User Manual

TANGO

Harness/Container

P/N 406002
NSN 1670-33-200-0028

DOC. 800147 REV. 3.0

Edited by CIMSA Ingeniería de Sistemas, S. A.

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P/N	**406002-( )**
S/N	
Size	
Manufacturing Date	

WARNING

Parachuting is a hazardous activity that can result in INJURY or DEATH.

Parachutes sometimes malfunction, even when they are properly designed, built, assembled, packed, maintained and used. The results of such malfunctions are sometimes serious injury or death.

There are so many factors, both human and natural, beyond our control that we want you to clearly understand that by using this parachute, you are assuming a considerable risk of personable injury or death.

ATTENTION

New sets are delivered in separated sub-assemblies, ready for inspection. **NEVER USE THIS EQUIPMENT BEFORE INSPECTION, ASSEMBLING AND PACKING HAS BEEN PERFORMED BY AN AUTHORIZED RIGGER.**

DET NORSKE VERITAS

CERTIFICADO DEL SISTEMA DE GESTIÓN

(MANAGEMENT SYSTEM CERTIFICATE)

Certificado nº (Certificate no.) DCA-0311-AQ-99

Se certifica que el sistema de gestión de la compañía (This is to certify that the management system of)

CIMSA, INGENIERIA DE SISTEMAS, S.A.

Les Franqueses (Barcelona)

es conforme a la norma (complies with the standard):

ISO 9001: 2000

Este certificado es válido para el siguiente campo de aplicación (This certificate is valid for the following scope):

DISEÑO FABRICACIÓN DE TODO TIPO DE PARACAÍDAS, PARAPENTES, SISTEMAS DECELERADORES Y CONTENEDORES Y EXTRACTORES DE PARACAÍDAS, CHALECOS SALVAVIDAS, DE SUPERVIVENCIA, MOCHILAS DE COMBATE, REDES SUBMARINAS, ESLINGAS, EMPAQUES Y VESTUARIO TÉCNICO MILITAR (DESIGN AND MANUFACTURING OF ALL TYPE OF PARACHUTES, PARAGLIDERS, DECELERATION AND CONTAINER SYSTEMS, EXTRACTION SYSTEMS, LIFE JACKETS, SURVIVAL JACKETS, FIGHTING RACKS, SUBMARINE NETS, SLINGS, PACKINGS AND TECHNICAL AND MILITARY CLOTHING)

Lugar y fecha (Place and date) :
Barcelona, 2002/11/05

Fecha primera emisión (First issue date)
1999/11/27

El cumplimiento de la norma con respecto al alcance indicado ha sido verificado por el auditor jefe de DNV (The compliance to the standard with respect to the scope indicated has been verified by the DNV lead auditor)
Teresa Soley Zapata

ENAC
Entidad Nacional de Acreditación
CERTIFICACIÓN
Nº 03/EC/SC/005/96

Unidad acreditada (Accredited Unit)
DET NORSKE VERITAS ESPAÑA

Ivo Kvesic
Director (Director)

La no satisfacción de las condiciones expuestas en el Apendice a este certificado dará lugar a la invalidación del mismo. La validez de este certificado está sujeta a revisiones periódicas - como mínimo anuales - y a la revisión completa del sistema con periodicidad trienal. (Lack of fulfillment of conditions as set out in the Apendix may render this certificate invalid. The validity of this certificate is subject to periodical audits - at least annual - and to a complete re-assessment of the system every three years).

DET NORSKE VERITAS ESPAÑA; Garrotxa 10-12; 08820 El Prat de Llobregat, Barcelona; Tel.: +34-93-479 26 00; Fax. +34-93-478 75 78; email: cert@dnv.es

MINISTERIO DE DEFENSA
MINISTRY OF DEFENSE

CERTIFICADO DEL SISTEMA DE LA CALIDAD
QUALITY SYSTEM CERTIFICATE

EXP Nº- 7003 / 00 / 00 / 01

La Dirección General de Armamento y Material (DGAM), del Ministerio de Defensa español certifica que el Sistema de Aseguramiento de la Calidad adoptado por la Empresa:
The Directorate General of Armament and Materiel (DGAM) of the Spanish Ministry of Defence certifies that the quality assurance system adopted by the firm:

CIMSA, INGENIERÍA DE SISTEMAS, S.A.

para:
for:

FABRICACIÓN DE TODO TIPO DE PARACAIDAS, PARAPENTES, SISTEMAS DECELERADORES, ARNESES, CONTENEDORES Y SISTEMAS EXTRACTORES DE PARACAIDAS, CHALECOS SALVAVIDAS Y DE SUPERVIVENCIA, MOCHILAS, REDES, ESLINGAS, EMPAQUES, INDICADORES DE VIENTO, EQUIPAMIENTOS MILITARES Y VESTUARIO TÉCNICO.

MANUFACTURING OF ALL TYPE OF PARACHUTES, PARAGLIDERS, DECELERATION SYSTEMS, HARNESS, CONTAINER AND EXTRACTION SYSTEMS, LIFE JACKETS, SUVIVAL JACKETS, NETS, PACKINGS, SLINGS, WIND INDICATORS, TECHNICAL AND MILITARY EQUIPMENT AND CLOTHING.

que se realiza/n en el establecimiento:
which is/are carried out in the establishment:

POLÍGONO INDUSTRIAL EL RAMASSAR - C/ EL VALLES, S/N 08520 LAS FRANQUESAS (BARCELONA)

es conforme con las exigencias de la norma **PECAL/AQAP 120** Requisitos OTAN de Aseguramiento de la Calidad para Producción.
Complies with the requirements of the standard **PECAL/AQAP 120** *NATO Quality Assurance Requirements for Production.*

El presente Certificado es válido salvo suspensión o retirada notificada en tiempo por la DGAM.
This Certificate is valid unless it is cancelled or withdrawn upon DGAM´s written notification.

Fecha de emisión: **06 / 07 / 2000**
Issued on

Válido hasta: **06 / 07 / 2003**
Expires on

Aprobado por
Approved by

El Director General de Armamento y Material
The Director General of Armament and Materiel

Fdo: Miguel Valverde Gómez

El Jefe del A.I.I.
The Chief of Q.A. Department

Fdo: Francisco J. Illana Salamanca

Area de Inspecciones Industriales - Raimundo Fernández Villaverde, 50 - 28003 MADRID - Fax 5333528
F4311.101

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1. CIMSA Ingeniería de Sistemas, S.A.

Since its creation in 1934, CIMSA Ingenieria de Sistemas, S.A., designs and manufactures its own line of parachutes to satisfy the customers' operational requirements with guarantee of maximum quality, safety and service. The Company has devoted its main efforts to the design, development and manufacturing of parachutes for the Spanish Armed Forces and other Armies around the world. The know-how accumulated along the years has allowed CIMSA to quickly respond to the new requirements imposed by the users.

CIMSA Ingenieria de Sistemas, S.A. is certified under NATO AQAP 120 quality assurance procedures by the Ministry of Defence of Spain; ISO 9001:2000 awarded by DNV; and currently obtaining the JAR-21 certification by the Spanish National Civil Aviation Authority (DGAC)(member of the JAA).

Since the first parachute until today, CIMSA has developed a complete range of military parachutes for troop personnel, both steerable and non-steerable, cargo drop, extraction, emergency for aircraft pilots and crews, aircraft braking, rocket/torpedo stabilizers and illuminating flares. Likewise, it provides an extensive range of inflatable and permanent buoyancy life preservers.

Nowadays, CIMSA, as an active member of the Parachute Industry Association is present in the civil market with the most radical designs of sport parachutes that are worldwide recognised and successful; in space industry with partnerships to develop and manufacture the Ariane 5 European space launcher solid fuel rocket boosters recovery system, and in the military field offering its products throughout the world, like the sophisticated Eurotorp stabilizer system. Additionally, it is a member of the EuroChute consortium awarded with the design and manufacturing of the new European aircraft Eurofighter-2000 braking parachute.

CIMSA extensive range of products includes:

The state-of-the-art TP-2Z Personnel Troop Parachute System, fully designed and manufactured by CIMSA Ingenieria de Sistemas, which allows a variety of round canopy and pack tray configurations according to the specific requirements of each paratroop unit with the newest developments on canopy performance and safety for the parachutist.

The TP-2Z Personnel Troop Parachute System was selected by the Spanish Armed Forces (Army, Air Force and Navy) as the replacement of the outdated T-10 and MC1 parachute series.

The TPM-Plus High Glide Military System, currently in use by the Spanish Armed Forces (Special Ops., Pathfinders and LRRP –Long Range Reconnaissance Patrols) and other units worldwide, is specifically designed for HALO/HAHO infiltration, Free Fall Training and Exhibition jumps in its various versions.

The TPM-Plus versatily allows the user to combine different high glide tactical PLUS canopies of Seven, Nine and Eleven-Cell depending on the type of infiltration required by the mission (HALO, HAHO, SAR, CSAR,...).

Last Generation high performance sport canopies, designed with the most advanced software tools to provide the skydiver with the most exciting experiences, tailored to each specific user.

Sport ram-air canopies like Equinoxe, the safest RC reserve canopies, semi-elliptical high performance canopies like Maxum or Vectra; full elliptical like Pursang; the Quantum CRW, and the complete range of Tango sport harness/containers.

Tango Sport Harness/Container

Cargo Drop Parachutes for heavy loads, like G-11, G-12, y G-14.

Extraction parachutes from 10,5 ft to 28 ft for LAPES and PLADS.

A-22 Cargo Delivery Containers for mission payload preparation and drop.

T-10 and MC1 troop personnel parachute series under US MIL-Specs for those armies in which they are still in service.

Free fall parachute training systems with round canopies for the first learning stages of classical training systems.

Type certified emergency parachutes for pilots, aircrews, jumpmasters and flight instructors. The SE-150 emergency parachute system, available in civil and military version, incorporates two Capewell canopy releases and a bright colour canopy for immediate location upon landing.

The SE-150 emergency parachute system is available in back type configuration for higher freedom of movement; and chair type configuration, for higher cockpit comfort.

CIMSA Ingeniería de Sistemas, S.A. designs and produces bomb and torpedoes stabilisation systems, like the various models for the MU-90 vessel, plane and helicopter torpedoes.

The MU-90 is a NATO 323,7 “fire-and-forget” torpedo system of 304 kg. and 2850 mm. length, designed with the latest technology to find and locate any type of conventional or nuclear submarine.

CIMSA Ingeniería de Sistemas, S.A. is member of the Eurochute Consortium, responsible for the design, development and production of the Eurofighter 2000 braking parachute system.

The use of this braking parachute system provides a serious reduction in operational and overhaul costs, as well as shortest landing distances, increase of the plane's life cycle and increase of safety in wet and icy landing ways.

Inflatable Life Preserves for parachutists and special operations units, like the SASPA-30, compatible with any parachute or similar harness system.
The SASPA-73 inflatable life preserver, with two buoyancy bladders, specially indicated to provide comfort and safety for aircrew and pilot operations.

The SAPHAN survival vest for helicopter pilots and aircrews, which includes several compartments to hold a complete survival kit.

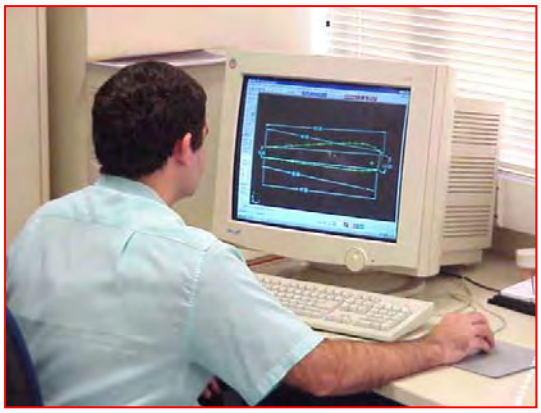
The last generation SASPA-99 inflatable life preserver for helicopter pilots and aircrew, which includes two high buoyancy bladders with manual activation systems, complete survival kit included.

The NM CH-2792 inflatable life preserver for surface vessels and submarines, currently in use by the Spanish Navy.

To achieve this position, CIMSA Ingeniería de Sistemas, S.A. has followed a deep modernisation program to update and optimise all its business and industrial structure. A new management team using innovative management and development techniques, together with optimised QC and service, new and increased production machines and facilities with the most innovative software and hardware tools, support the growing international recognition.

CIMSA's new 5,000 m^2 facilities in Las Franquesas (Barcelona – SPAIN) are the most advanced parachute production facilities. CIMSA differs from other parachute manufactures by its quality standards certified by the ISO 9001:2000, NATO AQAP/PECAL-120 by the Spanish MoD and currently on the process to obtain the JAA/JAR-21 by DGAC Spanish National Aviation Authority.

CIMSA new facilities comprehend a wide production area divided in different product confection lines, computerised fabric cutting section, QC laboratory, electronics workshop, mechanical workshop, warehouse and logistics areas, as well as technical office and production planning. The offices include administration, marketing, purchases and management.



2. General Information

Designed and manufactured with the highest ISO 9001:2000 quality standards and NATO Specifications; compliance with JTSO C23d standards.

The ***TANGO*** is designed and tested to satisfy those skydivers who look for a true compromise of enjoyment and reliability with comfort, easy packing and low maintenance.

Manufactured in Cordura 1000 Ds in different sizes (Size T-0 until size T-8) for every canopy size, the ***TANGO*** assures the safety and comfort to enjoy skydiving.

The ***TANGO*** is also available in ***AFF STUDENT*** version.

STANDARD CONFIGURATION

Stainless Steel 3-Ring system
1-Pin Main & Reserve Container
TY-8 Standard or TY-17 Main Risers
Riser Dive Loops (Mini Risers)
Molar Reserve Bag
Reserve Ripcord Handle or Soft Pillow
Plastic Handle Pilot Chute
BOC Deployment
Main Bridle Protection
Riser Cover without Velcro
Main & Reserve Toggles
Kill-Line Collapsible Pilot Chute Optional
High Density Leg Pads
RSL & CYPRES Ready

3. Operational Limits

The TANGO harness and container system is limited for the use by persons up to 116 kg. (254 Lbs.) fully equipped, and up to 150 knots.

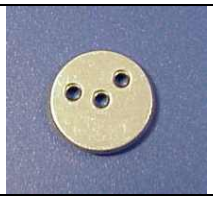
4. TANGO Harness/Container Assembly and Parts

DESCRIPCION	P/N	
TANGO Harness/Container Assembly with Accessories	406002-( )	

4.1. TANGO Harness/Container Parts

DESCRIPCION	P/N	
Tango Harness /Container	333402-( )	
Deployment Bag, Main, with Collapsible Pilot Chute	393107-( )	

Deployment Bag, Main	393105-( )	
Hand Deploy Pilot Chute Bridle	370023	
Hand Deploy Pilot Chute	321010-1	
D-Bag, Reserve	393103-( )	
Pilot Chute, Reserve	321005	
Riser, Right, Large	373008	
Riser, Left, Large	373007	
Riser, Right, Mini	373006	
Riser, Left, Mini	373005	

RSL, Reserve Static Line	270043	
Cutaway	380007	
Ripcord, Reserve	380008	
Loop, Main	230373	
Washer, Main Loop	200157	
Loop, Reserve	230385-7	
Washer, Reserve Loop	230385-6	
Toggle, Main	270045	
Toggle, Reserve	270040	

5. Equipment Inspection

IT IS ESSENTIAL TO PERFORM A THOROUGHLY INSPECTION OF EACH OF THE COMPONENTS OF THE SYSTEM, SO MUCH IN A NEW EQUIPMENT AS AFTER EVERY OPERATION. ANY DEFECTIVE OR DAMAGED COMPONENT SHALL BE REPLACED OR REPAIRED, BY AUTHORIZED PERSONNEL ONLY, BEFORE INITIATING THE PACKING PROCEDURES.

5.1. Harness and Reserve Risers

Inspect the harness for frayed, cut or damaged webbing, broken stitching and stains. Carefully inspect the hardware for burrs, cracks and deformation. Check all hardware for rust.

Inspect the cut-away housings and reserve ripcord housing; inspect the cut-away Velcro function and elastic webbing retainers.

Replace the harness part if the webbing is damaged and/or the hardware is deformed. Replace worn harness webbing retainers.

5.2. Main and Reserve Pack Assembly

Inspect the pack assembly for tears, cuts, loose binding, broken stitching and worn out. Check flaps; inspect the pack flap grommets for deformation and cracks. Check locking loops for wear. Repair all damaged stitching and loose binding. Replace any damaged grommet and replace damaged or missing locking loops.

5.3. Main Risers

Inspect the riser webbing for damage, fraying, cuts or abrasion burns. Inspect toggle retainers, stainless steel grommets, the Velcro hook and pile tape and the control line ring. Inspect the small and middle rings (3-ring system) for cracks, burrs and deformation. Inspect the middle ring riser loop and the middle ring attachment loop for frayed, cut or damaged webbing. Inspect cord loop for damages, frayed or broken yarns. Inspect the stainless steel grommets.

5.4. 3-Ring Release System

Inspect the 3-Ring release system as specified in section 10 of this manual.

5.5. Main and Reserve Deployment Bags

Inspect the deployment bag for broken stitching, loose or damaged binding, cut, tears stains and damaged grommets. Replace all damaged grommets and missing/broken rubber bands. Replace safety stow loop on reserve deployment bag if elastic is broken or damaged.

5.6. Pilot Chute Bridle.

Inspect the main and reserve pilot chute bridle for broken stitching and damage to the bridle webbing or tape. Repair the broken stitching as specified. In the event the tape is frayed or damaged, replace the bridle.

5.7. Reserve Pilot Chute

Inspect the pilot chute for broken stitching, tears, damage to the net, attachment loop and the spring for damage or deformation. If the spring is damaged or deformed, replace the pilot chute. If the net is damaged, replace the pilot chute.

5.8. Hand Deploy Pilot Chute

Inspect the pilot chute for broken stitching, tears or damage on the net. If the fabric is damaged, patches can be sewn following instructions of paragraph 8.2.3. If the net is damaged replace the pilot chute.

5.9. Reserve Static Line

Inspect the reserve static line for broken stitching, damage or deformation and for cracks or burrs on the rings. Any damage to the static line or the rings shall be cause for replacement.

5.10. Main Riser Cut-Away Cable and Grip Assembly

Inspect the grip for damage, inspect the nylon jacketed stainless steel cable for damage to the jack and exposed cable. Inspect the ends of the jacketed cable for sharp ends and exposed cable. If required, smooth the ends of the jacketed cable with a fine grade emery paper or with cigarette lighter. Do not expose the cable ends. Clean the cable jacket and apply, with a clean rag, a light coating of silicone oil. In case of damage to the cable or the jacket, replace assembly.

5.11. Reserve Ripcord

Inspect the ripcord for damage to the cables such as kinks, broken strands or frays. Check the ripcord pins for burrs, cracked shanks or bent pins. Check the ripcord handle for cracks, sharp edges around the cable hole through the ripcord grip, and rust.

5.12. Locking Loops

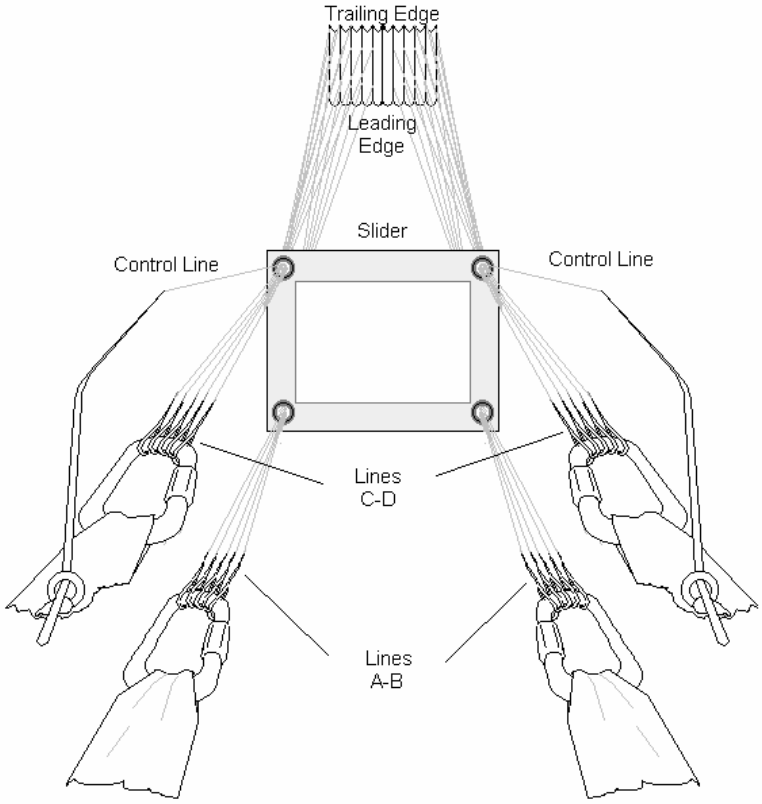
Check that both main and reserve locking loops are well maintained. Replace them in the case of possible breaks or degradation.

6. Main Container Packing Instructions

Place open harness/container on the floor and inspect carefully the main parachute assembly to determine that there are no damages in the system and it is airworthy.

Check that the leading edge is facing the floor and suspension lines are extended from connector links to the edges of the canopy without knots or tangles. With main risers already attached to the harness/container, connect the main canopy with main risers.

To lock connector links, screw on the barrels completely until the thread is fully covered. Then tighten them with a ¼ additional turn using an adjustable spanner or similar tool.



6.1. Connecting the control lines to the steering toggles.

The TANGO harness/container assembly has its own main steering toggles which are perfectly compatible with its risers. This is very important to avoid malfunctions.

Respect canopy assembly instructions when connecting them, making the connection in the correct place of the control line. Otherwise, the canopy will be too flared and the steering toggle response will not be the appropriate.

It is very important to check that the connection is properly fixed (with no chance of accidental unfastening). A control line come out could result in dangerous situations and may require a cut away and reserve canopy opening.

Steps to connect steering toggles are the following:

1.- Walk the control line from the trailing edge towards the other extreme of the line. Check that it is not tangled with suspension lines.

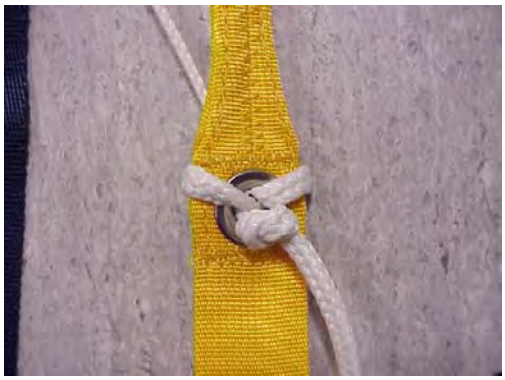
2.- Pass the control line through the corresponding rear grommet of the slider.

3.- Pass the control line through the guiding ring of the rear main riser.

4.- Pass the extreme of the control line through the grommet of the steering toggle, from the rear to the front. Reference mark of the control line must be aligned with the grommet entrance.

5.- Make a loop with the control line passing it again, in the same direction, through the grommet. The reference mark must remain aligned with the grommet entrance.

6.- Make a second loop in the same way until completing an “8” shape. Knot the extreme of the control line to avoid that the “8” shape loop may slip.



6.2. Connecting the main pilot chute to the pilot chute bridle.

The supplied pilot chute is separated from the pilot chute bridle. Therefore, it must be attached.

Pass loop Nr. 1 of the pilot chute bridle through the loops of the union bands and the anti-squid line, in the base of the pilot chute. Next, pass the extreme of loop Nr. 2 of the bridle through loop Nr. 1. Pull firmly to fix.

6.3. Assembling the pilot chute bridle and main deployment bag

1.- Pass the free extreme of the pilot chute bridle through the grommet of the main deployment bag, checking that the bridle stopper remains out of the deployment bag.

2.- Pass the free loop Nr. 2 of the pilot chute bridle through the connection ring of the main canopy. Next pass the connected pilot chute and deployment bag through this loop.

3.-Pull to fix, being careful to avoid friction of pilot chute bridle with union bands/chords when fixing the knot.

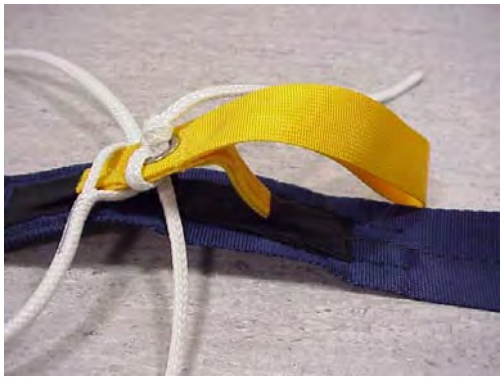
7. Main Canopy Packing

7.1. Setting Deployment brakes

Ram-air canopies have deployment brakes in order to have a regular and reliable canopy inflation. Therefore, it is very important to set these brakes properly to avoid possible malfunctions. These are the steps to follow:

1.- Pull the toggle until the brake locking loop passes through the guide ring of the rear riser.

2.- Insert the upper part of the toggle through the brake locking loop and, once inserted, fit the toggle upper and lower part into the pouches above and bellow the guiding ring. Pull the control line until the toggle is in touch with the guide ring.



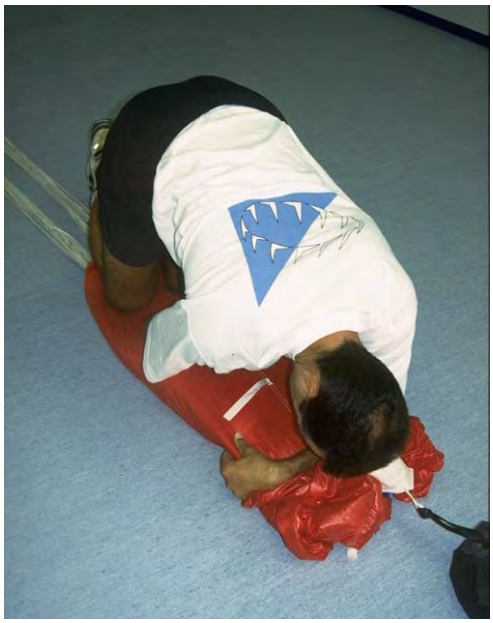
3.- “S” fold the remaining of the control line inside the elastic pouch placed under the same rear riser.

7.2. Introducing main canopy into the main container.

Once the main canopy is packed as per manufacturer's instructions, lay carefully the canopy over the floor, checking that there are no unfolds and suspension lines do not loose their tension. It is important not to leave the suspension lines on the floor until the canopy is not completely laid over.

Place your knees over the slider grommets and tuck the sides under, starting from the slider and working up, making the canopy look like a "cigar".

The width of the "cigar" will be determined by the width of the deployment bag entrance.



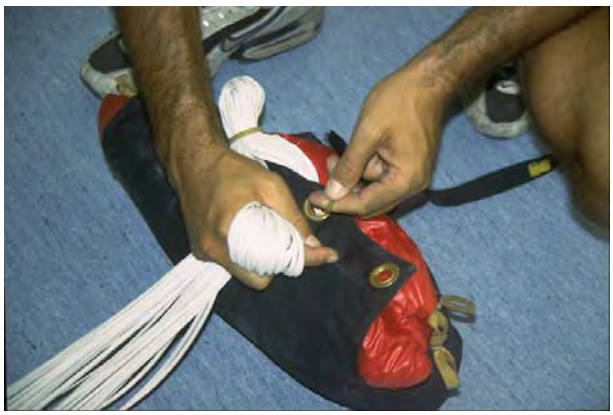
Place yourself on the side of the canopy. Put one hand under the slider and the other one 25 cm (10”) away over the “cigar”. “S” fold about 25 cm (10”). Check that suspension lines remain tense during this operation.

Next, with one hand maintaining this fold, “S” fold the “cigar” over itself from the opposite extreme.

Put your knees over and introduce the remaining fabric inside the last fold obtaining a compact pack. The connection ring of the canopy and the pilot chute bridle must be perfectly visible.

Put your knees over the pack and, facing the pilot chute, prepare the deployment bag to introduce the canopy. Introduce the pack into the bag. Introduce carefully the corners to obtain a compact packing.

Close the flap of the deployment bag by passing the elastic rubber bands through the grommets. Lock it by stowing the suspension lines in both central grommets.

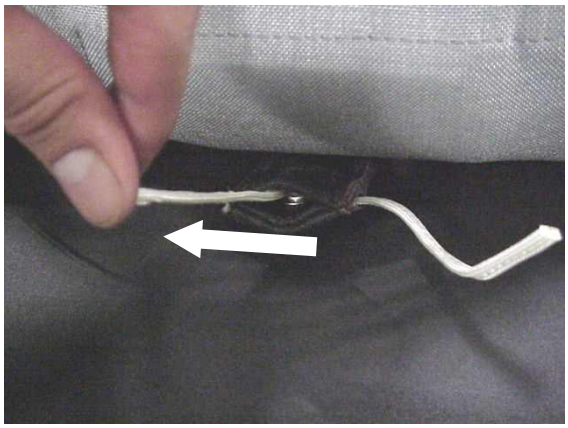


The loop of the suspension lines stow must not exceed 4 cm (1 ¾") from the elastic rubber band.

Stow alternatively the rest of suspension lines in the remaining elastic rubber bands, leaving about 30-40 cm of free suspension lines to the main harness/container.

Pull the pilot chute bridle to check that the connection ring of the canopy is not trapping canopy fabric and it is stopped inside the deployment bag by the grommet.

In this moment deployment bag is ready to be introduced into the main harness/container. Introduce main closing loop in the tape of upper part of the bottom of container.



Tide the main risers prior to introduce the main deployment bag.

Introduce the deployment bag.

7.3. Closing main harness/container.

1.- Using a pull-up chord and a spare locking pin, close lower flap Nr. 1, making the pilot chute bridle lay out to the right side. Next, close upper flap Nr. 2.

2.- Close alternatively side flaps Nr. 3 and 4.

3.- Fasten the Velcro of the pilot chute bridle to the closed upper flap. Introduce the curved locking pin in the closing loop. Remove pull-up chord.

4.- Place the pilot chute bridle under closing flap and under the bottom bridle protection.

7.4. Folding the pilot chute.

Extend the pilot chute as shown, with the net at sight.

Fold half of the pilot chute over the other half.

Fold alternatively 1/3rd of the pilot chute over the other one. “S” fold the remaining pilot chute bridle over the pilot chute..

Fold one side of the pilot chute over the “S” folded pilot chute bridle, and then the other side as shown.

Then fold the pilot chute by the middle.

Insert the pilot chute into its pouch. Introduce the spare pilot chute bridle under the right side flap and the bridle protection.

Close the locking pin protection flap of the main container.

Inspect the risers so that they are properly tied and close the riser covers. Be sure to introduce the riser cover flaps into the corresponding pouches, under main and reserve risers.



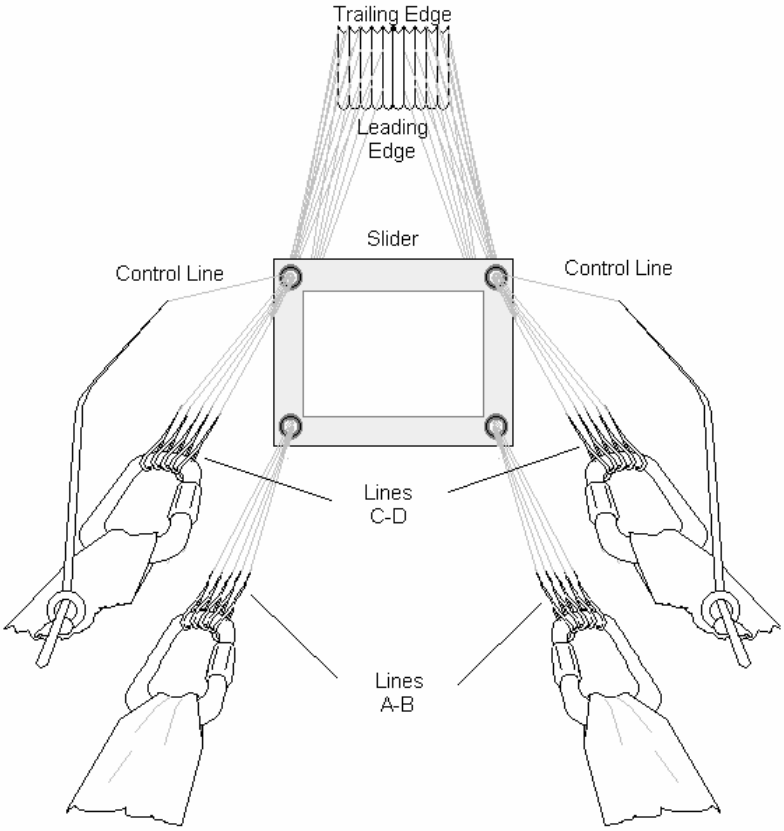
Your TANGO is ready to be jumped.

8. Reserve Canopy Assembly

Place open harness/container on the floor and inspect carefully the reserve parachute assembly to determine that there are no damages in the system and it is airworthy.

Check that the leading edge is facing the floor and suspension lines are extended from connector links to the edges of the canopy without knots or tangles. Connect the canopy to the risers.

To lock connector links, screw on the barrels completely until the thread is fully covered. Then tighten them with a ¼ additional turn using an adjustable spanner or similar tool.



8.1. Connecting the control lines to the steering toggles.

The TANGO harness/container assembly has its own steering toggles which are perfectly compatible with its risers. This is very important to avoid malfunctions.

Respect canopy assembly instructions when connecting them, making the connection in the correct place of the control line. Otherwise, the canopy will be too flared and the steering toggle response will not be the appropriate.

It is very important to check that the connection is properly fixed (with no chance of accidental unfastening). A control line come out could result in danger situations, requiring a cut away and reserve canopy opening.

8.1.1. Dacron control lines.

Steps to connect steering toggles are the following:

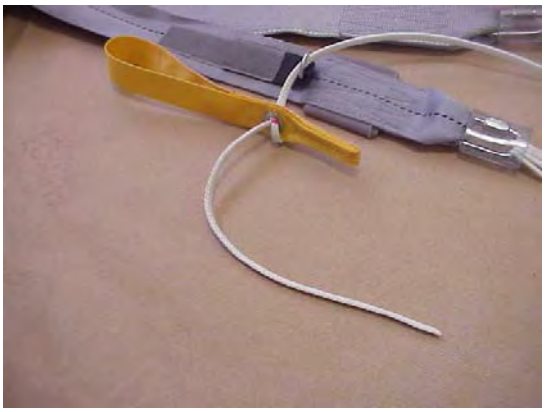
Walk the control line from the trailing edge towards the other extreme of the line. Check that it is not tangled with suspension lines.

Pass the control line through the corresponding rear grommet of the slider.

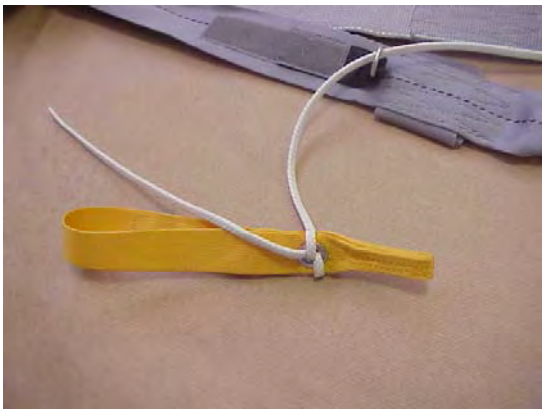
Pass the control line through the guiding ring of the rear riser.

Pass the extreme of the control line through the grommet of the steering toggle, from the rear to the front. Reference mark of the control line must be aligned with the grommet entrance.

Make a loop with the control line passing it again, in the same direction, through the grommet. The reference mark must remain aligned with the grommet entrance.



Make a second loop in the same way until completing an “8” shape.



Knot the extreme of the control line to avoid that the “8” shape loop may slip.

8.1.2. Microline control lines

Steps to connect steering toggles are the following:

Walk the control line from the trailing edge towards the other extreme of the line. Check that it is not tangled with suspension lines.

Pass the control line through the corresponding rear grommet of the slider. Pass the control line through the guiding ring of the rear riser.

Pass the extreme of the control line through the grommet of the steering toggle, from the rear to the front. Pass the lower part of the toggle through the control line loop of the extreme.

Move the loop along the toggle up to the grommet of the toggle. Pull to fix. Attach the toggle to the velcro on the riser.

8.2. Assembling the reserve pilot chute with the Reserve pilot chute bridle.

The supplied pilot chute is separated from the pilot chute bridle. Therefore, it must be properly attached.

Pass the pilot chute bridle through the loops of the union chords in the base of the pilot chute. Next, pass the longest extreme of the bridle through the loop that has been passed through the union chords. Pull to fix.

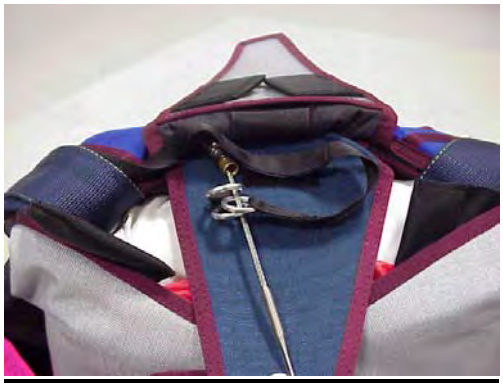
8.3. Connecting the Reserve Static Line (RSL)

Inspect RSL for broken stitching or damages in the tape, snap or ring.

1.- Connect the snap of the RSL to the lateral ring of the left main riser.

2.- Fasten the Velcro of the RSL with the left reserve riser, aligning both positions.

Once the reserve parachute is packed and introduced into the reserve container, before closing the container, the reserve ripcord cable must be passed through the ring of the RSL, and in between the two rings of the reserve closing flap.

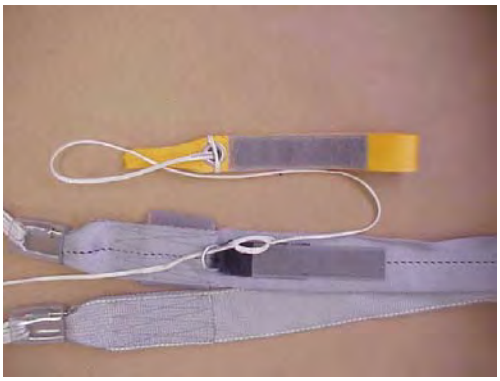


9. Reserve Canopy Packing

WARNING!!!
Reserve canopy can only be packed by an authorised and certified rigger.

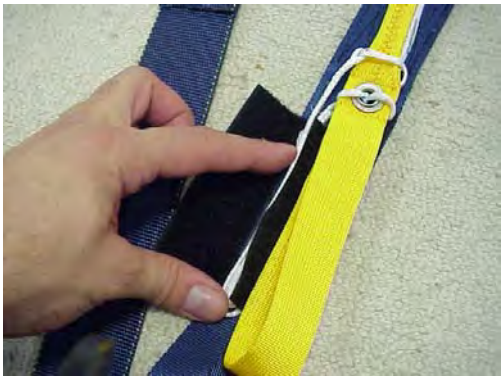
9.1. Setting deployment brakes

1.- Pull the toggle until the brake locking loop passes through the guide ring of the rear riser.



2.- Insert the upper part of the toggle through the brake locking loop and, once inserted, attach the toggle to the Velcro of the riser. Pull the control line until the end of the toggle is in touch with the guide ring.

3.- “S” fold the remaining of the control line inside the side cover.



9.2. Packing

Arrange reserve canopy as per canopy manufacturer instructions.

Pass the “T” tool through the grommets on the centre of the reserve deployment bag so that we can pass the closing loop afterwards.

Place yourself on the side of the canopy. Put one hand under the slider and the other one over the bundle. “S” fold it and check that suspension lines remain tense during this operation.

Divide the trailing edge in two sections.

Fold each section as seen in the picture.

The following picture shows how the canopy must be packed before being introduced into the reserve deployment bag.

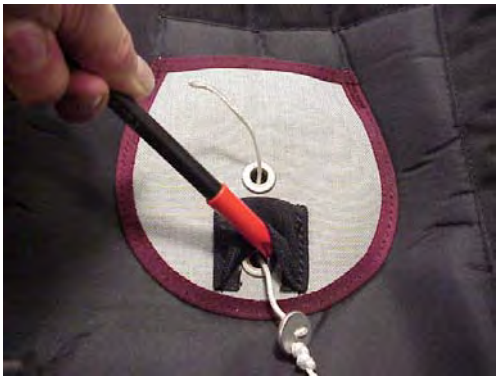
Insert carefully the canopy into the bag, starting by one of the folded sections. Therefore, the area of the grommets must be surrounded with all the cloth in order to ease the pass of the closing loop.

Close the flap of the deployment bag by passing the elastic bands through the grommets. Lock it by stowing the suspension lines in both elastic bands.

To stow the suspension lines, open the pouch attached to the lower part of the reserve deployment bag, fasten two spare Velcro pieces of about 10 cm to ease the stowing. Then “S” fold the suspension lines into the pouch. Lines must be extended across the total width of the bag. Check that no line is trapped with the Velcro fasteners that close the pouch.

9.3. Closing the reserve harness/container

Introduce the CYPRES reserve locking loop, and pass a pull-up chord through the closing loop.



Place the risers on the sides of the harness/container and insert the bag into the reserve container. Using the “T” tool, pass the pull-up chord through the grommets of the deployment bag.

Close lower flap Nr. 1 by passing the pull-up chord. Use a spare locking pin to maintain the position.

“S” fold the pilot chute bridle of the reserve pilot chute over the flap.

Pass the pull-up chord through the grommet in the center of the pilot chute.

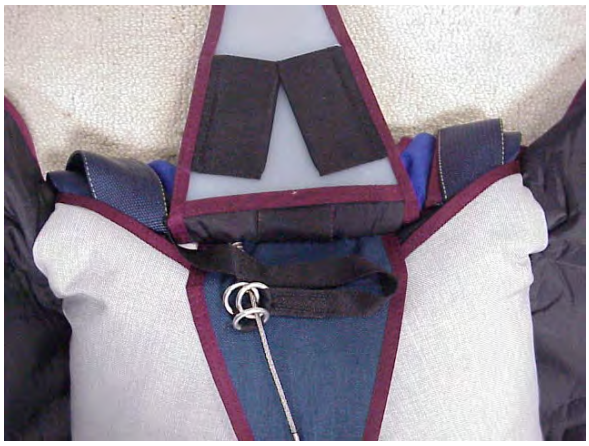
Compress the pilot chute and lock it with the spare locking pin. Pull out the pilot chute fabric from the spring to avoid being trapped.

Arrange the fabric of the pilot chute in big folds. It is important that the fabric is not trapped with the sides of the reserve container so that it can exit freely in the case of reserve container opening.

Close side flaps Nr. 2 and 3.

Close external lower flap.

Close external upper flap. If the RSL is to be connected, is to be done prior closing the last flap of the reserve container. Pass the reserve ripcord pin through the ring of the RSL and then lock the external upper flap. Remove the pull-up chord.



11.- Close the protection flap that covers the ripcord pin.

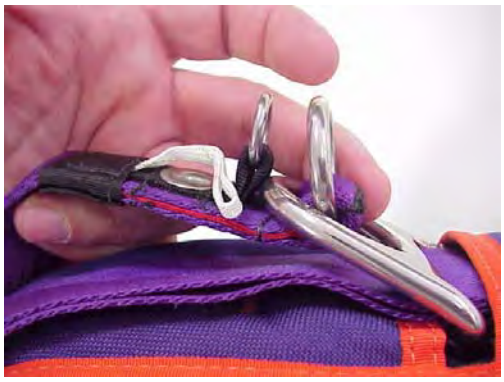
10. Three-Ring Release System

The 3-ring release system allows the cut away of the main canopy with a single operation.

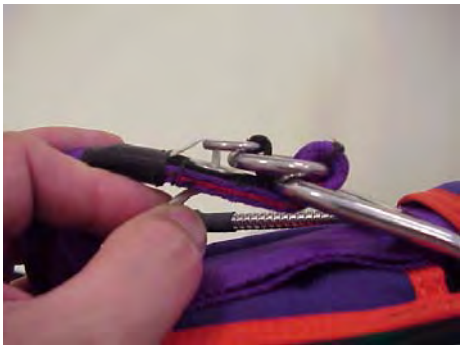
The assembly is formed by three rings in the way that each ring is smaller than the following one. The strength gear down effect depends upon the precision of the construction. Therefore, any modification may result in cut away problems and, generally, possible malfunctions.

10.1. Assembling the rings

Before connecting the riser, check that there are not tangles and the canopy is correctly assembled. Pass the medium ring through the big ring. Then pass the small one through the medium ring.



Pass the loop attached to the riser through the small ring and the grommet of the riser.




Pass the loop through the grommet of the cut away cable housing. Pass the yellow cable through the loop.

Introduce the extreme of the cable into the corresponding pouch of the rear riser.

Attach the cut-away grip to the Velcro in the harness.

10.2. Maintenance

1.- The 3-ring system must be released at least once per month. Pull the cut away cable and disconnect the risers.

2.- Check that there is no deterioration. Check that the white loop does not present excessive tear or deterioration.

3.- Check that the Velcro that holds the cut away pad is clean and fastens properly.

4.- Check that the extremes of the yellow cables are soft and do not show any part that could block the cut away by the “hook” effect.

5.- Inspect stitching.

6.- Take the three-ring assembly and twist it in both directions in order to eliminate any possible malfunctions. Proceed in the same way with the white loop.

7.- Clean the yellow cable and spread some silicon on it, leaving a thin film to protect.

8.- Connect again the risers with the harness/container checking that there are no tangles.

9.- If there is any damage or deterioration, you must consult CIMSA Ingenieria de Sistemas, S.A. or a certified rigger.

11. CYPRES Installation

Position the processing unit into the elastic pouch on the bottom of reserve container, so that the spare cable pocket is to the right.

The release unit (EOS) cable should be routed via flap Nr. 1 and 2.

Align the release unit (EOS) so that it lies parallel to the long axis of the container, ensuring that the loop hole is in line with the right hand inner edge of the grommet.

Control unit should be passed up to the top of reserve container through the textile housing on the container.

Control unit should be introduced into the transparent pocket on the back of the container.

12. Part List

ITEM		P/N
TANGO* Conjunto Arnés/Contenedor *(Harness/Container Assembly)	**S/N:**	**406002-( )**

ITEM	P/N	CANT (QTY)	
Arnés/Contenedor (*Harness/Container*)	333402-( )	1	
Banda de Suspensión Derecha Ancha (*Right Riser,Large*)	373008	1	
Banda de Suspensión Izquierda Ancha (*Left Riser, Large*)	373007	1	
Banda de Suspensión Derecha Mini (*Right Riser, Mini*)	373006	1	
Banda de Suspensión Izquierda Mini (*Left Riser, Mini*)	373005	1	
Bolsa de Despliegue Principal (*Main Deployment Bag*)	393105-( )	1	
Bolsa de Despliegue Principal con Pilotillo Colapsable (Tirador Plástico) *(Main Deployment Bag with Collapsible Pilot Chute - Plastic handle)*	393107-( )	1	
Bolsa de Despliegue Principal con Pilotillo Colapsable (Tirador Pelota) *(Main Deployment Bag with Collapsible Pilot Chute - Hackey-sack handle)*	393102-( )	1	
Cinta de Unión Pilotillo de Mano *(Hand Deploy Pilot Chute Bridle)*	370023	1	
Pilotillo de Mano con tirador plástico *(Hand Deploy Pilot Chute with plastic handle)*	321010-1	1	
Pilotillo de Mano con tirador pelota *(Hand Deploy Pilot Chute with hackey-sack handle)*	321010	1	
Bolsa de Despliegue Reserva *(Reserve Deployment Bag)*	393103-( )	1	
Pilotillo Reserva (*Reserve Pilot Chute*)	321005	1	
Cinta Estática Reserva (*RSL*)	270043	1	
Almohadilla de Liberación (*Main Riser Cut-Away Cable)*	380007	1	
Cable de Mando Reserva (*Reserve Ripcord*)	380008	1	
Loop Principal (*Main Loop*)	230373	1	
Arandela Loop Principal *(Main Loop Washer)*	200157	1	
Loop Reserva (*Reserve Loop)*	230385-7	1	
Arandela Loop Reserva *(Reserve Loop Washer)*	230385-6	1	
Mando Control Principal (*Main Toggle*)	270045	2	
Mando Control Reserva (*Reserve Toggle)*	270040	2	

Fecha *(Date):*	*Revisado por (Inspected by):*

13. NSN/NOC

ITEM	P/N	NSN
TANGO Harness/Container Assembly	**406002-( )**	**1670-33-200-0028**

ITEM	P/N	NSN
Harness/Container	333402-( )	**Pending**
Right Riser, Large	373008	**1670-33-200-8389**
Left Riser, Large	373007	**1670-33-200-8388**
Right Riser, Mini	373006	**1670-33-202-7598**
Left Riser, Mini	373005	**Pending**
Main Deployment Bag	393105-( )	**1670-33-202-7593**
Main Deployment Bag & Collapsible Pilot Chute	393107-( )	**Pending**
Hand Deploy Pilot Chute Bridle	370023	**1670-33-200-8387**
Hand Deploy Pilot Chute	321010-( )	**1670-33-200-8385**
Reserve Deployment Bag	393103-( )	**1670-33-200-8393**
Reserve Pilot Chute	321005	**1670-33-108-1999**
RSL - Reserve Static Line	270043	**1670-33-200-8378**
Main Riser Cut-Away Cable	380007	**1670-33-200-8391**
Reserve Ripcord	380008	**1670-33-200-8392**
Main Loop	230373	**1670-33-202-4858**
Main Loop Washer	200157	**Pending**
Reserve Loop	230385-7	**Pending**
Reserve Loop Washer	230385-6	**Pending**
Main Toggle	270045	**Pending**
Reserve Toggle	270040	**Pending**