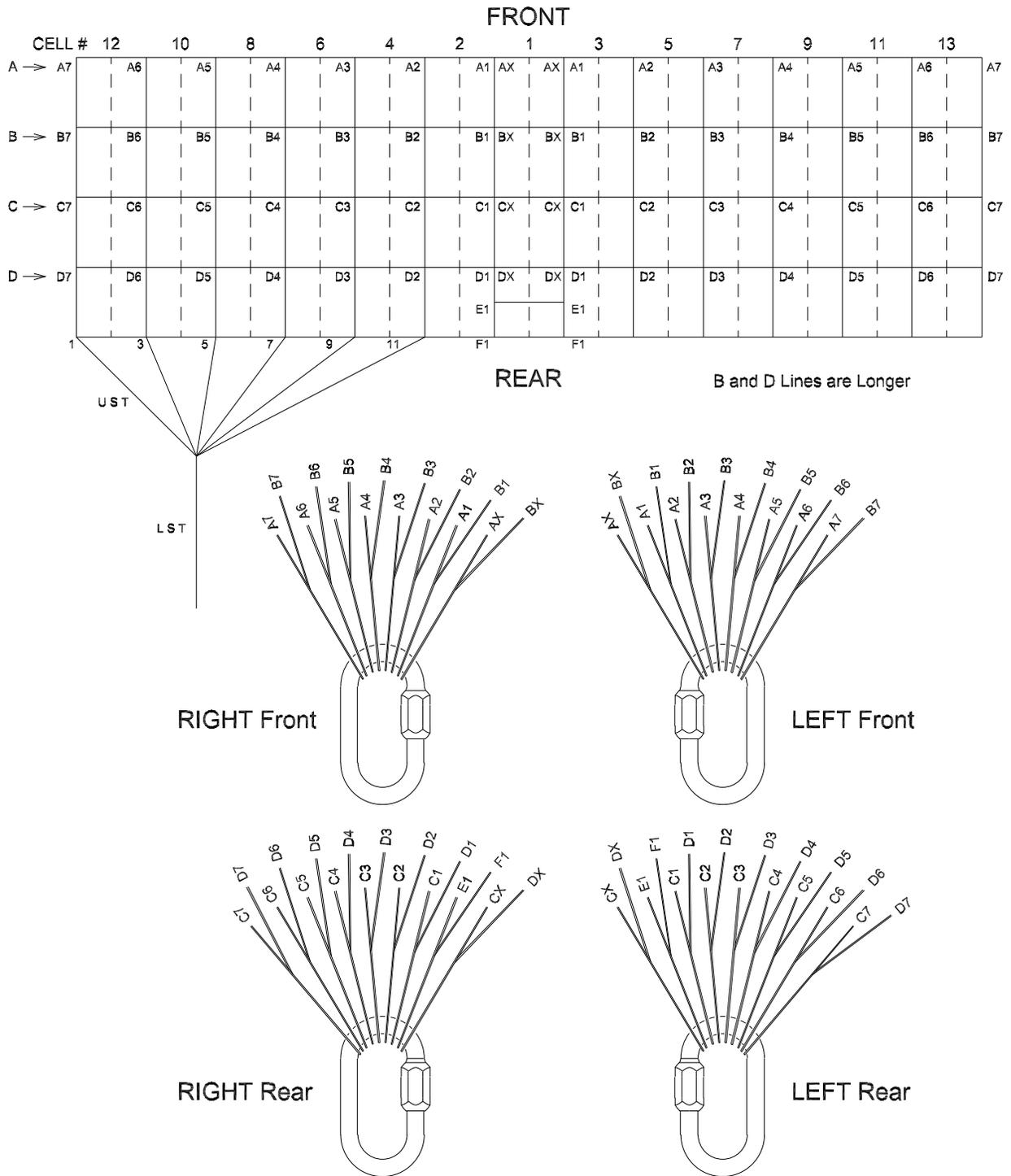
Cell Width - Top 36 1/2"
Bottom 33"

Wing Loading

This is at the discretion of the machine manufacturer. Wing loading in this instance is defined as the maximum impact of the machine at landing without sustaining major damage to the vehicle, pilot or passenger. It also should not decrease the ascent rate or increase the descent rate beyond the comfort zone of the pilot and passenger.



PG-500 (SUNRISE)



Performance Designs, Inc.
550 Square Foot Powered Parachutes
(Sunriser)
Technical Data Sheet

Fabric Type

Silicone coated 1.1 oz. ripstop nylon

Reinforcing Tapes

3/8" MIL-T-5038 200 lb. min. breaking strength

1/2" nylon 200 lb. min. breaking strength

3/8" nylon 150 lb. min. breaking strength

Line Attachment Tapes

3/4" MIL-W-4088 600 lb. min. breaking strength

Threads

Size E MIL-T-7807 8.5 lb. min. breaking strength

Size F MIL-T-7807 11 lb. min. breaking strength

Suspension Lines/ Upper Control Lines

A lines - Vectran - 1050 lb. Tensile strength

C, B, D, E, F, UST – Vectran – 750 lb. Tensile strength

Lower Control Lines - (red lines)

Polyester - 1,000 lb. Tensile strength

Description

The canopy consists of: 15 cells or chambers, 14 loaded ribs, 13 non loaded ribs, 2 Inflatable stabilizers, 16 ea A, B, C and D lines, 2 ea. AX, BX, CX, DX, E, F lines, 10 upper control lines, 2 lower control lines (red lines).



Canopy Shape and Construction Method

Rectangular shape with 15 top skins, 15 bottom skins, 2 inflated stabilizers.

Flight Performance Data

Speed Range - 26 to 30 mph.

Ascent Rate -Depends @ what weight is suspended.

Descent Rate - Minimum 10 feet per second @ what weight
Maximum 13 feet per second @ what weight

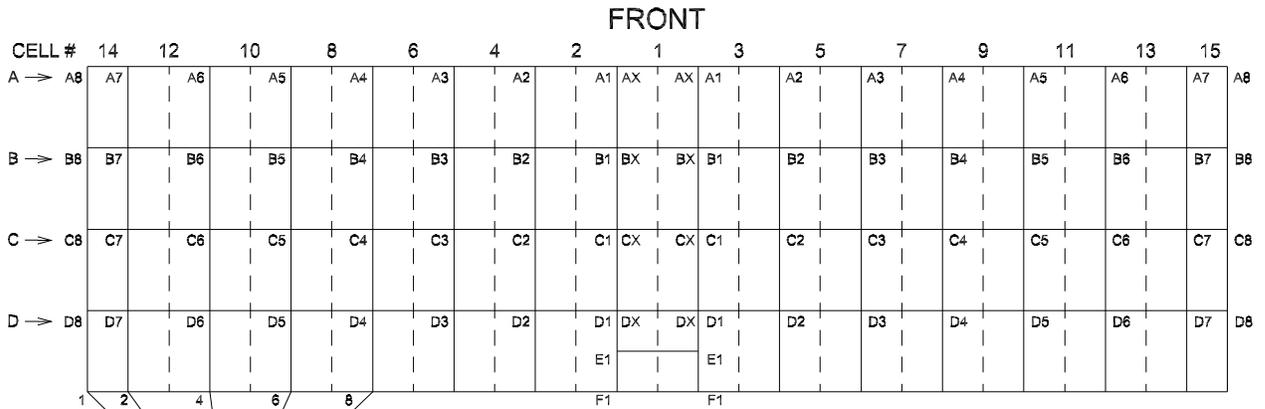
Canopy Size - 500 Sq. Ft./ 46.44 sq. M.

Wing Loading

This is at the discretion of the machine manufacturer. Wing loading in this instance is defined as the maximum impact of the machine at landing without sustaining major damage to the vehicle, pilot or passenger. It also should not decrease the ascent rate or increase the descent rate beyond the comfort zone of the pilot and passenger.



PG-550 (SUNRISER)



REAR

B and D Lines are Longer

U S T

L S T

RIGHT Front

LEFT Front

RIGHT Rear

LEFT Rear



Performance Designs, Inc. 500 Square Foot Powered Parachutes (Windjammer) Technical Data Sheet

Fabric Type

Silicone coated 1.1 oz. ripstop nylon
Polyurethane/Silicone blend coated 1.5 oz. ripstop nylon

Reinforcing Tapes

3/8" MIL-T-5038 200 lb. min. breaking strength
3/4" MIL-T-5608 100 lb. min. breaking strength
1/2" nylon 200 lb. min. breaking strength
3/8" nylon 150 lb. min. breaking strength

Line Attachment Tapes

3/4" MIL-W-4088 600 lb. min. breaking strength

Threads

Size E MIL-T-7807 8.5 lb. min. breaking strength
Size F MIL-T-7807 11 lb. min. breaking strength

Suspension Lines/ Upper Control Lines

Polyethylene - 825 lb. Tensile strength (upper)

Lower Control Lines - (red lines)

Polyester - 1,000 lb. Tensile strength

Description

The canopy consists of: 13 cells or chambers, 12 loaded ribs, 13 non loaded ribs, 2 Inflatable stabilizers, 14 ea A, B, C and D lines, 2 ea. AX, BX, CX and DX lines, 4 ea. E and F lines, 14 upper control lines, 2 lower control lines (red lines).



Canopy Shape and Construction Method

Rectangular shape with 13 top skins, 13 bottom skins, 2 inflated stabilizers.

Flight Performance Data

Speed Range - 26 to 30 mph.

Ascent Rate -Depends @ what weight is suspended.

Descent Rate - Minimum 10 feet per second @ what weight
Maximum 13 feet per second @ what weight

Canopy Size - 500 Sq. Ft./ 46.44 sq. M.

Chord - 12.60 Ft. / 3.84 M.

Span - 39.5 Ft. / 12.06 M.

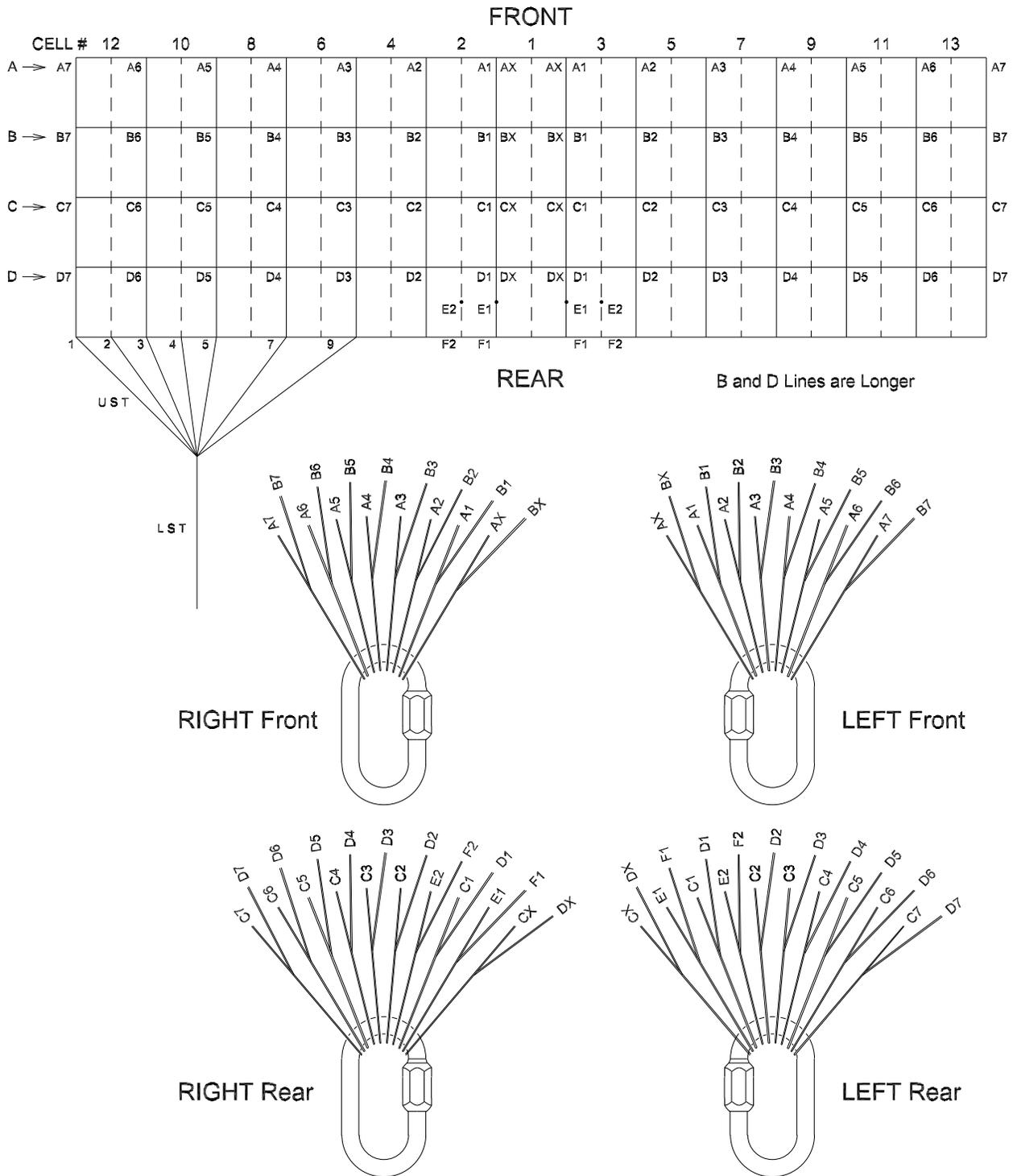
Cell Width - Top 36 1/2"
Bottom 33"

Wing Loading

This is at the discretion of the machine manufacturer. Wing loading in this instance is defined as the maximum impact of the machine at landing without sustaining major damage to the vehicle, pilot or passenger. It also should not decrease the ascent rate or increase the descent rate beyond the comfort zone of the pilot and passenger.



PA-500 (WINDJAMMER)



Performance Designs, Inc.
360, 400 & 500 Square Foot Powered Parachutes
(Barnstormer)
Technical Data Sheet

Fabric Type

Silicone coated 1.1 oz. ripstop nylon

Reinforcing Tapes

3/8" MIL-T-5038 200 lb. min. breaking strength

1/2" nylon 200 lb. min. breaking strength

3/8" nylon 150 lb. min. breaking strength

Line Attachment Tapes

3/4" MIL-W-4088 600 lb. min. breaking strength

Threads

Size E MIL-T-7807 8.5 lb. min. breaking strength

Size F MIL-T-7807 11 lb. min. breaking strength

Suspension Lines/ Upper Control Lines

For PB-360, PB-400:

Vectran – 750 lb. Tensile strength

For PB-500:

Polyethylene - 825 lb. Tensile strength

Lower Control Lines - (red lines)

Polyester - 1,000 lb. Tensile strength

Description

The canopy consists of: 11 cells or chambers with Mylar stiffeners sewn to the leading edge of the ribs, 12 loaded ribs, 11 non loaded ribs, 2 stabilizers, 12 ea A, B, C and D lines, 2 ea. AX, BX, CX, DX, E, F lines, 12 upper control lines, 2 lower control lines (red lines).



Canopy Shape and Construction Method

PB-360 - Semi Elliptical shape with 11 top skins, 11 bottom skins, 2 stabilizers.

PB-400 - Rectangular shape with 11 top skins, 11 bottom skins, 2 stabilizers.

PB-500 - Semi Elliptical shape, with 11 top skins, 11 bottom skins, 2 stabilizers.

Flight Performance Data

Speed Range - 26 to 30 mph.

Ascent Rate -Depends @ what weight is suspended.

Descent Rate - Minimum 10 feet per second @ what weight

Maximum 13 feet per second @ what weight

Canopy	PB-360	PB-400	PB-500
Size:	360 Sq. Ft. / 33.45 Sq. M.	400 Sq. Ft./ 37.16 Sq. M.	500 Sq. Ft./ 46.44 Sq. M.
Cord:	10.85 Ft. / 3.31 M.	11.43 Ft. / 3.48 M.	12.88 Ft. / 3.93 M.
Span:	33.19 Ft. / 10.11 M.	34.96 Ft. / 10.66 M.	32.18 Ft. / 9.80 M.

Cell Width - Top, Varies depending on the cell

Bottom, Varies depending on the cell

Wing Loading

This is at the discretion of the machine manufacturer. Wing loading in this instance is defined as the maximum impact of the machine at landing without sustaining major damage to the vehicle, pilot or passenger. It also should not decrease the ascent rate or increase the descent rate beyond the comfort zone of the pilot and passenger.



PB-360, -400 & -500 (BARNSTORMER)

