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Sicherheitsmitteilung
SM 20200501

Datum: 01.05.2020
Bezug: PIA-COVID-19-Letter vom 14.04.2020

Betroffene Muster: Betrifft alle textilen Fallschirmsysteme

Status: Klarstellung; fortlaufend bei Handhabung mit Fallschirmsystemen/textilen Luftfahrtgerät

Grund: Aufgrund der Lockerung der Verordnungen betreffend COVID-19 (SARS-CoV-2), muss darauf hingewiesen werden, inwieweit eine Desinfektion von textilen Luftfahrzeugen (Fallschirmsystemen) zu erfolgen hat. Da bei Anwendung von ungeeigneten Mitteln eine erhebliche, aber nicht durch Sichtprüfung auffindbare Beschädigung/Schwächung der Materialien erfolgen kann.

Maßnahme: Die Anweisungen in der Aussendung der Parachute Industrie Association (PIA) und der Herstellerangaben (gem. der Halterhandbücher) sind in der jeweils aktualisierten Fassung anzuwenden
(https://www.pia.com/wp-content/uploads/PIA-COVID-19-Letter.pdf).

Folgende Punkte sind zu beachten bei Handhabung von Fallschirmsystemen und Material:

1. Um eine Beschädigung oder Verminderung der Festigkeit des Material zu verhindern, dürfen keine aggressiven Reinigungsmittel oder Desinfektionsmittel auf Fallschirmmaterial angewendet werden.
2. Bei der Reinigung und Desinfektion von Arbeitsbereichen, soll dafür gesorgt werden, das Fallschirmsysteme/Materialien nicht damit in Berührung kommen können. Sollten Rückstände vorhanden sein, so können diese unter anderem, mit leichter (ph-Neutraler) Seifenlauge gereinigt werden, dies ist insbesondere der Fall wenn mit Bleichmitteln, Wasserstoffperoxiden oder anderen hoch aggressiven Mitteln desinfiziert wurde. Leichte rein alkoholhaltige Mitteln beschädigen zwar nicht Nylon Gewebe, jedoch dessen Beschichtung.
3. Bei Fallschirmsystemen/Material welches mit positiv getesteten oder COVID-19 Verdachtsfällen in Berührung gekommen ist oder einer Verunreinigung vermutlich ausgesetzt wurden sollten diese für mindestens 3 Tage separat gelagert werden und entsprechende Vorsichtsmaßnahmen für eine weitere Kontamination mit dem Virus zu verhindern.
4. Die allgemeinen und aktuell gültigen „Hygiene“- und Vorsichtsbestimmungen sollten gem. der nationalen Gesundheitsbehörde, Richtlinien und Verordnungen beachtet werden.

Sollte ein Hersteller keine Angaben zur Reinigung in seinem Handbuch geben und auch nicht mehr erreichbar sein, so sind die allgemeinen Reinigungsanweisungen aus dem Dan Poytner „The Parachute Manual Vol. 2“ Kapitel 7.92 (Seite 295/296) anzuwenden.

Verteiler: Systembetreuer, Vereine/Clubs/Schulen, Sektionsleiter, Händler,

FAA Österreichischer Aeroclub

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April 14, 2020

To: Parachute Riggers, Manufacturers, and Owners of Parachute Systems

Re: COVID-19 procedures for parachute systems and materials

This memo is for personnel working with parachute systems, components, and materials, as well as users of such systems. Since the onset of the COVID-19 (officially SARS-CoV-2) coronavirus pandemic, it is understandable that riggers and manufacturers are increasingly using disinfectant products in their workspaces. Further, parachute equipment and materials may be suspected of exposure to the coronavirus.

Based on public information from well-respected sources, the following recommendations apply when working with parachute systems and materials:

1. **To prevent damage and degradation, do not use cleaning solutions, disinfectants, or sanitizers on parachute systems and materials.**

2. When cleaning and disinfecting work surfaces, take care to isolate parachutes systems and materials from any cleaning solutions, disinfectants, and sanitizers. Further, ANY disinfectant that is applied to hard surfaces that are expected to come into contact with parachute textiles should be treated to prevent residue contamination. An example would be to follow the recommended disinfectant treatment with a water rinse and wipe down to remove any remaining residue. This is especially important for using disinfectants that contain chemicals such as bleach and hydrogen peroxide that are known to severely damage textiles, even in small quantities. Examples of hard surfaces that would require residue removal after disinfecting are pack tables, sewing machines and packing tools.

3. Assume all parachute systems and materials handled by or stored near people have been exposed to COVID-19. Store away from people for 3 days to reduce the likelihood of viable virus/RNA but consider that they may still be contaminated and take appropriate precautions.

4. Observe frequent "hand hygiene" and other guidelines from respected organizations such as the CDC.

These recommendations are based on the following sources and other statements from industry experts.

Recently, Bourdon Forge, a well-known manufacturer of parachute hardware, released a letter to its customers. Among other things, it stated:

> **Product Awareness Note:** Due to the nature of our plated products (cadmium and zinc), including the packaging materials such as cardboard, wood & barrels, the exposure to any moisture, humidity, water, liquids, disinfectants containing bleach or chlorinated compounds shall not be used. The use of any fluids will cause an abnormal attack on these cadmium or zinc parts by setting free in the presence of moisture, formic-acid, butyric acid, etc**. Please make this awareness known to your employees when handling our products.**

Further, the U.S. Army Combat Capabilities Development Command released a memo stating

> …The Aerial Delivery Engineering Support Team (ADEST) does not authorize the exposure of any of its textiles to cleaning, disinfecting and/or sanitizing chemicals that may be used in an effort to limit the spread of COVID-19, other viruses or microbes. Currently, there are no approved procedures of these types that have been tested, evaluated, and demonstrated as safe for use on critical safety materials such as parachute textiles.

They go on to state:

> If any cleaning, disinfecting or sanitizing processes are undertaken, all textiles shall be kept isolated and/or covered to protect from exposure to the chemical treatment.

While these memos were written to address specific communities, their concerns apply to all parachute riggers, manufacturers, and owners of parachute systems**.**

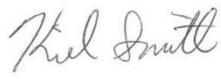
According to the CDC (US Centers for Disease Control and Prevention), COVID-19 is thought to spread mainly from person-to-person. They go on to say:

> It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes. This is not thought to be the main way the virus spreads, but we are still learning more about this virus. CDC recommends people practice frequent "hand hygiene," which is either washing hands with soap or water or using an alcohol-based hand rub. CDC also recommends routine cleaning of frequently touched surfaces.

According to a recent study from National Institutes of Health, CDC, UCLA and Princeton University scientists in The New England Journal of Medicine:

> The scientists found that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was detectable in aerosols for up to three hours, up to four hours on copper, up to 24 hours on cardboard and **up to two to three days on plastic and stainless steel**.

Kirk Smith



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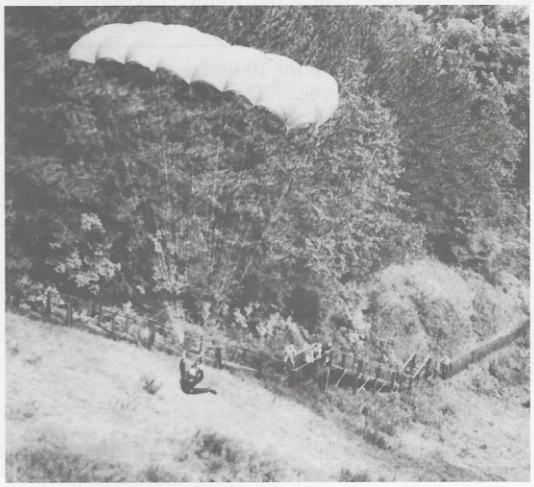
A light uphill wind is helpful, but not always necessary. Crosswinds of any significance produce problems which can rarely be overcome since quartering it reduces the glide in relation to the slope.



For wings with a glide of less than 3:1, an assist from another person and a short rope may aid one in getting aloft, since traction becomes difficult as the canopy ascends and begins to produce lift.

Adequate protective clothing is a necessity; slope soaring should not be attempted without helmet, boots, coveralls, and gloves.

For more on paragliding, see Chapter Five.

7.90.7 Wind tunnel testing

Wind tunnel tests provide controlled conditions for the acquisition of accurate performance data and aerodynamic characteristics.

Usually models are tested so that smaller, less expensive tunnels may be used. The inflated canopy should not exceed 15% of the tunnel throat area to avoid blocking effects.

Tunnels offer the advantages of close control, precision measurements and a greater number of tests in a short period of time. However, wind tunnels are not well adapted to the study of all of the parachute's aerodynamic characteristics. And, correlation of test results from similar models in different tunnels has not been good. The following characteristics may be satisfactorily determined in a tunnel:

1. Aerodynamic force and moment coefficients vs. angle of attack.
2. Geometrical properties of the inflated canopy.
3. Critical opening and closing velocities.
4. Dynamic stability of missile stabilizing systems.
5. Opening shock and other inflation characteristics.
6. Rotational velocities of auto-rotational canopies.
7. Force and inflation characteristics of reefed parachutes.

Most tests are conducted in horizontal tunnels where the effects of gravity must be considered. There are two government vertical tunnels in the U.S.: a 20' free spinning-closed model at Langley Field, Virginia, and a 12' round-annular return-open model at Wright-Patterson AFB, Ohio. Additionally, there are some vertical wind machines used by skydivers and in amusement parks. See *Low-Speed Wind Tunnel Testing* by Pope.

7.90.8 Whirl tower testing

The whirl tower provides the opportunity to test large or full-scale models under normal or near normal operating conditions.

The subject parachute is enclosed in a streamlined missile, whirled around the tower, to a speed of up to 435 kts, released and activated by a short static line. Exacting instrumentation and photo coverage is possible.

Pioneer dismantled their tower several years ago, but there is a 120 foot model at El Centro.

7.92 Cleaning parachute assemblies

Parachute components may be spot cleaned or cleaned as a unit and care must be taken that the cleaning process does not do more damage than the original soiling. Cotton components will shrink, some nylon tape will shrink and scratched hardware will rust. Do not dry clean parachutes. Cleaner parachutes look nice but it is better to have a dirty parachute than a weak one.

Specific remedies to soil and other damage are covered under parachute inspection in Chapter 9; general cleaning instructions are covered here. See T.O. 14D1-1-2 *Cleaning of Parachute Assemblies*.

Washing the parachute. Do not wash ram-air canopies. Washing will affect the permeability of the fabric. The round canopy may be washed when absolutely necessary, in warm to hot water, with a mild soap. Separate the canopy from the harness and container if possible to avoid snagging the canopy. A smooth bathtub makes a good washing area. Agitate as little as possible and continue soapy washings until the dirt is gone. Then rinse the parachute several times in warm, clear, fresh water until all traces of the soap are gone. Do not wring the canopy with the hands. Hang the parachute in the shade to drip dry. Excessive washing should be avoided as it removes the finish on the fabric. Hard water may be softened with one tablespoon of sodium metaphosphate per gallon of water.

Use a gentle soap such as Woolite. Test canopy colors first as many will bleed. An embroidery hoop is useful for spot cleaning.

While a complete washing of the canopy should only be done as a last resort, it is OK to wash the lines at any time.

Drying a canopy is as critical as washing it. Hang it full-length or the seams may shrink unevenly producing a turn in the canopy. A heated drying room should not exceed 200 Fahrenheit degrees and a canopy should not be placed in a heated room for more than 3 consecutive hours.

Harness/container assemblies may be brushed off. Both para pak and Cordura respond well to brushing. If the dirt has caused deep soiling and washing is necessary, disconnect the harness/container assembly from the risers. Mate all Velcro; use spare strips of pile to cover all hook fastener to avoid snagging of the harness. Wash the assembly in a bathtub just as described for the canopy, above. Remember that if the water is too hot or the soap solution is too strong, the resin may be removed from the harness webbing. Dry hardware immediately with a towel and with the gentle use of a hair dryer.

Hardware may be cleaned and lubricated with MIL-L-60326, Type I/II or MS122. These dry lubricants will not injure nylon. Protect from overspray.

Cleaning solvents. The following cleaning solvents have proven to be effective:

Tetrechloraethylene O-T-236 FSN: 6810-270-9982 (for cotton or nylon)
Perchlorethylene O-T-236 FSN: 8500-NL
Trichoroethylene O-T-634 FSN: 6810-223-2731
Solvent, Dry cleaning P-D-680 6810-223-9072 Type II
White gasoline

Use fresh cleaning solvent only. There have been cases where old carbon tetrachloride has produced hydrochloric acid which damages nylon. Use plenty of absorbent rags on both sides of the stain. Make certain the area is well ventilated.

Do not use cleaning solvents of any kind to clean Lexan plastic. Cleaning solvents can dissolve or act as stress-crazing agents on the Lexan material and can remove the tear-resisting coating of the flap fabric.

Do not use the following as they are solvents for nylon: Phenol (carbolic acid), meta-cresol, zylenol or formic acid.

Warning: Perform all solvent cleaning operations in a well-ventilated area, preferably outdoors. Avoid prolonged breathing of vapors. Avoid eye and repeated skin contact. Keep solvents away from sparks and flame.

7.93 Chemical resistance of nylon

As an aid in damage determination and stain removal, here is a chemical resistance chart. The following have little, if any, damaging effect on nylon:

Water at 250 degrees F for 10 hours
1.0% soap at 250 degrees F for 10 hours
1.0% Duponal at 250 degrees F for 10 hours
1.0% sodium carbonate at 250 degrees F for 10 hours
3.0% sodium chloride at 70 degrees F for 1000 hours
3.0% copper sulfate at 70 degrees F for 1000 hours
3.0% zinc chloride at 210 degrees F for 10 hours
100% Stoddard solvent at 210 degrees F for 10 hours
100% Perchloroethylene at 210 degrees F for 10 hours
23% ammonia in water at 70 degrees F for 100 hours

7.94 Sealing parachutes

FAR 65.133 reads: "Each certificated parachute rigger must have a seal with an identifying mark prescribed by the Administrator, and a seal press. After packing a parachute, he shall seal the pack with his seal in accordance with the manufacturer's recommendation for that type of parachute."

The seal and "safety tie" are there, not as some mistakenly think to hold the pins in place, but for the protection of the user and the rigger. It stands guard and lets one know if the parachute has been tampered with; i.e., the thread and seal indicate that the parachute has been inspected and repacked and hasn't changed since it left the rigger. The card tells when it left.

The packing instructions in this manual call for the sealing of all parachutes. The rigger may affix his seal and fill out the packing data card on all parachutes if he wishes, but usually only a thread is applied to sport main assemblies. This practice is justified by the fact that they aren't "certificated."

Tensile strength of the sealing thread is up to the manufacturer and most specify "less than six pounds". Since a complete loop is made, nearly twice the force will be needed to break the thread and even a light thread will team up with the friction of forces within the pack to increase the pull required to withdraw the pins. A four to six pound thread is recommended. Some riggers make it a habit never to cut sealing thread with scissors; they always test the thread by breaking it by hand. This test insures a higher tensile strength thread is never used.

Oddly enough, the TSO tests are run without the safety tie thread so the 22 lb. maximum pull is easier to meet. Always seal the last pin so that none may be withdrawn without breaking the thread. Do not seal all the pins or the threads will team up to produce a hard pull. Center pull ripcords should have both pins sealed with a single thread loop.