



STATE OF CALIFORNIA
Department of General Services - Office of Procurement
PURCHASE ORDER

Purchase Order No. 62170
Rev. Date 6/30/2008

Form GSOP 1-PIN (04/98)

Table with columns: Supplier No., Solicitation No., Delivery Date, FOB Point, Invoice Terms, Agency Billing, Agency Purchase Estimate, Purchase Estimate, Revision, Agency Contact, Phone, Date Received.

GIBSON & BARNES
1900 WELD BLVD. #140
EL CAJON, CA 92020
Attn: JOSH VARNER
Phone: 800-440-5904

S CALIFORNIA HIGHWAY PATROL
h T OFFICE OF AIR OPERATIONS
i o 860 STILLWATER ROAD
P WEST SACRAMENTO, CA 95605
Attn: OFFICER G. PEREZ

Table with columns: Agency Billing, Agency Purchase Estimate, Purchase Estimate, Revision.

Table with columns: Agency Contact, Phone, Date Received.

Main item table with columns: Item No., Quantity, Unit, Commodity Code, Description, Unit Price, Extension. Includes detailed descriptions for helmet and flight suit.

Sales and/or use tax to be extra unless noted above

Table with columns: Buyer (KATHLEEN SANBORN), Phone (916-375-4403), BOC Number.

Handwritten signature of Jon Albert

STATE OF CALIFORNIA

Department of General Services - Office of Procurement

**PURCHASE ORDER CONTINUATION**

Form GSOP 2-PIN (04/98)

<i>Purchase Order No.</i> <b>62170</b>	<i>Revision</i>	<i>Date</i> 6/30/2008	<i>Supplier No.</i> 810767	<i>Supplier Name</i> GIBSON & BARNES
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<i>Item No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Commodity Code</i>	<i>Description</i>	<i>Unit Price</i>	<i>Extension</i>
				29 EACH - 42R MALE 6 EACH - 44S MALE 3 EACH - 44R MALE 17 EACH - 44T MALE 15 EACH - 46T MALE 7 EACH - 48R MALE 9 EACH - 48T MALE  Brand: <u>GIBSON &amp; BARNES</u> Model: <u>UD2N2KX</u>		
3	13	EA	8415-841-0117-4	SUIT FLIGHT <u>FLIGHT SUIT, NOMEX, KHAKI</u> IN COLOR, <u>CUSTOM SIZES</u> CLOTH BADGE, CUSTOM SIZES IN ACCORDANCE WITH THE ATTACHED CALIFORNIA HIGHWAY PATROL SPECIFICATIONS FOR FLIGHT SUITS. SIZES: (FOR MALE)	263.6300	3,427.19
				Brand: <u>GIBSON &amp; BARNES</u> Model: <u>UD2N2KX</u>		
4	21	EA	1096-000-0825-9	COAT OR JACKET MEN (AS DESCRIBED) <u>FLIGHT JACKET, NOMEX, DARK NAVY</u> IN COLOR CLOTH BADGE, STANDARD SIZES IN ACCORDANCE WITH THE ATTACHED CALIFORNIA HIGHWAY PATROL SPECIFICATIONS FOR FLIGHT JACKETS. SIZES: 1 EACH - SMALL TALL 5 EACH - MEDIUM REGULAR 4 EACH - LARGE REGULAR 7 EACH - EXTRA LARGE REGULAR 2 EACH - EXTRA LARGE TALL 1 EACH - XXLARGE REGULAR 1 EACH - XXLARGE TALL	266.6300	5,599.23
				Brand: <u>GIBSON &amp; BARNES</u> Model: <u>JD1N2BD</u>		
<b>Total Value:</b>						<b>81,226.40</b>

**DELIVERY:**

For the purpose of this bid, only bids quoted F.O.B. Destination will be accepted.

This purchase order is being awarded on September 17, 2008 pursuant to Government Code Section 13332.17. Any encumbrances made pursuant to this purchase order shall be construed to have been made on the last day of the preceding fiscal year.

This Purchase order has been registered into the state contact and procurement registration system (<https://www.scprs.dgs.ca.gov/>). The

STATE OF CALIFORNIA

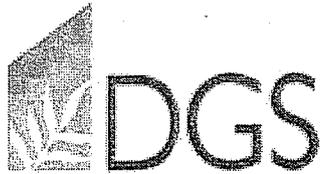
Department of General Services - Office of Procurement

**PURCHASE ORDER CONTINUATION**

Form GSOP 2-PIN (04/98)

<i>Purchase Order No.</i>	<i>Revision</i>	<i>Date</i>	<i>Supplier No.</i>	<i>Supplier Name</i>
62170		6/30/2008	810767	GIBSON & BARNES

<i>Item No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Commodity Code</i>	<i>Description</i>	<i>Unit Price</i>	<i>Extension</i>
<p>registration number is 27200908333393.</p> <p><b>ATTACHMENTS:</b> The following attached documents are a part of this purchase order:</p> <p>1. Specifications #8415-0162, 8415-0095, &amp; 8415-0163 dated May, 2008</p> <p><b>CHANGE ORDERS:</b></p> <p>This purchase Order may be amended, modified, or terminated at any time by mutual agreement of the parties in writing. Change orders amending, modifying or terminating the Purchase Order, including any modifications of the compensation payable, may be issued only by the State Procurement Officer. All such change orders shall be in writing and issued only upon written concurrence of the supplier. Termination, as that term is used in this section, does not include termination for default of the supplier.</p>						



## State of California

### Administrative Requirements, California Highway Patrol (CHP) Flight Suits, Flight Jackets and Flight Helmets

#### Color, Flight Suits, Flight Jackets

There shall be no noticeable difference in color of flight suits and jackets from different die lots when placed side by side. Fabric color shall match the approved sample provided to the State by the vendor prior to production. The CHP will use the approved sample for comparison with the delivered goods.

#### Warranty, Flight Suits, Flight Jackets

The bidder shall warranty the uniform workmanship, stitching and zippers for the life of the garment.

#### Warranty, Flight Helmets

The supplier shall guarantee for 12 months following the date of delivery that all helmets provided will be free from manufacturing defects in design and workmanship. If, during the guarantee period, a helmet is found to be defective, the supplier shall repair the defective helmet without cost to the State and return the repaired helmet to the CHP within 45 days.

### QUALITY ASSURANCE PROVISIONS

#### Test Reports:

The bidder may be required to get their product tested by an independent laboratory in the United States. They will be given 20 days to submit test results. This certified test report shall indicate that their product is fully compliant to all the requirements of this solicitation.

#### Samples:

Within 15 calendar days of notification of award, the successful bidder will be required to submit a flight suit, flight jacket and flight helmet. The samples shall be exactly as bid and the same as those that will be produced for the order, shall satisfy all requirements of this specification, and shall be supplied at no expense to the State. The samples will be inspected and deviations must be corrected, and additional pre-production sample(s) submitted within 10 calendar days after receipt of the comments. If the second pre-production sample(s) do not meet the requirements of this specification, the State may initiate default proceedings as described in Section 24 of the General Provisions.

### PREPARATION FOR DELIVERY, FLIGHT SUITS, FLIGHT JACKETS

#### Packaging, Flight Suits, Flight Jackets

The flight suits and jackets shall be folded with the sleeves inside and the size label easily readable without unfolding and shall be individually wrapped, with package label

on top, in a polyethylene type bag or comparable packaging with recycled content. The packaging label shall be easily readable and indicate the model number, size, and lot number.

## **PREPARATION FOR DELIVERY, FLIGHT HELMETS**

### **Packaging, Flight Helmets**

The helmets shall be individually wrapped and individually boxed. The boxed helmets shall be packaged in a shipping carton in accordance with standards of the industry.

The quantity of boxes per shipping container shall be in accordance with acceptable commercial practice.

The shipping container shall have no slack space that will allow crushing or distortion from palletizing or stacking. The shipping container shall be durable in construction so that it may be reshipped without further reinforcement.

If shipped on pallets, the pallets shall be of a type and design to allow handling by for lift equipment. The palletized cartons shall be placed such that the pallet load can be identified from any of the four (4) sides.

All helmets shall be shipped in a manner to assure timely delivery and protection of material. Any helmets damaged during shipping or delivery shall be rejected and repaired or replaced by the supplier at the State's discretion, at no cost to the State.

## **PREPARATION FOR DELIVERY, FLIGHT SUITS, FLIGHT JACKETS, FLIGHT HELMETS**

### **Packaging, Flight Suits, Flight Jackets, Flight Helmets**

Each box shall be labeled with the commodity, type, manufacture's name, and size.

All packaging and shipping cartons shall conform to applicable Federal and State Regulations and conform to standards of the industry. Exterior of the carton shall indicate product, quantity, and size. Bidders are encouraged to offer product packaging with recycled content.

***Note: Delivery is considered complete when goods have been accepted and when all documentation as defined in this specification has been submitted as required.***



## STATE OF CALIFORNIA

### Bid Specification

#### Flight Suits, California Highway Patrol (CHP)

#### 1.0 SCOPE:

This specification covers the requirements for a zipper front, fire resistant, uniform style, one-piece design flight suit. These flight suits will be used by pilots of the California Highway Patrol (CHP) for protection against hazards that may be encountered during emergencies and during regular aircraft patrol operations.

#### 2.0 SPECIFICATIONS AND STANDARDS:

Specifications and standards referenced in this document in effect on the opening of the invitation to Bid form a part of this specification where referenced.

#### 3.0 REQUIREMENTS:

All fire resistant flight suits shall meet or exceed the requirements of this specification. All stitches, seams and stitching shall comply with ASTM 6193-97 (2004).

#### 3.1 Configuration:

The assembled flight suit shall be constructed so as to conform to the requirements of this specification and include, but not limited to: (1) a front, (2) a pleated back, (3) two long sleeves, (4) a pointed collar, (5) nine pockets (two zipper leg pockets with flaps, two flashlight pockets, two front pockets, two zipper chest pockets with flaps, one zipper sleeve pocket with pencil pockets), (6) hook and pile waist tabs, cuff closures and leg closures (7) sewn-in leg creases (8) two-way front zippers.

#### 3.2 Color:

The color of the fire resistant flight suits shall be Khaki. The individual component colors, i.e. zipper, hook and pile fastener, etc. shall be color matched to the fabric where indicated.

#### 3.3 Fabric:

The flight suits shall be made from machine washable "Nomex IIIA" or equivalent fabric that can be laundered with no special precautions. The fiber content shall be less than 93% Nomex IIIA or equivalent, 5% Kevlar or equivalent, 2% P140 (Static Disipative Material) or equivalent.

	<u>Physical Specifications</u>	<u>Test Methods</u>
<u>Finished Weight</u>	6.0 -6.8 ounces/sq yard (± 5%)	ASTM D3776
<u>Tear Strength</u>	Warp – 5 pounds	ASTM D1424

(Minimum)	Fill – 5 Pounds	
<u>Breaking Strength</u> (Minimum)	Warp – 180 Pounds Fill – 90 Pounds	ASTM D5034 Test method G-T Warp
<u>Weave</u>	Flight suit: Twill Lining: Plain	
<u>Shrinkage</u>	Warp Direction – 4.0% Max. Fill Direction – 1.5% Max. After three (3) launderings at the following conditions: Machine Cycle: Permanent Press Washing Temperature: 115°- 125° F Drying Procedure: Tumble Dry at Permanent Press Setting	AATCC #135
<u>Colorfastness</u>	Laundering: Color Change Class 4.0 minimum Perspiration: Shade Change Class 4.0 Minimum Staining: Class 3.0 minimum	AATCC 61-3A AATCC #15 AATCC #15
<u>Anti-Static Charge Decay</u>	After 0, 25 and 50 launderings, accepts charge of minimum 3 KV and discharge to 10% of the original accepted charge in < ½ second after grounding.	Federal Test Method 191A, Method 5931
<u>Thermal Protective Performance:</u>	Minimum 7 cal/cm 2	ASTM D4108
<u>Flame Resistance</u>	Test Results shall not Exceed the following limits: (a) 2.0 seconds after flame (b) 4.0 inches average char-length	Federal Standard 191, Method 5903.2

Ignition of the material shall not produce any melting and dripping of molten or flaming material. It is specifically required that upon exposure to flaming ignition, or to heat sufficient to char fabric, the material will not adhere to the skin of the wearer so as to cause or contribute to the severity of burns.

Disclaimer: These flight suits are intended for use by pilots for protection against hazards that may be encountered during emergencies and during regular patrol in aircraft. **These flight suits are not intended for use as protection for firefighters exposed to the hazards of structural and wild land fire fighting activity.**

### 3.4 Thread:

The stitching thread shall be of the spun thread type, non-melting, heavy gauge, 100% Nomex, minimum size 45/3 Tex 40, or equivalent, color matched to the fabric.

**3.5 Hook and Loop Synthetic Fastener Tape:**

The Hook (88) and Loop (1000) synthetic fastener tape (Velcro or equivalent), shall be 100% nylon with urethane acrylic back coat ultrasonically split to reduce edge fray. The fastener tape shall be a soft monofilament loop type. All loop fastener tape shall be matched in color to the fabric.

The loop type fastener tape 2 x 4 inches in size shall be sewn to the right front of the flight suit with a single row of stitch type 301. The loop will be sewn directly above the right chest pocket.

The hook type tape for the waist tabs shall be 2 x 2 inches in size and sewn to the inside of each waist tab using a double row box stitch type 301. The loop tape 2 x 4 inches long shall be sewn to the waistband with a single row of box stitch type 301. It shall be centered on the waist seam and extending from the sewn in creases toward the side seam.

Each ankle opening shall have 2 tabs that may be used to adjust the width of the ankle opening. The hook type tapes for the ankle openings shall be 1 X 1 inch in size and sewn to the inside of each ankle tab using a double row box stitch type 301. The loop tape shall be 7 X 1 inches in size and sewn to the outside of each ankle with a single row stitch type 301.

The hook type tape for the wrist openings shall be 1 X 2 inches in size and sewn to the inside of each wrist opening using a double row box stitch type 301. The loop tape shall be 2 X 2 inches in size and sewn to the outside of each wrist opening with a single row of stitch type 301.

There shall be a 1 X 3¼ inch tab extending from the collar that attaches at the neck with hook and loop fastener tape. The hook tape shall be 1 X ½ inch placed at the end of the tab. There shall be a loop type tape 1 X ½ inch placed at the inner end of the tab and on the opposite collar next to the zipper.

**3.6 Zipper:**

Zippers shall be size 7, black oxide, ¾ inch natural Nomex (or equivalent) tape.

**Front Zipper:**

The zipper shall have a two-way slider allowing access from both the top and the bottom. The zipper shall extend from the collar to 3 ½ inches from the inseam. The left and right fronts shall be sewn to the zipper so that left and right fabric touch when the zipper is closed. The zipper shall be covered. The zipper shall be sewn to the front of the zipper teeth. The stitching shall be one continuous run of stitching down one side of the zipper, across the bottom, and up the other side of the zipper. The bottom of the zipper shall be bartacked. The front zipper shall have a 3 inch long zipper pull made from self fabric.

**3.7 Flight Suit Size:**

The flight suit shall be made in men's and women's sizes as specified in the line item description.

The actual measurements for the sizes requested for both men's and women's flight suits shall be provided in accordance with current industry standards for like garments, (i.e. Sears, J.C. Penny catalogue size measurements).

The vendor shall make custom alterations to the standard size flight suits, including, but not limited to, adding and subtracting length to sleeve and torso pieces and alternate placing of shoulder pockets for left handed crewmembers

### 3.8 Construction:

Listed below are the construction requirements for the completely assembled fire resistant, uniform style, flight suit. All measurements detailed below apply to flight suits Men's Size 36.

#### 3.8.1 Pockets:

Chest pockets: There shall be two (2) chest pockets angled on the upper edge from approximately 6½ inches below the collar seam upward toward the shoulder. Each pocket shall have a 7 inch corded zipper sewn so that the zipper closes toward the front of the flight suit. The zipper shall be bar tacked at each end. The pockets shall be minimum 7 inches wide by 5½ inches angling up to 7 inches deep. Overall length of the pocket shall grade with the garment size. The pockets shall be sewn on by a double row of lock stitch type 301 spaced ¼ inch apart, and lapped seam type LSd-2. The pocket flap shall be minimum 2 inches wide by 7 inches long. The top edge of the pocket flap shall have an edge finish type EFb-1.

The pocket flap shall be sewn with a double row lock stitch type 301 spaced ¾ inch from the hemmed edge. Pocket flap shall extend to cover zipper completely and shall be bar tacked to the garment at each end.

Pen Pocket: There shall be a bellows style pen pocket on the left sleeve. The pocket shall close with a 5 inch zipper bar tacked at each end.

The pocket zipper shall be covered with a 1½-inch flap bar tacked at each end. The pocket shall be a minimum 4½ inches wide by 5½ inches height and shall be sewn on by a single row of lock stitch type 301 and lapped seam type LSd. The pocket shall have two double stitched pen slots each minimum 1½ inches wide by 5 inches height. A single piece of doubled fabric stitched in the center shall be used. The pen slots shall be sewn on top of the pocket using a single row of lock stitch type 301 and lapped seam type LSd. The opened edge shall be stitched with a double row of stitch type 301 and bar tacked at all stress points.

Leg Pockets: There shall be two (2) leg pockets located on each outside lower leg section. Each pocket shall have a 7 inch zipper sewn so that the zipper closes toward the rear of the legs. The zipper shall be bar tacked at each end. The pockets shall be a minimum 7 inches wide by 10 inches in height. Overall size of the pocket shall grade with the garment size. The pockets shall be sewn on by a double row of lock stitch type 301 spaced ¼ inch apart, and lapped seam type LSd-2. The pocket flap shall be a minimum 2 inches wide by 7 inches long. The top edge of the pocket flap shall have an edge finish type EFb-1. The pocket flap shall be sewn with the double row of lock stitch type 301 spaced ¾ inch from the hemmed edge. Pocket flap shall extend to cover zipper completely and shall be bar tacked at each end.

Flashlight Pockets: There shall be two (2) flashlight pockets located on each outside upper leg section. Each pocket shall be 4 inches wide by 9 inches deep. Overall size of the pocket shall be grade with the garment size. The pockets shall be sewn together with a stitch type 301 and finished with a stitch type 517. Pockets are attached to the leg with a clean finish hem (EFb type), ½ inch wide on the lower opening and sewn with stitch type 301, LSb type seam on the upper opening. Bar Tacks shall be used to reinforce.

Front Trouser Style Pockets: There shall be two (2) trouser style pockets located on each front section. Each pocket shall be 13 inches in length by 6 inches wide angling upward to 3 inches wide at the waist. Overall size of the pocket shall be grade with the garment size. The pockets shall be sewn together with a stitch type 301 and finished with a stitch type 517. a double layer of cloth shall be provided 1½ inches angling upward to 3½ inches at the waist. This section shall be sewn together with a stitch type 301, stitch type LSbj and finished with a stitch type 517.

### 3.8.2 Front Section:

The front shall be cut in four (4) separate pieces, left and right top, and left and right bottom. There shall be a ¾ inch seam allowance where the top and bottom are joined to permit alteration of the torso length. The top and bottom shall be joined using seam type SSa using stitch type 301. The crotch shall have a reinforced piece of 4.5 ounce Nomex IIIA (or equivalent) sewn to the rear of the seat using a single row of stitch type 301. The front of the legs shall have sewn-in creases extending from the waist seam to the bottom of the leg. A badge tab minimum 1 inch by 2½ inches made of self-fabric shall be sewn to the left chest 2 inches above the chest pocket. It shall have two ¼ inch brass eyelet openings spaced 1¼ inches apart (center to center).

It shall be sewn to the front using a seam type LSd and stitch type 301. Shoulder seams joining the back to the front shall be sewn using a seam type LSq double stitched with stitch type 301.

### 3.8.3 Back Section:

The back shall be cut in three (3) separate pieces, top, and left and right bottom. There shall be a ¾-inch seam allowance where the top and bottom are joined to permit alteration of the torso length. The top and bottom shall be joined using seam type SSa and stitch type 301. The left and right bottom shall be joined using seam type SSa that shall first be sewn with stitch type 517 and then double stitched with stitch type 301. The inner leg seam shall be bar tacked.

### 3.8.4 Collar:

The collar shall stand 1½ inches high at the back center when folded over and shall be pointed at the front of the neck. The collar shall be lined with 1½ ounce non-woven inner lining. The collar shall be sewn with ¼ inch seam allowance using seam SSa and stitch type 301. It shall then be turned and double stitched using stitch type 301.

### 3.8.5 Waist:

The waist shall have 2-inch-wide waist tabs that extend from the side seam to the sewn-in leg crease. The tabs shall be made using seam SSa and stitch type 301. The tabs shall be turned and stitched with two (2) rows of stitch type 301. A 2 X 2 inch Velcro (or equivalent) hook shall be sewn to the inside of the waist tabs using a double row and a box stitch type 301. The waist tabs shall be sewn to the waist centered on the waist seam, extending from the sewn-in creases toward the side seam. The Velcro (or equivalent) loop shall be sewn with a single row of stitch type 301.

The elastic shall be polyester poly-knit type. The 1 inch wide elastic band  $\frac{1}{2}$  the length of the waist back shall be encased in the waist band and sewn to the side seams. The 2-inch-wide waistband shall be sewn centered on the back waist seam and shall mate with the front at the side seams. A double row of stitch type 301, LDb seam shall be used to sew the waist band to the garment.

### 3.8.6 Sleeves:

The sleeves shall be cut in two (2) pieces, top and under. The two (2) pieces shall be joined using seam type SSa that shall first be sewn with stitch type 517 and then double stitched with stitch type 301. The sleeve shall be attached to the top using stitch type 517 and then double stitched with stitch type 301. Cuffs shall be a minimum of  $2\frac{1}{2}$  inches wide and fasten with hook and pile fastener tape. Cuffs shall be attached to the sleeves with an LSa seam type and stitch type 301. A 4 inch opening shall extend from the cuff opening up the side seam sewn with a stitch type 301 and finished with stitch type 517.

### 3.8.7 Bar Tacks:

All bar tacks shall be a minimum  $\frac{1}{2}$  inch (13mm) long with minimum 28 stitches per bar tack. The bar tacks shall be positioned so as to reinforce all stress points.

### 3.8.8 Hems:

Leg opening hems shall be a minimum 1 inch wide with a minimum  $\frac{1}{4}$  inch turn under using lock stitch 301 and edge finish type EFb-2.

### 3.8.9 Stitches and Seams:

All topstitching shall be  $\frac{1}{8}$  inch from the edge. When a double row of topstitching is used, the second row shall be  $\frac{1}{4}$  inch from the first row.

All stitches, seams and stitching shall comply with ASTM 6193-97 (2004). Any puckering, twisting, pleating and raw edges are not acceptable. All stitching shall be sewn into another seam, back stitched minimum  $\frac{1}{4}$  inch (6mm) or bar tacked minimum  $\frac{1}{4}$  inch (6mm) to prevent unraveling. Overedge stitch 504 or 517 shall be used for overedge seaming and serging when overedge finish stitch type is not specified.

All shoulder, sleeve set and side seams shall be double lock stitch type 401 using seam type LSc-2.

### 3.9 Special Labeling:

The flight suit shall be labeled in accordance with the Federal Trade Commission, Rules and Regulations, Textile Fiber Products Identification Act, including, but not limited to, size, material content, cleaning instructions and manufacture's identification.

### 3.10 Special Marking:

The supplier shall sew on all unit patches and chevrons furnished by the CHP at the time the order was placed. This shall be completed at no additional charge to the CHP. The patches shall be sewn with single row of stitch type 301.

**3.11 Workmanship:**

All workmanship shall conform to the best trade practices. The flight suits shall be free from all avoidable imperfections from the manufacturing process. Defects that adversely affect appearance or serviceability shall be cause for rejection.

The apparent silence of this specification as to any detail or the apparent omission of any detail shall be regarded as meaning that only the best commercial practice is to prevail and that only materials and workmanship of first quality are to be used.



## STATE OF CALIFORNIA

### Bid Specification

#### Flight Jackets, California Highway Patrol (CHP)

##### 1.0 SCOPE:

This specification covers the requirements for a zipper front, fire resistant, uniform style flight jacket. These flight jackets will be used by the California Highway Patrol (CHP) pilots for protection against hazards that may be encountered during emergencies and during regular aircraft patrol operations.

##### 2.0 SPECIFICATIONS AND STANDARDS:

Specifications and standards referenced in this document in effect on the opening of the invitation to Bid form a part of this specification where referenced.

##### 3.0 REQUIREMENTS:

All fire resistant flight jackets shall meet or exceed the requirements of this specification. All stitches, seams and stitching shall comply with ASTM 6193-97 (2004).

##### 3.1 Configuration:

The assembled flight jacket shall be constructed so as to conform to the requirements of this specification and include, but not limited to: (1) a front, (2) a pleated back, (3) two long sleeves, (4) a knit collar, knit waistband and two knit sleeve cuffs (5), three pockets (two zipper chest pockets with flaps, one zipper sleeve pocket with pencil pockets) (6) removable zip-in inner vest, (7) one-way front zipper (8) jacket lining.

##### 3.2 Color:

The color of the fire resistant flight jackets shall be Navy. The color of the fire resistant jacket lining shall be orange. The removable vest shall be black or gray. The individual component colors, i.e. zipper, hook and pile fastener, etc. shall be color matched to the fabric where indicated.

##### 3.3 Fabric:

The jacket shell, lining and vest shall be made from machine washable "Nomex IIIA" or equivalent fabric that can be laundered with no special precautions. The fiber content shall be less than 93% Nomex IIIA or equivalent, 5% Kevlar or equivalent, 2% P140 (Static Disipative Material).

Physical Specifications Outer Shell and Lining

		<u>Test Methods</u>
<u>Finished Weight</u>	6.0 -6.8 ounces/sq yard (± 5%)	ASTM D3776
<u>Tear Strength</u> (Minimum)	Warp – 5 pounds Fill – 5 Pounds	ASTM D1424
<u>Breaking Strength</u> (Minimum)	Warp – 180 Pounds Fill – 90 Pounds	ASTM D5034
<u>Weave</u>	Jacket: Twill Lining: Plain Vest: Fleece	
<u>Shrinkage</u>	Warp Direction – 4.0% Max. Fill Direction – 1.5% Max. After three (3) launderings at the following conditions: Machine Cycle: Permanent Press Washing Temperature: 115°- 125° F Drying Procedure: Tumble Dry at Permanent Press Setting	AATCC #135
<u>Colorfastness</u>	Laundering: Color Change Class 4.0 minimum Perspiration: Shade Change Class 4.0 Minimum Staining: Class 3.0 minimum	AATCC 61-3A AATCC #15 AATCC #15
<u>Anti-Static</u> <u>Charge Decay</u>	After 0, 25 and 50 launderings, accepts charge of minimum 3 KV and discharge to 10% of the original accepted charge in < ½ second after grounding.	Federal Test Method 191A, Method 5931
<u>Thermal Protective</u> <u>Performance:</u>	Minimum 7 cal/cm 2	ASTM D4108

Flame Resistance

When tested in accordance with Federal Standard 191, Method 5903.2, Flame Resistance of Cloth, Vertical (Standard small scale test), the protective clothing shall not exceed the following limits:

- (a) 2.0 seconds after-flame
- (b) 4.0 seconds average char-length

Ignition of the material shall not produce any melting and dripping of molten or flaming material. It is specifically required that upon exposure to flaming ignition, or to heat

sufficient to char fabric, the material will not adhere to the skin of the wearer so as to cause or contribute to the severity of burns.

**3.4 Thread:**

The stitching thread shall be of the spun thread type, non-melting, heavy gauge, 100% Nomex, or equivalent, minimum size 45/3 Tex 40, or equivalent, color matched to the fabric.

**3.5 Hook and Loop Synthetic Fastener Tape:**

The Hook and Loop synthetic fastener tape (Velcro or equivalent), shall be 100% nylon with urethane acrylic back coat ultrasonically split to reduce edge fray, type 88 hook and type 1000 loop. All loop fastener tape shall be matched in color to the fabric. The loop type fastener tape 2 x 4 inches in size shall be sewn to the right front of the suit with a single row of stitch type 301. The loop will be sewn directly above the right chest pocket.

**3.6 Zipper:**

The pocket zippers shall be of the separating, non-reversible, open-end stop, automatic lock type. The tab size shall be a minimum 1 inch long by ¼ inch wide. The navy Nomex, or equivalent tape shall be minimum ¾ inch wide and the zippers shall have black oxide teeth.

The front zipper shall extend from the collar to the lower edge of the waistband. The left and fronts shall be sewn to the zipper so that left and right fabric touch when the zipper is closed. The zipper shall be sewn to the front using double row stitch type 301 with the first row of stitching 3/8 inch from the center of the zipper teeth. The stitching shall be one continuous stitch running down one side of the zipper to the edge of the waistband. The bottom of the zipper shall be bar tacked. The front zipper shall have 3 inch long zipper pulls made from Nomex or equivalent fabric. The tab size shall be a minimum of 1 inch long by ¼ inch wide. The navy Nomex, or equivalent, tape shall be a minimum of ¾ inch wide and the zipper shall have black oxide teeth. A double fabric flap shall be sewn on the back of the zipper to protect wearer from the zipper when opening and closing. It shall extend the full length of the zipper and shall be a minimum 2 inches in width.

The vest shall zip-in using a Nomex, or equivalent, black oxide teeth zipper. The zipper shall be sewn to the front facing at the lining seam and at the lining seam binding tape using single row stitch type 301 with the first row of stitching 3/8 inch from the center of the zipper teeth. The stitching shall be one continuous stitch running the entire length of the zipper. Each end of the zipper shall be bar tacked.

**3.7 Jacket Size:**

The flight jacket shall be made in men's and women's sizes as specified in the line item description. All sizes shall be available in short, regular and tall lengths as well as custom fit sizes.

The actual measurements for the sizes requested for both men's and women's jackets shall be provided in accordance with current industry standards for like garments, (i.e. Sears, J.C. Penny catalogue size measurements).

The supplier shall make custom alterations to the standard size jackets, including, but not limited to, adding and subtracting length to sleeve and torso pieces, and alternate placing of shoulder pockets for left handed crewmembers.

**3.8 Construction:**

Listed below are the construction requirements for the completely assembled fire resistant, uniform style flight jacket.

**3.8.1 Pockets:**

Hand pockets: Two (2) large side entry style pockets shall be provided. Each pocket shall have a 7-inch zipper sewn so that the zipper closes at the top of the pocket. The zipper shall be bar tacked at each end. The pockets shall be minimum 8 inches wide at the top edge and 9½ inches at the waistband seam 12 inches deep. Overall length of the pocket shall grade with the garment size. The pockets shall be sewn on by a single row of lock stitch type 301 and lapped seam type LSd-2. The pocket flap shall be minimum 1½ inches wide. The pocket flap shall be sewn with a double row lock stitch type 301 spaced ¾ inch from the hemmed edge to the inner zipper. Pocket flap shall extend to cover zipper completely and shall be bar tacked to the garment at each end.

Pen Pocket: There shall be a bellows style pen pocket on the left sleeve. The pocket shall close with a 5-inch zipper bar tacked at each end. The pocket zipper shall be covered with a 1½ inch flap bar tacked at each end. The pocket shall be a minimum 4½ inches wide by 5½ inches height and shall be sewn on by a single row of lock stitch type 301 and lapped seam type LSd. The pocket shall have two double stitched pen slots each minimum 1½ inches wide by 5 inches height. A single piece of doubled fabric stitched in the center shall be used.

The pen slots shall be sewn on top of the pocket using a single row of lock stitch type 301 and lapped seam type LSd. The opened edge shall be stitched with a double row of stitch type 301 and bar tacked at all stress points.

**3.8.2 Front and Back Sections:**

The front shall be cut in two (2) separate pieces, left and right. The back shall be cut in three (3) separate pieces, left, center, right. All sections shall be joined using seam type SSa that shall first be sewn with a stitch type 517 and then double stitched with stitch type 301. The back sections shall be joined in a bellows style double stitched on the edge joining the left and right sections to the center section.

A badge tab minimum 1 inch by 2½ inches shall be sewn to the center upper left section above the pocket. It shall have two (2) ¼-inch brass eyelet openings spaced 1¼ inch apart (center to center).

It shall be sewn to the front using a seam type LSd and stitch type 301. Shoulder seams joining the back to the front shall be sewn using a seam type LSq double stitched with stitch type 301.

Lining: The front shall be cut in two (2) separate pieces, left and right. The back shall be cut in one (1) piece. The sleeves shall be cut in two (2) pieces, top and under. All sections shall be joined using seam type SSa that shall first be sewn with stitch type 517 and then double stitched with stitch type 301.

**3.8.3 Removable Vest:**

The front shall be cut in two (2) separate pieces, left and right. The back shall be cut in one (1) piece. All sections shall be joined using seam type SSa that shall first be sewn with stitch type 517 and then double stitched with stitch type 301. It shall be bound on all edges with seam binding tape color matched to the lining color.

**3.8.4 Sleeves:**

The sleeves shall be cut in two (2) pieces, top and under. The two (2) pieces shall be joined using seam type SSa that shall first be sewn with stitch type 517 and then double stitched with stitch type 301. The sleeve shall be attached to the top using stitch type 517 and then double stitched with stitch type 301.

**3.8.5 Collar, Cuffs and Waist Band:**

The collar shall be one piece Nomex IIIA, or equivalent, knit collar minimum 2¼ inch wide. It shall be turned and double stitched using stitch type 301. The jacket shall have knitted, minimum 3 inch width, Nomex IIIA, or equivalent, wristbands on each sleeve and waistband. Wristbands, waistband and color shall be sewn using stitch type 301 to shell and lining and top stitched with a single row of stitching ½ inch from the edge.

**3.8.6 Bar Tacks:**

All bar tacks shall be a minimum ½ inch (13mm) long. All stitches, seams and stitching shall comply with ASTM 6193-97 (2004). The bar tacks shall be positioned so as to reinforce all stress points.

**3.8.7 Stitches and Seams:**

All stitches, seams and stitching shall comply with ASTM 6193-97 (2004). All topstitching shall be 1/8 inch from the edge. When a double row of topstitching is used, the second row shall be ¼ inch from the first row. Any puckering, twisting, pleating and raw edges are not acceptable. All stitching shall be sewn into another seam, back stitched minimum ¼ inch (6mm) or bar tacked minimum ¼ inch (6mm) to prevent unraveling. Overedge stitch 504 or 517 shall be used for overedge seaming and serging when overedge finish stitch type is not specified.

All shoulder, sleeve set and side seams shall be double lock stitch type 401 using seam type LSc-2.

**3.9 Special Labeling:**

The jacket shall be labeled in accordance with the Federal Trade Commission, Rules and Regulations, Textile Fiber Products Identification Act, including, but not limited to, size, material content, cleaning instructions and manufacture's identification.

**3.10 Special Marking:**

The supplier shall sew on all unit patches and chevrons furnished by the CHP at the time the order was placed. This shall be completed at no additional charge to the CHP. The patches shall be sewn with single row of stitch type 301.

**3.11 Workmanship:**

All workmanship shall conform to the best trade practices. The jackets shall be free from all avoidable imperfections from the manufacturing process. Defects that adversely affect appearance or serviceability shall be cause for rejection.

The apparent silence of this specification as to any detail or the apparent omission of any detail shall be regarded as meaning that only the best commercial practice is to prevail and that only materials and workmanship of first quality are to be used.



## STATE OF CALIFORNIA

### Bid Specification

#### Flight Helmets, California Highway Patrol (CHP)

##### 1.0 SCOPE:

This specification covers the requirements for a protective flight helmet. These flight helmets will be used by the California Highway Patrol (CHP) pilots for protection against hazards that may be encountered during emergencies and during regular aircraft patrol operations.

##### 2.0 SPECIFICATIONS AND STANDARDS:

Specifications and standards referenced in this document in effect on the opening of the invitation to Bid form a part of this specification where referenced.

##### 3.0 Configuration:

The helmet shall be a regular flight type helmet which shall cover as much of the head as possible including temple and mastoid, without interfering with vision or head mobility. It shall afford the wearer sufficient vision within the following ranges:

Horizontal Vision	Minimum 90 degrees
Vertical Vision	Minimum 45 degrees

The flight helmet will consist of an outer shell, inner liner, and dual visor system with clear and tinted lens. Active Noise Reduction earphones and a 150 ohm microphone mounted on a wire boom for adjustment.

The chin and nape strap shall be an integrated one-piece assembly so that the chin and nape strap adjust simultaneously for safety and comfort. Sliding clamps on the left and right at the shell slots that allow the nape strap to be adjusted individually shall be included.

##### 3.1 Construction and Materials:

The helmet shall be made of impact; ballistic and fire resistant materials as described in this section and shall meet the standards as defined in section 3.1.7. The helmet shall include a night vision goggle (NVG) mount with a quick disconnect. The chin strap shall be snap type.

##### 3.1.1 Helmet Shell:

The helmet shell shall be rigid pressure molded composite. The Helmet shell shall be constructed from a composite made of pressure molded, laminated graphite and ballistic nylon (Graphon® or equivalent).

**3.1.2 Ear Cups and Ear Phones:**

The helmet shall include tapered lightweight crushable ear cups with a cushioned ear seal for maximum attenuation.

The ear phones shall be 300 OHM Headsets Inc (or equivalent) with Active Noise Reduction (ANR) modules and include a single cord power lead, an auto shutoff battery pack, and gel ear seals to add to the noise reduction capabilities of the helmet. The helmet shall have an integrated cord including a locking panel mount power plug to power the ANR, and a Nexus TP-120 (or equivalent) plug to connect the microphone and ear phones.

**3.1.3 Microphones:**

The microphone shall be a 150 OHM Gentex Electret® (or equivalent) mounted on a wire boom with a round mount and ball joint for adjustment. A 7 inch microphone cord shall be used to connect the microphone to the helmet.

**3.1.4 Helmet Visors:**

The visor system shall be a dual visor system with polycarbonate impact and scratch resistant lenses. The outer lens shall be neutral gray and the inner lens shall be a clear. The outer housing of the visor shall incorporate the ANVIS Quick Disconnect (or equivalent), so that the helmet may be used with Night Vision Goggles. A tab located at the top of the ANVIS (or equivalent) interface when depressed to release the goggles from the helmet shall be included. The visor lens shall be impact resistant.

**3.1.5 Helmet Liner:**

The liner shall include a one-half inch Styrofoam (or equivalent) energy absorbing liner as the primary impact medium and a preformed Gentex® Super Comfort Liner (SCL), (or equivalent). The SCL (or equivalent) shall be lined with a removable and washable liner that shall be attached with hook-and-pile fastening tape to a Styrofoam® (or equivalent) impact liner. The liner foam shall have temperature softening properties to allow the cover to conform to the irregular shapes when in contact with a warm surface, distributing weight evenly while reducing pressure points and "hot spots."

**3.1.6 Color:**

The color of the flight helmet shell shall be white.

**3.1.7 Physical Specifications and Standards:**

<u>Physical Specifications</u>	<u>Test Standard</u>
Impact Protection	ANSI Z90.1-1971 ANSI Z90.1A-1973
Perforation Protection	MIL-H-87174/84 EN 966;1996
Audio Protection	ANSI S312.42 1995 (MIRE Method)
Shields	MIL-V-43511B

**3.3 Helmet Size:**

The flight helmets shall be made in sizes as specified in the line item description.

**3.4 Workmanship:**

All workmanship shall conform to the best trade practices. The helmets shall be free from all avoidable imperfections from the manufacturing process. Defects that adversely affect appearance or serviceability shall be cause for rejection.

The apparent silence of this specification as to any detail or the apparent omission of any detail shall be regarded as meaning that only the best commercial practice is to prevail and that only materials and workmanship of first quality are to be used.