CYPRES

Reliability made in Germany

RIGGING TIPS

Content

Preface

During the first years after introduction of the CYPRES AAD in 1991 it was necessary to establish a testing and evaluation procedure for the installation of this new AAD into the existing harness/container systems, as there was no such AAD concept on the market and the installation had to be tested and approved. This was solely done at Airtec GmbH & Co. KG Safety Systems in Germany. Airtec GmbH & Co. KG Safety Systems undertook this task for the harness/container manufacturers to find out the best and safest possible installation for each system.
The resulting installation instructions, in all it´s variations, originated from the different constructions of the different harness/container systems, should not create any negative influence on the original function of the CYPRES unit, which is the cutting of the reserve closing loop.
It also had to be assured that the initiation of the reserve opening (by severing the closing loop) did not hinder the reserve development in any way.
These installation instructions were published in the CYPRES RIGGER'S GUIDE FOR INSTALLATION and compiled in the CYPRES PACKER'S CHECKLIST to give an instrument to verify an existing installation.
Nowadays, the instruction how to install an AAD into a parachute container is issued by the harness/container manufacturer only.
Therefore the above mentioned publications are history and no longer valid for current installations.

As of 08-2023

Art.No. 991205

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www.cypres.aero

To support Rigger / Packer Airtec GmbH & Co. KG Safety Systems still offers to purchase the following spare parts:
(to purchase those parts, please contact your CYPRES dealer, see CYPRES worldwide dealer search at www.cypres.cc)

- Processing Unit Pouch (170 mm / 190 mm)
- Control Unit Pocket
- CYPRES Loop Material Pull-up Cords
- Support Discs (Smiley)
- Elasticated Release Unit Housings
- CYPRES Loop Material (50 Meter or 200 Meter)
- Finger-Trapping Needles
- Silicone Gel
- CYPRES Temporary Packing Pins

and the CYPRES Packer's Kit, containing:

1 spool of CYPRES loop material
1 fingertrapping needle
1 container of silicone gel
1 container with siliconized cloth
2 Temporary Pins
5 discs
1 filter changer
3 filters
1 CYPRES User's Guide
1 CYPRES Rigging Tips

Trademark

CYPRES is solely manufactured and sold at Airtec GmbH & Co. KG Safety Systems in Germany.
CYPRES is the abbreviation of CYbernetic Parachute RElease System
Cybernetic is an old Greek word meaning “self regulating”.
US patents number 4858856 and 5024400, European patent number EP 0281 and German patent number P 37 07 294.3 have been granted for CYPRES.

NOTICE	The publishing of this document voids all prior installation guides and check list´s.

As of 08-2023

Warranty

Airtec GmbH & Co. KG Safety Systems provides the 2 year warranty required by law, and 3 additional years where all repairs are free of charge, except resulting from intentional or negligent damages.
Thereafter, on a voluntary base Airtec will be very open to provide repairs or replacements for all non intentional or non negligent damages free of charge to all those customers who submit their units for maintenance on schedule.
This is a CYPRES practice already since 1991.
The manufacturer reserves the right to decide whether the unit will be repaired or replaced. Neither repair nor replacement will affect the original warranty.
When a CYPRES 2 unit is returned to the manufacturer or service center, it must be packed in the original box or an equivalent shipping package including an entirely completed Service Form.
No claims will be accepted if the unit has been damaged or has been opened by an unauthorized individual, or if an opening of the processing unit, release unit (cutter) or control unit has been attempted.

Disclaimer

The amount of involvement and the amount of research, experiments and experience we gathered in regards to the contents of this booklet are truly not enough to give out complete recommendations and give comprehensive statements concerning this whole subject.
For this reason will such recommendations, support and statements be incomplete, wrong and untrue for certain processes and circumstances.
Airtec GmbH & Co. KG Safety Systems reserves the right not to be responsible for the topicality, correctness, completeness or quality of the information provided.
Liability claims regarding damage or accidents caused by the use of any information provided, including any kind of information which is incomplete or incorrect, will therefore be rejected.
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Legal validity of this disclaimer.
If sections or individual terms of this statement are not legal or correct, the content or validity of the other parts remain uninfluenced by this fact.

General remarks

⚠WARNING The installation of the CYPRES requires considerable attention to detail. NEVER EVER INSTALL CYPRES BY TRIAL AND ERROR ! This could cause someone's death!

Installation

Should you wish to install a CYPRES into a container for which no instructions are available, you should contact the harness/container manufacturer for advice.
All CYPRES installations should be done by the harness/container manufacturer in collaboration with Airtec GmbH & Co. KG Safety Systems.
Appropriate rated riggers should contact the specific harness/container manufacturer for any information concerning the installation of CYPRES AAD´s.
When installing CYPRES AAD´s it is vital to ensure that:

- the installation is carried out in accordance with any written instructions issued by the harness/container manufacturer
- the manual opening system for the reserve (i.e. pins, pack flaps etc.) is not obstructed in any way
- the structural integrity of the harness is not affected (e.g. by inserting / removing stitching, etc.)
- the processing unit is positioned where it will be best protected from physical damage and extreme outside air temperatures. Additionally it has to be located in order that the air pressure readings are not affected in a negative way.
- original CYPRES AAD pockets and housings or equivalent parts produced by the harness/container manufacturer should be used for the processing, release and control units
- original CYPRES AAD loops, CYPRES support disc and pull ups or equivalent parts produced by the harness/container manufacturer should be used when packing a reserve container with CYPRES AAD´s installed

Reserve Pilot Chute

NOTICE	A good reserve pilot chute is an important safety factor.

Concave reserve pilot-chutes can damage the cutter reinforcement, please be aware of this when packing the reserve container. On systems with an internally-mounted pilot-chute, we recommend to equip these rigs with a reserve pilotchute that has a flat / hard top and a strong spring.

Set-Up

NOTICE	Authorization to install any set-up into a reserve container can only be provided by the harness/ container manufacturer. Airtec is not authorized to provide this approval.

Rigging tips and suggestions

⚠WARNING

Part of the final inspection should be a visual check to ensure the correct routing of the loop through the cutter hole.
Whilst carrying out equipment checks at DZ´s or in Rigging lofts, extra attention must be paid to ensure that the loop is correctly routed.

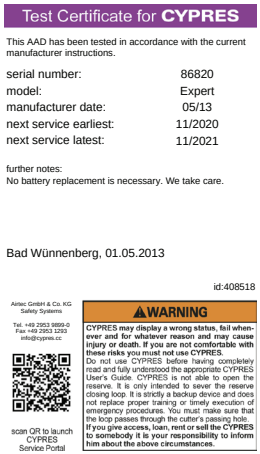
Check the complete AAD and the AAD installation for condition and serviceability at each reserve repack.
We strongly suggest to replace the loop at every repack, but NOT the washer (Smiley). Please reuse the CYPRES washer !
Rapid and careless removal of the pull up cord can cause friction damage to the loop. To avoid damage remove the pull up cord by pulling it slowly against the bottom side of the ripcord pin.
Always use the loop-material pull up cord when the release unit is not positioned on the bottom of the container.
If, during packing, you need to pass the pull up cord through the loop hole in the release unit you should use the special CYPRES loop material pull up cord.
The use of any other material could cause damage to the plastic coating inside the release unit (EOS).
When placing the freebag into the container make sure that the connector links do not lie on top of any other cables.

Other important facts to consider

- never ever pull, lift up or toss around the CYPRES unit by it´s cables
- even when removing the CYPRES unit, don´t pull on the cables
- don´t twist the cables at their exit points or bend them in tight curves
- where cables cross, guide smaller cable below thicker cable
- do not curve cables in smaller circles then the outline of a Quarter/Euro (1 ¼ inch ~ 3 cm Ø)
- place cables in a position avoiding any tension
- if possible use original CYPRES loops
- the loops should be of normal length for the rig in question. Do not shorten or lengthen them unnecessarily as this can cause severe problems. Make them as short as possible but be aware of the 22 lb ripcord pull-force
- don't forget to stretch the loop prior to measuring the length
- treat the loop with silicone (except quick-loops and loops for Teardrop containers) down to ½ inch (~ 1,5 cm) above the disc
- when installing round reserve canopies into two-pin containers, the loop should be routed between the S-shaped canopy folds
- the same rule applies to suspension lines of round reserve canopies where the lines are stowed on the bottom of the container

Instructions for CYPRES 2

On a CYPRES 2 it is not necessary to perform any battery replacements. If the unit passes the self-test without showing the next maintenance date, the unit is at least 13 months away from the latest date for the next maintenance.



Test Certificate for **CYPRES**

This AAD has been tested in accordance with the current manufacturer instructions.

serial number:	86820
model:	Expert
manufacturer date:	05/13
next service earliest:	11/2020
next service latest:	11/2021

further notes:
No battery replacement is necessary. We take care.

Bad Wünnenberg, 01.05.2013

id:408518

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Safety Systems

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info@cypres.cc

scan QR to launch CYPRES Service Portal

⚠WARNING

CYPRES may display a wrong status, fail whenever and for whatever reason and may cause injury or death. If you are not comfortable with these risks you must not use CYPRES.
Do not use CYPRES before having completely read and fully understood the appropriate CYPRES User's Guide. CYPRES is not able to open the reserve. It is only intended to sever the reserve closing loop. It is strictly a backup device and does not replace proper training or timely execution of emergency procedures. You must make sure that the loop passes through the cutter's passing hole.
If you give access, loan, rent or sell the CYPRES to somebody it is your responsibility to inform him about the above circumstances.

Display

If LCD is broken and numbers not clearly visible, return the unit to Airtec or SSK for repair.

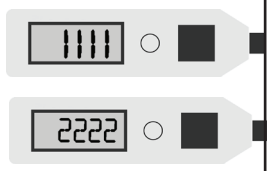
Switch on and off

We recommend to switch the CYPRES on and off and watch the count down for any error code before packing the reserve and closing the container.
After closing the container perform another switch on to check for any damage that may have occurred during packing.

Error codes on control unit display

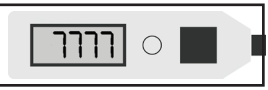
If there is an error detected during the self test then it shows this code for about 2 seconds before it switches itself OFF.

One or both cutters are not electronically connected to the unit.
Reasons: activated cutter, damaged cable, plug not completely connected.
Action: replace or reconnect cutter. Switch ON procedure can be repeated. If self test is OK, CYPRES can be used again



Excessive pressure variations during self test.
Possible reason: moving vehicle or aircraft.
Action: Switch ON procedure can be repeated. If self test is OK, CYPRES can be used again

Low battery condition.
Action: contact Airtec / SSK before further use



Power Down
Action: contact Airtec / SSK before further use

Checksum Error
Action: contact Airtec / SSK before further use

Pressure Sensor Error
Action: contact Airtec / SSK before further use

⚠WARNING If the unit does not switch OFF after 14 h, or another code is shown on display, or if there is no red light, do not use the CYPRES and contact Airtec or SSK before further use.

Information on control unit display

These notes will eventually appear during the self test procedure between 1 and 0.

NOTICE These messages are not ERROR codes. Only helpful information's. The service window frame is 13 months.
Example: date of manufacture 03/2017, the first maintenance is possible 09/2021 until 09/2022.
The second maintenance is possible 09/2026 until 09/2027.

starting 6 months prior to maintenance date (09/2021) beginning of service time window

displayed for 2 seconds

starting at maintenance due date

displayed for 3 seconds

maintenance date over due 3 months

displayed for 5 seconds

maintenance over due 6 months (now*)
end of service time window (09/2022)
* This reminder can only be deactivated during maintenance

displayed for 5 seconds

NOTICE This message appears on any possible day during the last month of „service lifetime".
End of service life time: e.g. mfd 03/2017 + 15,5 years ends on the last day of the last month 09/2032

starting 15,5 years after date of manufacture (age) end of service life time
May appear on any day within the last month.

displayed for 5 seconds

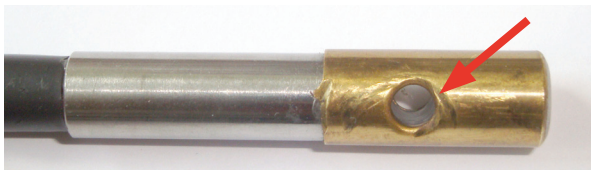
Inspection of the CYPRES cutter

⚠WARNING Thoroughly inspect the complete cutter on every repack, also the plastic parts!

CYPRES cutter in perfect condition:

CYPRES cutter in good condition. Can be used without concern. Small signs of use, but no sharp scratches and no sharp corners especially on both sides around the loop-hole.

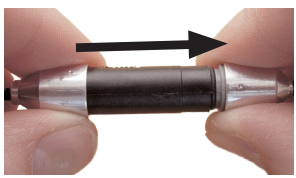
CYPRES cutter in poor condition. Can be repaired by a qualified rigger using fine emery sandpaper. Sharp scratches and sharp corners can be smoothed out and removed especially on both sides around the loop-hole.

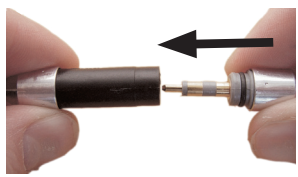


CYPRES cutter in unacceptable condition. The only option here is to send it to Airtec GmbH & Co. KG Safety Systems or SSK for repair. * There the brass sleeve will be replaced free of charge and returned back to the owner in perfect condition.

* Equally the CYPRES cutter can be easily exchanged by the specially designed plug connection.

1. Switch off the CYPRES
2. Unplug cutter. Do not tilt or bend!
3. Plug in the new cutter completely. Do not tilt or bend, do not insert at an angle.
4. Switch on CYPRES if 0' appears it is OK!





Change of cutter after an activation

NOTICE Before you remove and unplug the cutter please make sure that the CYPRES is switched off.

- Open the reserve container, remove the CYPRES.
- Unplug the activated cutter .
- Install a new cutter and mark this on the packing data card.
- Fill out the activation report and send it to info@cypres.cc .
- Switch the CYPRES on and monitor the selftest. It should count from 10 down to 0.
- Install a new CYPRES loop, please re-use the CYPRES support disc.
- Repeat this switch on and off procedure after you have finished your packjob.

⚠WARNING Do not use release units (cutters) after the end of cutter service life (16,5 years after DOM)
Used release units (cutters) that are / were attached to a CYPRES unit are also subject to a technical service / maintenance.
New release units (cutters) that were never attached to a CYPRES unit and were stored (according to manufacturers instructions) do NOT need to be sent in for maintenance within the service time frame.

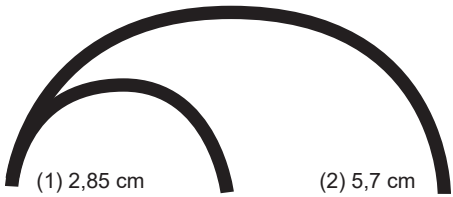
General informations on CYPRES cables

The CYPRES cutter wire has outstanding physical and electrical characteristics, originally developed for aerospace and military requirements and is now used wherever environmental conditions demand consistently reliable performance. It is one of the most used high performance wires, also in relation to flexibility as well as weight and most of all reliability.

Nevertheless, there are some points you as the rigger should take care of, to keep your system in good condition:

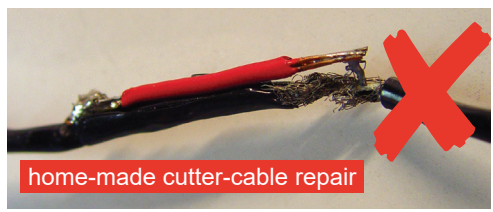
- Never pull, lift up or toss around the CYPRES unit by it´s cables.
- When removing the CYPRES unit from the pouch, don´t pull on the cables, instead, push it out of the pocket and carefully slide it out.
- Don´t twist the cables at their exit points from the processing unit and or the control unit or bend them in tight curves.
- This also applies to the control unit / cable connection point when inserting the control unit into the pocket! Make sure that the cable will not be pulled or bend during use.
- Don´t kink the cables at those points as you can pull them eventually out of their socket.
- Where cables cross, guide smaller cable below thicker cable.
- Place cables in a position avoiding any tension. Please also know that after the reserve is in the pack-tray, there will be the chance that during the next stage of closing the reserve container, the tension will develop and pull on the cables. So always leave enough slack on all cables.

- Do not curve cables in smaller circles then the outline of a quarter Euro (1¼ inch ~ 3 cm Ø).
  The manufacturer of this cable recommends following radius allowance for 2 scenarios:
  (1) if moved and bend one time (permanently installed cable)(2) if moved and bend repeatedly / multiple times

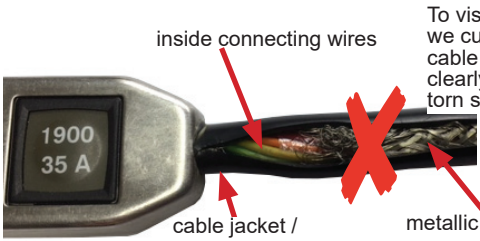


Here are a few “DO NOT” sample pictures which we collected over the last 27 years:
But please know, those problems and damages do not occur or happen overnight, but by constant misuse or very strong and heavy movements / pressure, sometimes this develops slowly over years.

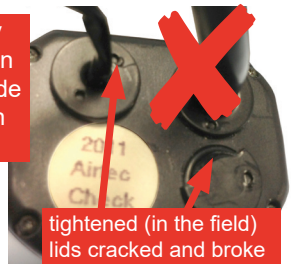
As it is not very easy to damage the internal wires, which are responsible for the reliable functioning of the control unit and the cutter, we see more often damages of the outside black protection cover (cable jacket) and / or the shielding protection wires.



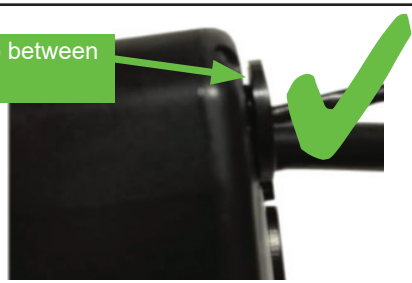
With a damage like this, the CYPRES will most likely still function like usual, but with the broken metallic, electrostatic shielding, it could result in a failing control unit. display. Please return for repair.



DO NOT screw the lids all the way onto the processing unit as this can cause severe damages to the inside and could brake the lid, all this can void the waterproofness.



It is OK if there is a gap between the lid and the casing!



Alteration / modification of a CYPRES and or it´s parts

Generally speaking, never alter or modify any parts of the CYPRES system!

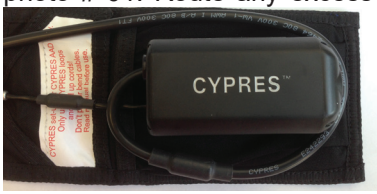
Do not tighten or loosen any screws or lids on the CYPRES unit even if they look like they aren't set properly *
Do not glue or tape any parts together, don´t tape up broken or cracked a cutter-reinforcement stiffener, rather send them in for repair or replacement right away *
Do not remove or cut off any cable jacket or tubing or housing part*
Do not shorten or lengthen any cables by mounting other parts onto the CYPRES system *
Do not modify or replace any original CYPRES parts with non original parts *
Do not scratch or mark any parts of the CYPRES with sharp tools *

➡ **This all can result in damages and malfunctions of the complete system and will void the guaranty.**

* If you however discover any irregularity, please contact our staff and explain what you see and we will immediately assist and help you.

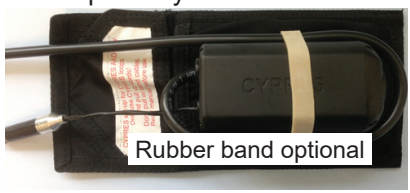
CYPRES excess cable stowage

To prevent any cable damage please follow the instructions as per photo # 01. Route any excess cable around the processing unit



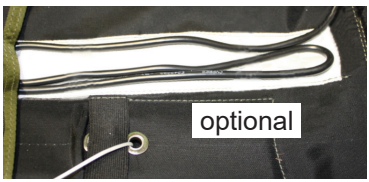
(depending on the container size it can be more than one turn-around) and lay them inside the Spandex pouch around the processing unit (if appropriate). Please ensure that there is no tension on any cables after complete assembly.

To keep the cable organized, you can optionally use a rubber band (photo # 02) and place it around the cables and processing unit before you push it inside the Spandex pocket. That should give you a clean smooth cable routing. Please make sure that the cables are not twisted and the big display cable is laying on top of the small cutter cable, to avoid any cable breakages.



Please coil the cables as big as possible. See photo # 03 (quarter size minimum) You should avoid cable kinks at any time. Also see CYPRES user guide chapter 3. Installation.

On photo # 04, you also see another option on how to stow excess cable inside an extra channel in the container bottom. This is optionally and it must be assured that the cable will stay inside this channel at all times and does not interfere with any function of the reserve / container system and deployment.



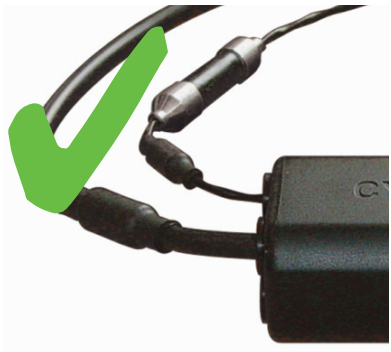
Installing a 2-pin CYPRES into a 1-pin container

You can either return your 2-pin cutter and we will exchange it with a 1-pin cutter complimentary.

But you can also install one of the 2-pin´s as usual and stow the second, unneeded cutter inside the processing unit pouch.
Please make sure that this second, unneeded pin is secure and will not emerge from the pouch.
You can optionally use a rubber band and fix it around the processing unit.
During the next maintenance, we can switch the system from 2-pin to a 1-pin version. Please advice accordingly.

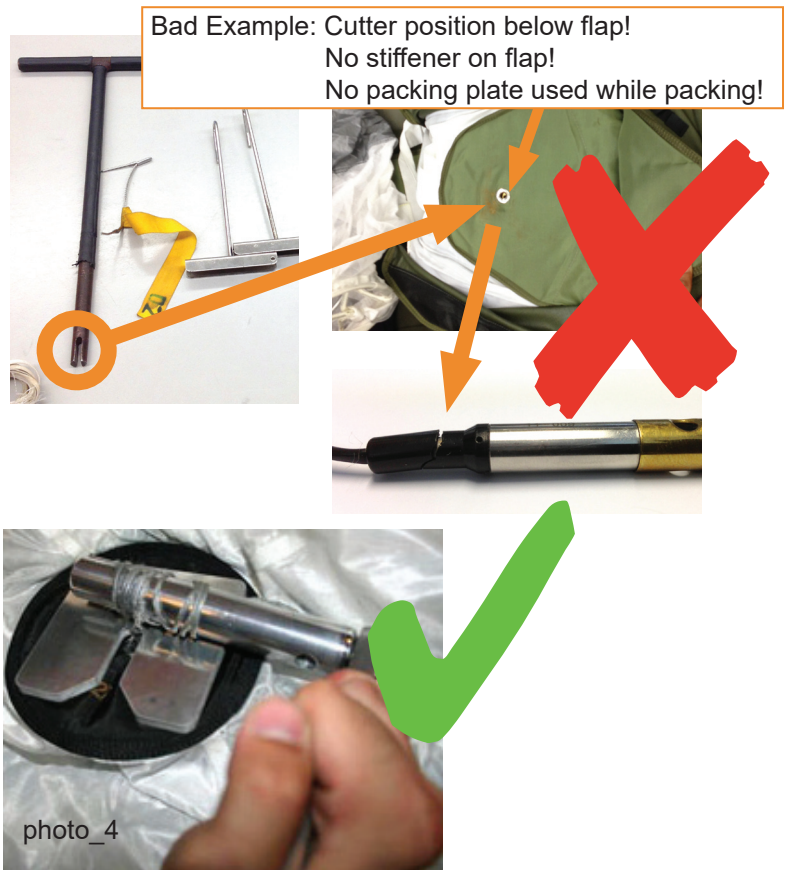
Positioning of ferrite rings

The ferrite ring on the cutter cable should be located at least one inch (2,5 cm) away from the processing unit case. It should not be located all the way on the processing unit.
As a rule of thumb for the cutter cable, if it is located in the centre between the processing unit and the female plug, it is OK,
It is possible to slightly relocate the ring when routing the excess cable in the pocket in order to avoid kinks, but not closer than 1 inch (2,5 cm) away from the black box.
The ferrite ring on the control unit cable should not be relocated or moved.



Rigging Tools

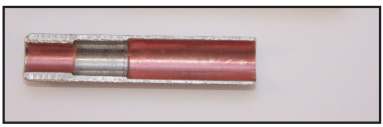
To avoid damage on CYPRES cutters and container parts please use a correct packing-plate while using a positive leverage device as shown in photo_4.
(Airtec GmbH & Co. KG Safety Systems does not necessarily recommend the use of a positive leverage device.)



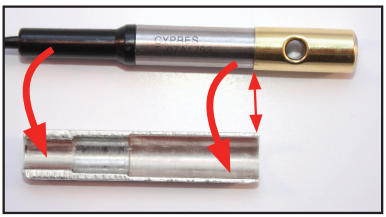
Cutter reinforcement kit

⚠WARNING **A damaged cutter can create unwanted activation's or even fail to activate.** Do not use the reinforcement kit on cutters which are already broken. Return (only) the broken cutters to us for repair and replacement.

During inspection of your reserve container and the CYPRES you might find a broken plastic part on your CYPRES Cutter. It is inevitable to have it repaired before any further use!
To eliminate this damage in the future (on similar containers or on repaired cutters) we kindly ask you to use this Cutter reinforcement kit, but additionally we ask you to take extreme care while packing the reserve container, if you use any kind of leverage tools



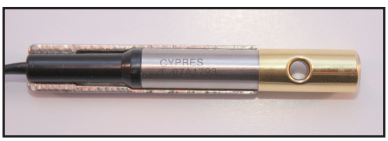
remove red protection cover (it is a double sided adhesive)
use scalpel or similar tool



place cutter exactly as picture shows and hole upright in enforcement body

reinforcement joins brass

press together



finished

On packing, curved protection body must face container bottom / or pilotchute top.

Only use this reinforcement plate on CYPRES cutters with the length of 22 mm or 18 mm thin version. No thick version.

Temporary Pin

If the Temporary Pin is damaged or marred either change it or use fine sandpaper to smooth the damage out. Remove Temporary Pins slowly and carefully during repack. When inserting sharp pointed Temporary Pins into the loop holes make sure to go through the loop hole, not the loop material. Remember, at the end of the repack, if there is any damage to the loop, open the container and replace the loop.

Temporary Pin modification (recommended)

The Temporary Pin can eventually bend open during use. Especially while repacking tight rigs with short closing loops.

This open point can unfortunately snag on the reserve pilotchute material while the Temp-Pin is pulled back out from underneath.

To avoid damages on reserve pilotchutes, you can cover up this part using a 4 inch piece of webbing and attach it like shown.

Poke the needle tip at one side through the centre fold, fold it up and sew it on to fix the webbing on the pink flag.

Loop routing

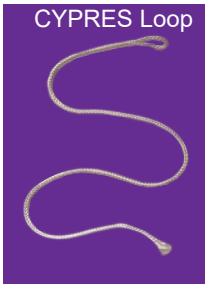
⚠WARNING

Make sure, that the loop is:
- routed through the cutter
- not wrapped around the cutter

The CYPRES Loop and Disc System and its consequences

Previous reserve container closing loops were made from old parachute suspension lines or similar material consisting of Kevlar, Dacron, Spectra etc. They were often thick, rough and became stiff while under tension in a packed container for a long period of time. As a result these loops could delay the reserve container opening or even avoid it after the ripcord was pulled because they became trapped between the grommets.
A number of skydivers died because the reserve flaps did not open in time.
To fasten the reserve closing loops in the container bottom riggers and packers used normal metal washers. Sometimes these washers had sharp edges. A loop which is under a lot of tension in the container could be damaged and cut accidentally by those sharp edges. Especially from vibration in a car or in an aircraft.
Skydivers were killed by premature reserve openings, caused by fraying loops. Even an aircraft crashed because of a premature reserve opening.
Our intention is to make skydiving safer, so we worked on this issue. In 1991 and 1992 we designed a loop and disc solution to reduce these risks as much as we could.
The CYPRES loop is woven like a tube, so it can be inserted into itself to create the closing loop's eye. At the same time it is only 11/16 inch in diameter (1.8 mm), is extremely flexible and has an extra smooth surface to make it extremely slippery. In addition CYPRES loops are treated with a special silicone on the upper 1.5 inch (4 centimeters) to maximize the smoothness of its surface giving it even less friction when passing through the reserve container grommets and the cutter.
Although the loop is really narrow, its breaking strength is in excess of 408 lbs (185 Kp).
The CYPRES disc (often called a smiley because of its looks) is a small piece of artwork. It is a round aluminium disc with no sharp edges. Within its surface it has 3 passing holes.

The fingertrapped loop is threaded through the middle hole and then through the left hole, the loop then gets threaded through the right hole, and knotted.
With this, the knot only realizes one third of the force when the loop is under tension. Without reducing the extreme tension the knot will shrink and pull it through the disc.



- extremely flexible
- extremely slippery
- breaking strength: 408 lbs
- diameter: 11/16 inch

- no sharp edges
- minimal loop tearing

The three holes have no sharp edges. It is a very extensive procedure to manufacture this disc, but loop tearing has reduced to almost zero by using this product.

Both the loop and disc together as a system has certainly made skydiving significantly safer during the last two decades. Totally separate from CYPRES.
Since the system was introduced to the scene in 1992, approx. 1,010,000 discs and well above 4,000,000 loops have been manufactured by Airtec and given to rig manufacturers, riggers, and packers worldwide to improve safety in the sport.
Nowadays it‘s unlikely to find a rig worldwide, with a reserve container that is not closed by the CYPRES Closing Loop System.
In addition to making its technical effect inside the reserve container, this CYPRES Loop System has another advantage. It reduces the necessary pull force on the reserve ripcord handle by up to 50%. A huge help for all those skydivers who, for one reason or another, have difficulties with the pull force.
Like to view the genuine CYPRES Loop System? Take a look at your reserve container; it will most likely be there.

Reserve loop suggestion

Please refer to the harness/container manufacturer for instructions.

We recommend CYPRES loop material which is made from polyamide nylon cord and is specifically designed for the use with the CYPRES system. This is an innovative, very thin material with a diameter of 1.8 mm and a breaking strain of approximately 180 KP. The use of other materials could cause (besides other problems), damage to the loop hole coating in the release unit and should not be used.

The loops should be of normal length for the rig in question. Do not shorten or lengthen them unnecessarily as this can cause severe problems. Make them as short as possible but be aware of the max. 22 lb ripcord pull-force.
Determine the loop length, required by the harness /container manufacturers and adjust the loop accordingly.

The reserve loop should be impregnated with silicone except for approximately 1,5 cm above the disc, after installing the loop to the disc. This does not apply to 2-pin loops/quick loops or Teardrop loops.
This increases flexibility and should help to ensure a fast reserve opening. It also ensures that during manual opening of the reserve, the loop should slip through the loop hole of the release unit better and it also reduces the pull force on the ripcord.

When making your own loops out of the CYPRES loop material, do not forget to treat them with silicone. This is simply done by rubbing the silicone into the loop material with finger and thumb (loop material and silicone are available from Airtec).

Before attaching the loop to the disc, stretch it by pulling on both ends at least twice.

Pulling force is what matters, not the duration of the pull. A short but decisive pull will do. When the loop has been tied to the disc, repeat the procedure. A 2-pin loop should also be stretched before being put into the container.

NOTE: As a general rule, the eye of any reserve loop should be as small as practicable to prevent the possibility of reserve canopy material becoming trapped. The diameter of a normal pencil is ideal.

The potential weak spot in a reserve closing loop is where it is knotted through the washer. Excessive tension can lead to the cord breaking at the knot, or becoming so compressed that the knot slips through the hole in the washer.
To reduce this problem, Airtec GmbH & Co. KG Safety Systems has developed a support disc with 3 holes.
The loop material is wound 2 times before being knotted.
The two windings absorb a great deal of strain resulting in very little decrease in the breaking strain at this critical point.

There are special loops (1-pin Teardrop / Racer / Aerazur (PdF double loop), available from the harness/container manufacturer.

NOTICE	Be aware: any loop material can wear out, break or tear during use and may cause danger. The CYPRES loop as well !

Loop support disc

In order to avoid wear between the loop, bottom disc and the knot where the loop attaches to 1-pin containers and some 2-pin containers, Airtec GmbH & Co. KG Safety Systems has developed a technique for affixing the loop. This technique combines a metal disc with three smooth holes (CYPRES smiley) together with a special knotting technique.
Installation using this technique will have the added advantage that the entire loop system will most likely have a higher tensile strength then the loop material itself.

The installation of the loop to the disc should be performed as follows!

a) Pass the loop cord through the central hole and mark the desired length with a pen

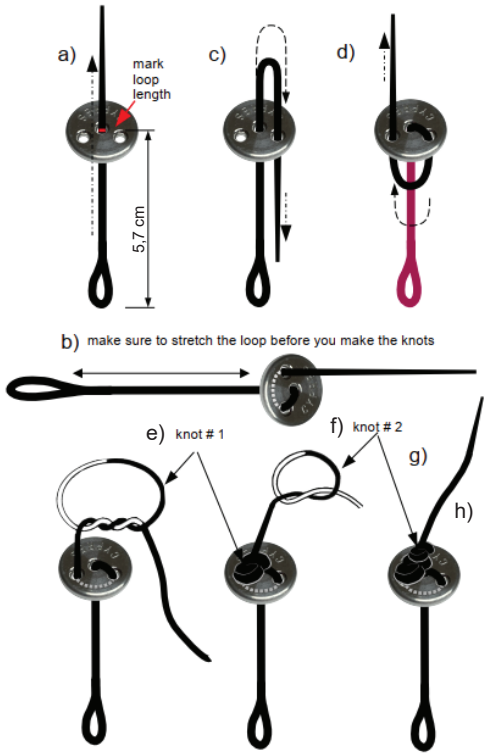
b) Hold the disc between the index and the second finger and trap the spare cord with the thumb. Pass a pen through the loop and sharply pull the whole loop cord twice to pre-stretch the material. Re-align the pen mark with the disc as shown in sketch a)

c) Route the cord back through one of the outside holes

c) Go upwards again through the third hole

d) Knot the cord as shown in sketch e) with a surgeon´s knot

e) Make one further locking knot as shown in sketch f) to prevent slippage



h) Minimum tail length on stretched loop:
Please keep the loop-tail like it is and just tuck it away. Be aware that if you like to cut it off or shorten the tail, please use a hotknife to avoid freying and make sure that the piece it is not too short which could loosen the knot.

⚠WARNING Inappropriate knots might not function properly. Do not use knots other than prescribed.

NOTICE Please replace the reserve loop on every repack.
Please re-use the CYPRES washer.
Please check the reserve closing loop for wear and abrasion regularly during use.
Shorten the loop until the reserve pin has a tight fit.
Loop should run straight from washer to reserve pin.

Loop installation for two-pin containers

Please refer to the harness/container manufacturer for instructions.

Assess the loop length required and adjust the loops accordingly. Please keep in mind that the loop will elongate during use and with passing time.

Important note on the use of CYPRES with LOR II from Parachutes de France (e.g. in the Atom, Campus and Galaxy Tandem):

The LOR II system uses 2 closing loops through a single grommet and 2 pins. Both loops run trough a single CYPRES cutter. This requires the use of special (thinner) LOR II loops, provided exclusively by Parachutes de France.

The principle is that in the event of an RSL-activated reserve deployment, the reserve cannot open until both main risers have positively separated from the harness.

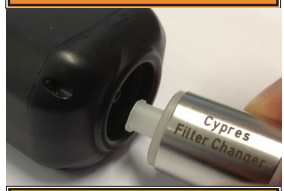
⚠WARNING **Faulty reserve container opening**
Never use two regular CYPRES loops for LOR II equipped PdF containers.

Change of CYPRES filter after water landing

⚠CAUTION Switch off the CYPRES directly after the water landing!

- Open the reserve container, remove the CYPRES and dry everything thoroughly
- Wipe off any water from the CYPRES with soft dry cloth
- Use the CYPRES filter changer to remove the filter
  - Hold the CYPRES filter changer on the non-slotted end and push it straight (without tilting) onto the filter up to the stop position.
  - Tightly grip the filter changer, twist off by turning in a counterclockwise direction and remove the filter. If there is water in the casing (behind the filter), thoroughly dry it with an absorbent soft cloth. Remove the old filter from the filter changer by pushing with your finger or with the eraser end of a pencil. Discard it.

⚠WARNING
Do not re-use wet filters.



⚠CAUTION
Do not use other tools!

- Insert a new filter
  - Place the new filter with the labeled side toward and into the slotted end of the filter changer up to the stop (flush) position. Do not angle.
  - Hold the filter changer by the non-slotted end, gently slide the filter fitting into the unit holding it straight without tilting.
  - Turn the filter changer clockwise, initially there will be little resistance. **Continue turning the filter changer until it slips on the filter**. (The filter stops turning but the changer continues to turn.) Remove the filter changer from the filter by pulling straight back.
- After the rig is dry, install the CYPRES as usual
- Switch the CYPRES on and monitor the selftest. It should count from 10 down to 0
- Repeat this switch on and off procedure after you have finished your packjob

The CYPRES Maintenance

Here is the summary of work done during the regular CYPRES maintenance which usually takes 10 working days.

- all applicable wear and tear is taken care of
- following points are checked and / or re-calibrated and / or replaced:
  - temperature stability check and adjustment
  - precision of pressure check and adjustment
  - precision of altitude check and adjustment
  - power consumption check and analysis
  - capability to fire
  - functionality of the cutter
  - shielding check and adjustment
  - waterproofness check and adjustment
  - condition of measurement technique and analysis
  - battery replacement if necessary
  - filter replacement
- all applicable necessary corrections are done
- all applicable hardware is upgraded
- all applicable software is updated
- all applicable improvements are installed
- all applicable adjustments to changed environmental conditions are done
- all applicable adjustments to changed environmental conditions are done
  to explain this point: a construction can only be done to the known circumstances at the time of the design. Years later, things can change or new things can turn up which alter the environment of the device.
  In case that the device can not cope with the new situation, it has to be adjusted. It would be fatal, if not. During the existence of the CYPRES we already had to execute such an adjustment 2 times. Without these adjustments done by Airtec, the end user would discover serious problems during use.

Scheduled maintenance program and service life

Model / Type	Date of manufacture	Maintenance	Mandatory	Service time / total
Expert Student Tandem Speed C-Mode	01/2003 - 12/2015	4/8 years	yes	12,5 years
	01/2016 - 12/2016	4/8 years	no	12,5 years
	01/2017 -	5/10 years	no	15,5 years
WSC	01/2016 - 12/2016	4/8 years	no	12,5 years
	01/2017 -	5/10 years	no	15,5 years
1000/35A 1500/35A 1900/35A 2500/35A 2500/29A CM_Mil	01/2003 - 12/2015	4/8 years	yes	12,5 years
	01/2016 - 12/2016	4/8 years	no	12,5 years
	01/2017 -	5/10 years	no	15,5 years
SLS	01/2014 - 12/2016	5/10 years	yes	15,5 years
	01/2017 -	5/10 years	no	15,5 years
Aircrew	01/2003 - 12/2009	5/10 years	yes	12,5 years
	01/2010 - 12/2016	5/10 years	yes	15,5 years
	01/2017 -	5/10 years	no	15,5 years

History of the CYPRES manufactured by Airtec GmbH & Co. KG Safety Systems Germany

Research & Development of the new AAD from 1986-1990
Requirements which should be fulfilled:

- never show incorrect activation
- be absolutely reliable when required
- be extremely accurate
- not restrict the parachutist, whatever he does
- have an autonomous container opening system
- only require minimal attention
- be simple to operate
- not be detectable from outside the rig
- require only little maintenance
- be small
- be light weight
- withstand all outside influences while parachuting, packing or transiting
- be easily installed in existing rigs

April 1990

- The company Airtec GmbH was established. Major focus of the company to build and service only CYPRES devices

10. January 1991

- The first CYPRES was sold. The company operates with 7 employees
- The CYPRES loop was developed. This is an item which can save lives of skydivers independent from the CYPRES

April 1991

- First life save due to CYPRES activation in Dortmund-Hengsen, Germany

1992

- Development of the CYPRES loop and disc system, to enhance the reserve container opening and to reduce torn reserve container closing loops

1993

- Maintenance cycle extended from 2 to 4 years (all other AAD's had 1 year or less)

1994

- CYPRES factory Setup in virtually every new rig worldwide

1995

- Release element (cutter) field replaceable via fool proof plug-and-socket connection
- A record number of 7000 units were sold during the year

1996

- CYPRES cutters are used in satellites

1997

- FAI (Federation Aeronautic International) awarded Airtec the FAI gold medal for its CYPRES

1999

- Begin of the research & developing for a new generation CYPRES

2000

- The company is expanding to 35 employees now

1991 - 2003

- 12 1/2 years of CYPRES 1 without price increase, sponsored by Helmut Cloth for the sake of the skydivers

May 2003

- Market release of the improved CYPRES 2. More than 83.000 original CYPRES units had been built up to this date
- Owner never has to change a battery
- Waterproof for 15 minutes down to 15 feet or 24 hours down to 5 feet

2003

- US Natick test evaluation center approves CYPRES for the use in all armed forces branches, after 5 Years of testing

2004

- CYPRES cutters are used to open solar panels in satellites

2005

- An additional type of CYPRES 2 is being released: The SPEED CYPRES 2

2006

- Airtec production facilities and administration is expanding, moving into second building
- CYPRES 2 now offers the previous used altitude adjustment again at the beginning of the normal adjustment sequence
- CYPRES 2 now offers a flight counter, which continuously counts the flights with that unit

2007

- Actively reminds the owner of upcoming maintenance

2009

- With 40 employees and the production capacity of 10.000 units per year Airtec reached a complete market output of 140.000 units during the past 18 years

- More than 2000 parachutists have been saved with the help of CYPRES. Every month a number of new reports of life saves are received

2010

- Continuously Airtec is working on several projects
- Improving the CYPRES 2 with new features
- Many other very specific projects.....

2011

- 20th Anniversary celebrated throughout the year on various DZ worldwide
  The extraordinary occurrences in the AAD market throughout the years show the evidence of our product philosophy: Achieving safety and reliability has been our goal for the last 20 years

2012

- Airtec reacts to the market and takes action to cope with the extreme demand for CYPRES 2 units. 4 new employes strengthen the production capacity. 75.000 CYPRES 2 have been sold to date and the British Parachute Association honors Helmut Cloth for his lifework with the Jim Crocker award. Prince Andrew presents the trophy at the ceremony in London
- STRATOS RED BULL
  Of course, the highest and biggest achievement in this year was the successful jump out of the stratosphere from Felix Baumgartner with the help and security of the Stratos CYPRES.
- Record breaking news from the CYPRES headquarter on 05th December 2012
- The CYPRES 2 hits the mark of sold CYPRES 1 units
  From 1991 to 2003 CYPRES 1 needs 12 years to reach number 83000. CYPRES 2 makes it within 9,5 years

2013

- Software update with user adjustable activation altitude
- CYPRES “SLS” after 7 years of development process in final stage
- New and additional 5th CYPRES model available. The Changeable Mode CYPRES 2.

2014

- 90.000th CYPRES 2 unit has been produced!
- December: The 100,000 th CYPRES 2 unit is produced.

2015

- Last maintenance on CYPRES 1 units
- Solar Impulse, the solar powered aircraft, flew around the world with CYPRES on board

2016

- 25th anniversary
- The new WSC Wing Suit CYPRES model announced

2017

- Maintenance cycle extended from 4 to 5 years
- Maintenance voluntary
- Service life extended from 12.5 to 15.5 years

2018

- New and additional 5th and 6th Military CYPRES models available: The CYPRES 2500/35 A and the Changeable MIL CYPRES

2019

- The US Air Force chooses the CYPRES LPP model as the AAD for their standard equipment.

AIRTEC dedicated themselves to focus only on the production and maintenance and care taking of the best AAD worldwide.
All Research / Development, Manufacturing, Repair and Maintenance (except at the maintenance facility at SSK, ohio in the USA) is solely done in Bad Wünnenberg, Germany since 1991.
CYPRES has changed the mentality in the skydiving world concerning AAD´s by 180 degrees from “don’t need” to “must have”.
CYPRES units have accompanied more than 170,000,000 jumps and saved the lives of more then 5200 skydivers.

yesterday - today - tomorrow

Important fact to know about the CYPRES 2 and water landings

Background:
A jumper ended up in the water at the end of a pond swooping manoeuvre in Lillo, Spain in the summer of 2011. Approximately 30 minutes later the CYPRES 2 activated the cutter.

Analysis:
After water contact the filter of a CYPRES device can, but must not, be blocked by water staying at the entry point of the air filter.
In the case of a blockage of the air intake, the pressure situation inside the AAD cannot reflect the real air pressure outside.
The measured pressure will depend on several factors, one could be created by the rapid change of temperature in the inside of the AAD.
As the airflow is blocked and cannot compensate for this physical reaction the measured pressure may indicate a wrong value.
If the blockage is removed (i.e. the water drop evaporates or drops out) the sudden pressure equalization between the inside and the outside of the AAD may produce an activation, thus, firing the cutter and severing the closing loop.
This chain of reaction is known by Airtec and, even if it did not happen until this summer of 2011, we have urged the users to

prevent this BY SHUTTING DOWN the CYPRES AFTER water contact and keeping it off until the filter is changed (see CYPRES User's Guide chapter 4.6).
If the user complies with the user's guide request this activation on the ground should not happen.

Conclusion:
The user must read and understand the instructions of the user's guide. He must comply with these instructions in order to avoid adverse results.

Information:
Waterproof as defined in the CYPRES 2 User's guide means that the CYPRES 2 should not be damaged after water contact and can be used without a big factory inspection or repair.
During the days when the "swooping" discipline became more popular, the new goal was to create a waterproof CYPRES.
The result of all those thoughts bore so many questions for us and it was extremely difficult to verify if it would be possible to develop a waterproof AAD.
Actually the answer was no, it is not possible!
It is an air pressure measuring device and you cannot seal it off the outside environment.
The idea to use a not changeable Goretex window which keeps the water outside but the airpressure will still be able to pass through, is not usable, because if it gets in contact with dirty water it may stain and clog up the Goretex filter and might be affecting the airflow in a not acceptable way.

To create the CYPRES filter and the fool proof filter changer technique was one of the difficult tasks during the development of the CYPRES 2 R&D.
But Airtec succeeded in this as well.

BTW, the CYPRES filter needs more then 20 steps along the way until it is suitable for the CYPRES 2.

CYPRES

Reliability made in Germany

TIPS RIGGING