

**CYPRES**



**CYPRES**

## CYPRES 2 User's Guide

- english version -

Dieses Handbuch ist in Deutsch erhältlich.

Ce manuel est disponible en français.

Dit Handboek is ook in het Nederlands verkrijgbaar.

Este manual está disponível em Português.

Este manual está disponible en español.

Questo manuale è disponibile in italiano.

Ez a kézikönyv magyar nyelven kapható.

Tento manual je k dostání v češtině.

Ta instrukcja jest dotstępna w języku polskim.

Эту книгу- описание можно получить на русском языке.

Türkçe kullanıcı el kitabı bulunmaktadır.

Congratulations on your choice of CYPRES, the surely safest and most accurate AAD currently available.

Like most skydivers, you probably assume you will always have time to deploy your reserve canopy yourself, and that situations requiring use of an automatic activation device always happen to others. We do hope you will never have such trouble, and that your CYPRES will never have to take action to save your life.

Should CYPRES ever decide to activate your reserve, it will most likely happen at a moment which, no matter how experienced and cautious you are, justifies that you haven't left your safety to chance.

***Airtec GmbH Safety Systems***

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## 1. Function

### 1.1 Design philosophy

CYPRES, which is the acronym of "CYbernetic Parachute RElease System", is an automatic activation device which meets all needs, requirements, and desires of today's skydivers. Once it is installed, you can't hear it, you can't feel it and you can't see it.

The operation is quite simple: Just switch it on prior to the first jump of the day and then forget about it. It is not necessary to switch it off, because CYPRES will do this itself.

The weather is constantly checked by CYPRES over the day by measuring the air pressure twice a minute. This means that the unit is always calibrated to the precise ground level.

The various CYPRES model parameters have been chosen to cover the needs of the vast majority of skydivers, and also not to restrict them during common skydiving operations. Millions of jumps since 1991 have proven the proper design of these parameters.

Though special activities may need special considerations or even CYPRES settings.

Free fall or speed above activation speed (with an Expert CYPRES that is 35 meters per second, which is approx. 70 percent of free fall speed) to a very low altitude will cause CYPRES to take action.

The CYPRES family of AAD's work with remarkable reliability. To date CYPRES units have saved the lives of far more than 1000 skydivers, without a single unit ever refusing to activate when the conditions were met.

CYPRES is surely the most reliable piece of skydiving equipment ever produced.

As the next generation of CYPRES, CYPRES 2 combines tried and true quality and reliability with new achievements, technology and discoveries made during all the years of continued research and development since 1991.

Compared to the CYPRES 1 the CYPRES 2 offers numerous additional features and attributes including:

- unit is waterproof for up to 15 minutes down to a depth of 15 feet (5 meters) in fresh and saltwater
- power supply of CYPRES 2 is maintenance-free for the user. There is no need to observe a replacement date, record the number of jumps made, monitor the voltage during self-test, watch for a 'low bat' sign, purchase a battery, or have a rigger open or repack the reserve for this reason.
- unit serial number accessible from the display anytime you want to see it
- maintenance due date accessible from the display anytime you want to see it
- reminds you when the maintenance date is near
- smaller and lighter

- robust, rigger friendly case, with rounded corners and edges, and in addition it is waterresistant
- extended maintenance window: +/- 6 months from month of manufacture, no down-time during the busy part of the year regardless of month of manufacture
- self test is completed in 10 seconds

The handling of the CYPRES 2 is simple:

After you have purchased it, your rigger slides it into the factory integrated CYPRES set up and you forget about it for 4 years\*

Then you have the maintenance done and forget about it for another 4 years.\*

Then you have another maintenance done and forget about it for another 4 years. \*

\* Except for switching it on at the beginning of the day and changing the filter if you should have landed in water and respecting the total contents of this User's Guide.

## 1.2 Components

CYPRES consists of a control unit, a processing unit and one release unit (cutter) for 1-pin reserve container or two release units (cutters) for 2-pin reserve container.



**Please do not:**

- pull
- lift
- carry or
- throw CYPRES by the cables



control unit



processing unit



release unit  
(cutter)

### 1.3 How CYPRES works

Every time CYPRES is switched on, it measures the air pressure several times in a short period of time, takes the average value as the value for ground level, thus "zeroing" itself. This happens during the integrated self-test.

While it is in use, CYPRES constantly checks the air pressure while on the ground and, if necessary, adjusts to changing weather conditions, e.g. air pressure. Even though you might need to reset your altimeter before a jump, CYPRES takes care of itself. This very accurate calibration is the basis for CYPRES to recognize exactly the activation altitude and speed.

The processing unit contains a factory-programmed microprocessor that is capable of real-time calculations of the jumper's altitude and rate of descent based on barometric pressure.

By monitoring this data, certain criteria are generated from which conclusions are drawn. Should the conclusion be that the jumper is in a dangerous situation (i.e. still in freefall at a low altitude) the processing unit triggers the release

unit to open the reserve container.

The release unit (cutter) system for the reserve container is completely independent of the rig's primary system, because it does not pull the ripcord pin out of the closing loop, but rather cuts the loop inside the reserve container to release the pilot chute.

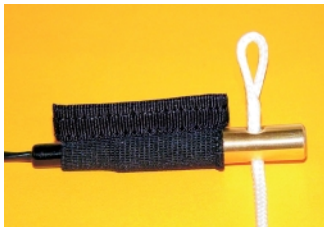
Opening a reserve container by cutting the loop is a method invented and patented by the founder of Airtec, Helmut Cloth, in 1987.

The CYPRES' activation system has these advantages:

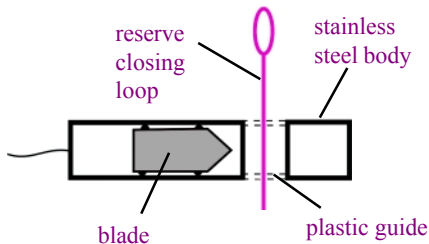
- The reserve container can be opened in two different ways. One method is by the jumper pulling the reserve release handle. The other method is used by CYPRES when it cuts the closing loop.
- Mechanical components are reduced to a single movable piston in the release unit.
- The activation system is located inside the reserve container where it is not exposed to excessive shock or other adverse influences.

- The system is unobtrusive and can be installed so that it is undetectable from the outside.

Release unit (cutter) with elastic keeper



Functional diagram:



The distance which the piston moves in case of an activation is approx. 5 mm.

The release unit (cutter) is completely self-contained and specifically developed for CYPRES. In the event of activation, nothing escapes or is expelled.

During an 18 month long investigation by BAM (Bundesanstalt für Materialprüfung), Berlin, 99 release units were tested. The result is that BAM and the U.S. DOT have classified the CYPRES as being non-hazardous.

Due to its high reliability and other properties, the CYPRES release unit is currently being used in aerospace applications (satellites).



## 1.4 Power supply

No attention is needed to the power supply of CYPRES 2.

The unit is designed to function from the date of manufacture until the first maintenance, from the first maintenance to the second maintenance, and from the second maintenance until the end of life without limitations concerning the number of jumps. If CYPRES 2 should cease to function due to a faulty power supply prior to the maintenance due date, Airtec will take care of this with the highest priority.



**actually**

no scheduling

no shipping costs

no battery costs

no installation costs

no repack costs

no downtime

## 1.5 Operational safety

There are two important points to remember regarding the operational safety of CYPRES:

1. CYPRES self-tests automatically every time it is switched on. After every switch-on procedure, CYPRES executes a self-test routine during which all important internal functions are checked. A positive outcome to this self-test should assure you of trouble-free operation for up to 14 hours.

When the display unit shows 0▼, the self-test has been completed successfully. If the self-test has resulted in errors or discrepancies, CYPRES will not assume operating mode but will switch itself off after displaying an error code. This error code indicates why the self-test process was aborted (see chapter 5).

2. CYPRES has fail-safe error detection. Two processes are activated in CYPRES once the unit has been switched on: a primary working process and an independently operating controlling process that monitors the working process continuously. In case of errors while the working process is active, the backup controlling process will switch the unit off. Depending on the type and potential impact of the error, CYPRES can either be switched on again or it will stay in shut-down mode permanently. With certain error codes (see error code list in chapter 5), it is not possible for the user to reactivate the unit. In such cases, CYPRES must be sent to the manufacturer or service center for inspection and adjustment.

## 2. Product overview

CYPRES 2 is available in four models:

Expert CYPRES 2

Student CYPRES 2

Tandem CYPRES 2

Speed CYPRES 2

### Converting models

A conversion between each of these four CYPRES 2 models (Expert - Student - Tandem - Speed) is possible.

To prevent accidental setting, this procedure has to be performed by the manufacturer. It will be executed by the same people that built the unit. This includes new settings, a new color corresponding push button, a new label, and a complete functional test. All this at no charge.

### Use in a 1-pin reserve container and the use in a 2-pin reserve container

All CYPRES can be used in both container types. With the plug-and-socket cutter connection a swap from 1-pin cutter to 2-pin cutter or vice versa can be simply done by unplugging and plugging-in without opening the unit and without the use of any tools. (See chapter 6)

### Feet / Meter version

Every new CYPRES can either display altitude in feet or meters.

If your CYPRES does not meet your personal preference, see chapter 4.4 for switching the scale of altitude reference from feet to meter or vice versa. Once you have set it, leave it as long as the unit is in your use.

If your CYPRES does not show "meter" or "ft" on the display when changing altitude reference, then it is an older version that is not capable of switching the scales.

## 2.1 Expert CYPRES



The Expert CYPRES can be recognized by the red button on the control unit.

It activates the release unit when it detects a rate of descent higher than 78 mph (35 m/sec) at an altitude of approx. 750 feet (approx. 225 meters) above ground level (AGL). In the event of a cutaway below this height CYPRES will operate down to approx. 130 feet AGL, however activation will not occur unless sufficient speed is obtained. Below approx. 130 feet (approx. 40 meters) AGL opening is no longer useful. For this reason, CYPRES ceases operation below approximately 130 feet AGL.

As of spring 2003 (end of production for CYPRES 1), there are approx. 67,000 Expert CYPRES in use worldwide.

## 2.2 Tandem CYPRES



The Tandem CYPRES can be recognized by the blue button with the imprint "Tandem" on the control unit.

It activates the release unit when it detects a rate of descent higher than 78 mph (35 m/sec) at an altitude of approx. 1900 (approx. 570 meters) feet AGL.

Like the Expert CYPRES, the Tandem CYPRES ceases operation below approx. 130 feet (approx. 40 meters) AGL. In the event of a cutaway, activation will not occur until sufficient speed is obtained.

As of spring 2003, (end of production for CYPRES 1), there are approx. 4,900 Tandem CYPRES in use worldwide.

## 2.3 Student CYPRES



The Student CYPRES can be recognized by the yellow button with the imprint "Student" on the control unit.

It activates the release unit when it detects a rate of descent higher than 29 mph (13 meters per second). The activation altitude is split. In the case of rate of descent being approx. that of free fall, the opening altitude is at approx. 750 feet (the same as with Expert CYPRES). However, should the rate of descent be lower than that of freefall but still above the limit of 29 mph (e.g. with partially opened canopy, or after a cutaway), then Student CYPRES activates the release unit when the altitude falls below approx. 1000 feet (approx. 300 meters) above ground level. The student will then have more time to prepare for landing. Like the Expert CYPRES, the Student CYPRES ceases operation below approx. 130 feet AGL.

Unlike the Expert and Tandem CYPRES models, we recommend that the Student CYPRES be switched off in the aircraft prior to descent if the jump is aborted and the student will land with the plane, because the vertical speed of a descending jump plane will exceed the activation speed of Student CYPRES.



**Be aware that it is possible to exceed a vertical speed of 29 mph (13 meters per second) under a fully inflated canopy!**

**If a jump plane is descending with students still on board, switch the Student CYPRES off before reaching 1500 ft (450 meters) above ground.**

**If this is not possible, the descent rate of the plane must not exceed 1500 ft/min below 1500 feet above ground. Close open doors.**

## 2.4 Speed CYPRES



The Speed CYPRES can be recognized by the red button with the white imprint "Speed" on the control unit.

It will activate the release unit when it detects a rate of descent higher than approx. 96 mph (approx. 43 m/s) at an altitude below approx. 750 feet (approx. 225 meters) above ground level (AGL). Unlike the Expert CYPRES, the Speed CYPRES ceases operation below approx. 330 feet (approx. 100 meters) AGL.

In the event of a cutaway, activation will not occur until sufficient speed is obtained!

The Speed CYPRES is designed to allow very extreme canopy piloting. The high activation speed (approx. 86 percent of freefall speed) plus the feature that the unit ceases operation below 330 feet are tailored for this discipline.

The Speed CYPRES is designed to activate reliably in all "regular" free fall situations (without special equipment) when no canopy is out.

**For some activities, the Speed CYPRES may not be suitable.** For instance, already the Expert CYPRES might not activate during a wingsuit jump in certain situations because the vertical speed is too low, there are far less chances that a Speed CYPRES will. There might be more situations.

Also be aware: The 35 m/s (78 mph) vertical speed required for an Expert CYPRES to activate has not been reached under an open canopy by the entire skydiving community for decades. Even since the introduction of extreme radical canopies ranging between 100 and less square feet it took the worlds top class canopy pilots still years to develop the handling skills to exceed this vertical rate. Today it looks that the only chance to be so fast is to execute multiple 360's.

Being at that vertical speed under a canopy below a thousand feet truly enhances the personal risk. Please take all these facts into consideration and use common sense before choosing the Speed CYPRES. Thank you.

### 3. Installation

Since 1994, Airtec is providing the CYPRES Set-up containing all the necessary parts to nearly all rig manufacturer worldwide, so that all rigs can be delivered CYPRES ready.

This Setup is only designed for CYPRES and may not be used with other AADs.

Additionally, for nearly all older rigs, Airtec has published detailed retrofit instructions in the "CYPRES Rigger's Guide for Installation". If an older rig is not already CYPRES ready, the retrofit can be organized by any CYPRES dealer.

All CYPRES dealers have the necessary documentation for the correct setup. Retrofit setup must only be performed by Airtec qualified riggers. Under no conditions is deviation from the instructions in the "CYPRES Rigger's Guide for Installation" allowed.

CYPRES can be assembled into rigs with existing setups by riggers (packers). Please refer to the "Packer's Checklist" to verify correct setup in each container.



Please comply with any country-specific regulations concerning a retrofit.

It is necessary to place the processing unit into the pouch so that the cables lay flat on the bottom of the pouch. Control unit cable and cutter cable(s) must be placed without tension.

Excess cable is stowed in the flat part of the pocket underneath the velcro-adjustable flap. If you have to stow both the thinner cutter cable and the thicker control unit cable, be sure to place the thicker cable so that it lays on top of the thinner one. Cables should be placed in a circle in order to avoid twists. Always avoid pulling, bending, twisting, or kinking the cables

Removal of CYPRES can be done by the owner without any problems. Do not pull on the cables, instead push the processing unit, cutter and control unit from their keepers.



right



**wrong**

- cables not flat on bottom
- thin cable on top of thicker cable
- cable twisted



## 4. How to operate CYPRES 2

### 4.1 Handling the control unit

The push button on the control unit should be pressed with the fingertip; please do not use a fingernail or any other object. Use a short click action in the middle of the button.



You should familiarize yourself with switching CYPRES 2 on and off (see chapter 4.2) and changing altitude reference (see chapter 4.4) prior to use.

The push button is the only means the user has for controlling CYPRES 2 functions. For a skydiver necessary handling is reduced to the following six actions:

- switching on
- switching off
- increasing altitude reference
- decreasing altitude reference
- viewing the serial number
- viewing the next maintenance date

The following sections provide thorough descriptions of these six procedures.

## 4.2 Switching CYPRES on

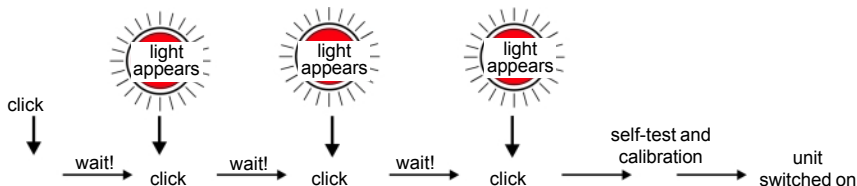
CYPRES is switched on by pressing the push button four times with very short clicks. Start the switch-on cycle by clicking the button once. After approx. one second, the red LED-light will glow. You must acknowledge the red light immediately by clicking the button again. This sequence - a click following appearance of the red light - will be repeated two more times. After a total of four clicks, CYPRES goes into self-test mode.

If you do not act promptly after seeing the LED-light, or if you push the button too soon, CYPRES will ignore the switch-on attempt.

This four-click initiation cycle has been designed to avoid accidental switch-on.

Once the switch-on procedure is finished, the unit will run through its self-test. Initially, the display will show the number "10", and then a countdown ending in "0". When the "0" with the arrow down is shown, the unit is functional for the next 14 hours. After 14 hours have passed, the unit will switch itself off automatically. A manual switch-off is always possible using the push button. If the self-test is not successful, an error code is shown for approximately 2 seconds. The meaning of this error code can be seen in chapter 5.

The manual switch-off sequence is the same as the switch-on procedure (click, light, click, light, click, light, click). This routine is designed to avoid accidental switch-off.



### 4.3 When to switch on or reset

As a rule, CYPRES has to be switched on at the takeoff site on the ground. Just prior to donning your rig is an ideal time. It should never be switched on inside an aircraft, helicopter, balloon, etc.

To reset CYPRES, switch off and then on again. The unit will then re-calibrate and "zero" itself to this elevation.

When the takeoff airfield and intended dropzone are in the same location, and all jumping activity is restricted to that place, an initial switch-on at the dropzone will suffice for any number of jumps, provided they all take place within 14 hours. Should any of the following situations occur, CYPRES must be reset before the next jump:

- The dropzone is missed and the landing takes place in an area with an elevation greater than 30 feet (10 m) above or below the dropzone level. Or, on the return journey to the dropzone the ground elevation changes similarly.

- The unit is taken away from the airfield/dropzone by vehicle or on foot and later brought back again.
- If the total time for a single jump (takeoff to landing) exceeds one and a half hours, CYPRES will function normally, but must be reset after landing.

General recommendation: If in doubt, reset CYPRES.

When the takeoff airfield and intended dropzone are in different locations, CYPRES must be switched on at the departure airfield. Prior to each jump, on return to the airfield from the dropzone, it must be reset again before takeoff.

When the takeoff airfield and intended dropzone are at different elevations, CYPRES must be switched on at the departure airfield and adjusted to the elevation of the dropzone (see chapter 4.4). This is extremely important when making demonstration/display jumps. Prior to each jump, on return to the airfield from the dropzone, it must be reset before jumping again.

## 4.4 Changing altitude reference

You must change the altitude reference whenever the airfield and the dropzone where you intend to land are at different elevations.

CYPRES allows for adjustments of up to plus/minus 1500 feet, or plus/minus 500 meters. If an adjustment has been made, either "meter" or "ft" is shown on the display. If "meter" is shown, the displayed value is in meters. If "ft" is shown, the value is in feet.

In order to make the altitude reference adjustment, simply leave your finger pressed firmly on the push button when you press it for the fourth time during switch-on. CYPRES will continue with its self-test, and once it has finished, it will display altitude differences in steps of 30 feet (or 10 meters). For example, CYPRES will display "30 ft" ("10 meters") on the display next to an arrow pointing upward. (30<sup>▲</sup>ft or 10<sup>▲</sup>meters)

In this way, CYPRES is asking if the intended landing site will be at a place 30 feet (10 meters) above airfield elevation. The "30 ft" ("10 meters") will remain on the display but the arrow will switch

direction, now pointing downward (30<sup>▼</sup>ft or 10<sup>▼</sup>meters). At this point, CYPRES is asking whether the landing site will be 30 feet (10 meters) below airfield elevation. (Be sure to use above ground level altitude; never above sea level references.) Following this, "60 ft" ("20 meters") will display next to an arrow pointing upward. CYPRES now is asking whether you intend to land 60 feet (20 meters) above airfield level. Once again the arrow



will change, pointing downward. CYPRES asks: "Landing 60 feet (20 meters) lower?"

This back-and-forth routine between up and down, in increments of 30 feet (10 meters), continues up to an altitude difference of 1500 feet (500 meters). The push button must remain pressed until the desired altitude comes up on the display. When you see the appropriate altitude, release the push button.

The altitude difference that you select will remain indicated on the display, and CYPRES will adjust automatically for this change during the next jump (only).

Even the shortest release of the push button during the self-test cycle causes an interruption in the process and CYPRES will ignore further attempts to change altitude reference. In such cases the unit will run through its self-test and end with 0▼ on the display, ready for operation (without altitude adjustment). Simply repeat the procedure as necessary.

If you need to make changes, you have to start over again by switching off then back on.



Once you have made an altitude change, it will be displayed until the jump has been made, or until CYPRES switches itself off or is switched off by you.

On landing, CYPRES will accept the new ground level as its actual "Ground Zero" reference, when the preset altitude has been hit precisely or if the landing elevation is lower than the one set. This action can be observed by noticing that immediately after the landing (within a maximum of 30 seconds), the preset altitude difference is automatically replaced by zero.

It would then be possible to take off from this elevation and land there again under canopy without doing any further altitude adjustment.

But, if you take off at this elevation and jump into a dropzone with a different elevation you have to do another altitude adjustment.

If the landing elevation is higher than set, the unit will not change to zero display right away. In such a case, CYPRES must be recalibrated to the correct Ground Zero by switching it off and on again prior to the next jump. Do this on the airfield where the aircraft will take off.



**Important:**

**It is necessary to do an altitude adjustment before each individual jump, whenever the airfield and the dropzone where you intend to land are at different elevations.**

If the units scale does not provide the measurement you are used to, you can switch the scale from "meter" to "ft" or vice versa: Leave your finger pressed firmly on the push button when you press it for the fourth time during switch-on. Keep the button pressed down and wait until the self-test has been completed, two display informations ("ser. no." and "next maint. in") and an additional 30 seconds have past by. After that you have a 5 seconds window to let the button go. If you do this you will see an alternating display of "meter" and "ft". Make your choice by clicking on it. For confirmation the chosen item flickers three times. Then the scale is set and the unit shuts off.

The setting will be fixed until you repeat this procedure and choose the other setting.

## 4.5 Access to unit information

CYPRES 2 provides an easy way to view the serial number and next maintenance due date.

Simply perform an altitude adjustment and keep pressing the push button after the limit of the altitude adjustment range.

After 1500▼ (500▼) is shown:

- 1) the display goes blank for half a second,
- 2) the serial number is shown for 5 seconds,
- 3) the display goes blank for half a second,
- 4) the month and year of the next maintenance due date is shown for 5 seconds,
- 5) finally, the unit shuts off.

display of the serial number



next maintenance due in 05 / 2007



## 4.6 CYPRES 2 and Water jumps



The design of the CYPRES 2 allows water jumps without removal of the unit. CYPRES 2 is water-proof for a duration up to 15 minutes down to a water depth of 15 feet (5 meters). This is achieved through a water-resistant casing, sealed plug connections, a sealed cutter, a sealed control unit, and a special filter. The filter allows precise measurement of the air pressure and at the same time keeps water away from the inside of the unit. As long as there is no contact with water, the filter never needs to be replaced by the user.

If water did enter into the filter, the unit must be switched off after taking of the rig and the filter must be replaced before the next use.

CYPRES 2 comes with one spare filter and a filter changing tool. The CYPRES 2 filter changer tool is made from stainless steel, specifically for the purpose of filter removal and replacement. Filter replacement (see chapter 4.7) can be done by your rigger (packer). After water contact, the rig and the reserve must be dried according to the manufacturers instructions. After that the rig and CYPRES 2 with the new filter can be used again.



## 4.7 Changing the filter



**Filter Removal:** 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 counter-clockwise direction and remove the filter. If there is water in the casing (behind the filter), dry it with a cloth. Remove the old filter from the filter changer by pushing with your finger or with the eraser end of a pencil. Discard it.

**Filter Installation:** 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.



**Do not use other tools !**

## 5. Error Display

If there is an error condition detected, during the self-test countdown, CYPRES 2 displays a number on the display for approx. 2 seconds, then it switches itself off. (Display goes blank).

Error code number / error code description:

1111

or

2222

One or both of the attached release units are not correctly electrically connected to the unit. The reason may be a cable break, the cutter plug could be disconnected, or the release unit(s) may have activated.

3333

Excessive variations in ambient air pressure have been measured during the self-test period. The unit is unable to obtain consistent values for the ambient air pressure at ground level. Possible reasons could be that an attempt to switch CYPRES on has been made in a car driving uphill or downhill, in an elevator or in a flying aircraft.

The switch-on procedure can be performed several times after a "3333" error was displayed. If the 0▼ is displayed, the unit is fully functional and can be used for skydiving.

If other than these three described numbers appear in the display, or if the unit switches itself off and can not be switched on again, please contact Airtec or SSK.

Please record the error code number!

## 6. Changing the release unit(s)

After an activation the release unit can be changed by any rigger (packer) via the plug-and-socket connection.

Disconnecting the release unit:

Hold plug and socket by their aluminium grips and pull them apart using a smooth straight motion. Do not twist!



1-pin Cutter



Connecting the release unit(s):

Hold plug and socket by their aluminium grips. Place the plug directly in front of the socket and connect them by pushing together with a smooth straight motion until it is completely seated.

Do not twist!



It is easy to change a 1-pin CYPRES to a 2-pin CYPRES or vice-versa, by swapping cutter types.

2-pin Cutter



## Notes:

1. CYPRES 1 field replaceable cutters (no aluminum grip) can be used with CYPRES 2. They will function properly, however this combination is not water-resistant.

CYPRES 2 cutters (identified by aluminum grip) can be used with any CYPRES 1 with the field replaceable cutter connector. They function properly - but this combination is not water-resistant.

2. Release units (cutters) are numbered via a heat shrink tubing placed on the cable. This number identifies the cutter. A table of cutter numbers with corresponding dates of manufacture are available at [www.cypres.cc](http://www.cypres.cc)

3. It is possible that the cutter plug could separate from the socket after a CYPRES activation. In the rare combination of this and a water landing, the socket must be dried out before further use. Do that by tapping the open end of the socket flat onto a flat surface such as a table top. Once

no additional water comes out while tapping on the table top, store the CYPRES with the open end of the socket hanging downward for another 24 hours in a dry area, to allow the socket to dry out completely. When completely dry, insert the plug of the new cutter.

4. Use a one-pin cutter in a one-pin container and a two-pin cutter in a two-pin container.



**WARNING! Do not use release units (cutters), with an expired lifetime!**

**Release units (cutters) also require technical service (maintenance) every four years.**

**Please send cutters more than four years old, that have not been attached to a CYPRES during maintenance to Airtec or SSK for a free no-charge inspection prior to use.**

## 7. Technical service

The extremely reliable function of CYPRES is based on 4 facts: exclusive use of carefully pretreated and approved parts, strict detailed manufacturing procedures, continuous quality control and monitoring through the manufacturing process, and regular periodic technical service (maintenance). 4 and 8 years after the original date of manufacture, maintenance procedures according to the manufacturers guidelines are necessary. There are 4 primary reasons for the maintenance:

1. Deviations between nominal and actual values are corrected to ideal values. Every detail is observed. It is common that signs of wear and tear are corrected and sometimes even ‘cosmetic’ treatment is done.
2. The technical condition of each unit is analyzed. The fact that a very high percentage of units are returned for the periodic maintenance gives the ability to see statistical trends and to predict

potential problems at a very early stage. The advantage: often it’s possible to prevent situations by modifications during the maintenance procedures, rather than having to fix problems with downtime later.

3. Experience shows that during a period of 4 years, changes and improvements do happen. Applicable updates are performed during maintenance. Such updates may have the background of technical improvements, or enhancement of knowledge, or may result from environmental changes or changes in the sport (e.g. new disciplines), which Airtec is always researching and taking into consideration.
4. The most important part of the maintenance is the individual pre-adjustment of each unit for the next 4 years. A unit will not be returned before a high confidence level is reached regarding the prediction of the unit’s proper function for the next 4 years.

The maintenance has to be performed 4 and 8 years after the original date of manufacture. The earliest possible date for the CYPRES 2 maintenance is 6 months early, the latest 6 months after the month of manufacture.

A delayed maintenance has no advantage. It does not save any cost, nor will the total lifetime of the unit be extended. It's smart to choose a suitable time during the 13 month window for sending the unit in for maintenance, rather than waiting until the last possible moment, or until the beginning of the next season.

Because of the 90,000+ maintenance procedures performed to date on CYPRES, and changes incorporated into the design of CYPRES 2, Airtec has determined that it is possible to extend the maintenance window to 13 months on CYPRES 2. This maintenance window gives you more freedom, and avoids maintenance down-time at the wrong time of the year - please use this new feature wisely!

At any time it's possible to check the date of the next maintenance by holding the button down at the last click during the switch-on procedure until you see 'next maint. in month / year'.



If the unit enters 6 months before maintenance due date, the maintenance date (next maint. in month / year) will automatically be shown at each selftest. 6 months after the due date the display will change to: 'next maint. now'.

All displayed dates are only a reminder. Please choose a suitable date during the 13 month time frame for a convenient performance of the maintenance. According to experience, the number of maintenances and the necessary time to do them increases February-May. For quicker service, a date between June and January is a better choice.

After the 8-year maintenance, CYPRES 2 should be airworthy until the end of life. The expected lifetime of CYPRES 2 is 12 years from date of manufacture.

CYPRES 2 maintenance cost is a flat-rate (always the same), even when a unit requires extensive repairs. During the lifetime of a CYPRES 2 unit, the skydiver should not have any operation costs other than the 2 maintenance fees (except for any required replacement cutters or waterproof filters).

Please contact your local CYPRES dealer concerning the maintenance. Please contact Airtec when you don't know who that is. The CYPRES Service Center for the USA, Canada, South America and other Western Hemisphere countries is:

SSK Industries, Inc.,  
1008 Monroe Road  
Lebanon, OH 45036 - USA  
Tel: ++ 1 513 934 3201  
Fax: ++ 1 513 934 3208  
email: [info@cypres-usa.com](mailto:info@cypres-usa.com)  
[www.cypres-usa.com](http://www.cypres-usa.com)



## 8. Important Notes

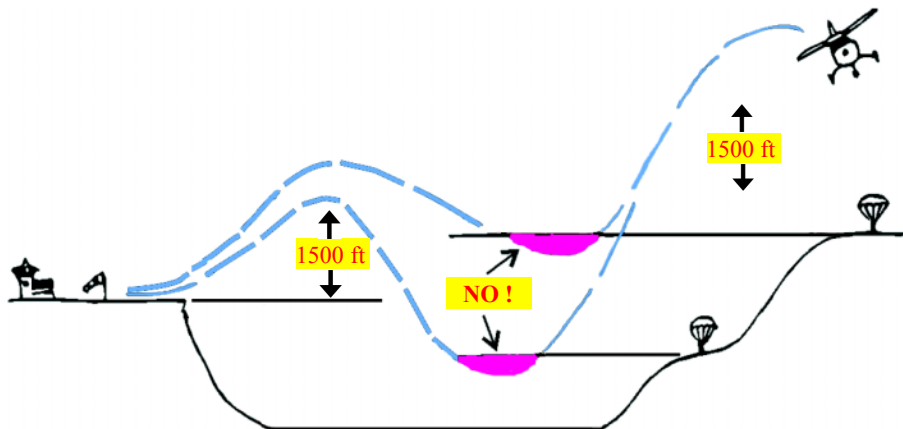
### 8.1 Important notes for jump pilots

- A Student, Expert or Speed CYPRES will not work if the aircraft is exited before it reaches 1500 feet (450m) above the airfield takeoff elevation and 1500 feet (450m) above the intended dropzone elevation. In the case of a Tandem CYPRES 3000 feet (900m) has to be reached.
  - Never descend to an altitude below the airfield takeoff elevation.
  - If CYPRES has been adjusted to a dropzone elevation above airfield takeoff elevation and the aircraft has climbed above the intended dropzone elevation, it must not descend below the intended dropzone elevation again.
  - If CYPRES has been adjusted to a drop zone elevation altitude below the airfield takeoff elevation, the aircraft must not descend below the intended dropzone elevation.
  - When using an aircraft capable of pressurization, make sure that the cabin remains open when the turbines are started up. Leave a window, a door, or the ramp open a bit until after lift-off. It has to be ensured that the cabin pressure cannot build up above the air pressure on the ground. (Hint, skydivers altimeters should never go below "0".)
- It is the skydiver's responsibility to make sure that jump pilots are informed of these circumstances that will interfere with the proper function of CYPRES. Should a jump pilot be unable to comply with these requirements, or should you discover after a jump that the requirements have not been met, you should switch CYPRES off and on again prior to the next jump. Note that the above conditions will only lead to a low, or no activation - therefore there is no risk of a high activation.

A simply rule: Never descend below the elevation of the takeoff airfield or the intended DZ!



- Never fly below the airfield takeoff elevation
- Always go above 1500 feet (450 meters), for Tandems 3000 feet ( 900 meters)
- If altitude reference has been adjusted, never fly below the intended DZ elevation



## 8.2 Important notes for users

- CYPRES must not be used for parascending or paragliding/sailing.
- CYPRES cannot be used for base jumps (jumps from fixed objects), and must be switched off prior to making a base jump.
- A Student, Expert or Speed CYPRES will not work if the aircraft is exited before it reaches 1500 feet (450m) above the airfield and intended DZ. In case of a Tandem CYPRES 3000 feet (900m) must be reached.
- A two canopy scenario can be generated via a CYPRES activation, if the main deploys too low.
- CYPRES is shielded against radio transmitter signals. Extreme concerted efforts have been taken to protect CYPRES 2 from "radio pollution". Although the extraordinary shielding system of CYPRES 2 has been investigated thoroughly, it is impossible to have 100% protection. It is still recommended to avoid strong radio transmitters. Please contact Airtec if you have questions.
- A release unit that has activated builds up a high internal pressure and will remain pressurized. Never attempt to open it by force. It can, however, be stored safely for an indefinite period of time, provided that it has not been damaged.
- A good reserve pilot chute is an important safety factor. On systems with an internally-mounted pilot chute, we recommend that owners equip their rigs with one that has been Airtec tested and subsequently qualified by Airtec and the rig manufacturer. Typically the rig manufacturer delivers these pilot chutes with the rig. If there is any doubt, please contact Airtec.

## 9. Repacking of reserves

**The following tips are only brief suggestions. Detailed instructions for riggers (packers) can be found in our special publications. ("Rigger's Guide for Installation" and "CYPRES Packer's Checklist")**

### General:

Please closely check the grommets at each repack. Grommets with rough edges ultimately will destroy any loop. Replace damaged grommets immediately. Only use original CYPRES loops / loop material, pull ups, and discs when a CYPRES is installed in the container. Even if you do not have a CYPRES in your container, a CYPRES loop will markedly improve your safety. LOR-loops for Parachute de France rigs are an original PdF spare part and can be purchased only from PdF dealers. Non adjustable loops which are attached to a CYPRES disc and are mounted in containers with internal pilot chute should be replaced at each repack. Repack cycles are getting longer, so this increases your safety inexpensively. After attachment to the

disc, CYPRES loops should be treated with CYPRES loop silicone on the upper 4 centimeter. The loops provided by Airtec are impregnated on the first 4 centimeters already.

### 1-Pin Pop Top:

Please check the loop carefully and replace if necessary. On all adjustable loops, silicone should not be used. The adjustment will not remain fixed.

### 2-Pin Pop Top:

Since 1991 Airtec endorses the 'Running Loop' for 2-Pin Pop Top rigs, an Airtec development. The 'Running Loop' has the characteristic that even when you pull one of the two pins, the pilot chute will launch. Please ensure that a 'Running Loop' is installed. The 'Running Loop' must be siliconed. A 'Running Loop' channel is available from Airtec without cost.

#### Additional notes on the Racer from Jump Shack:

On Racer systems in countries where US TSO standards apply, you must use the quick loop system in accordance with the rig manufacturer's instructions. Do not use silicone on quick loops.

For all CYPRES loops including running loops and quick loops, you must use genuine CYPRES loop material.

#### Tips for Riggers (packers):

The 'Packer's Kit' is available from CYPRES dealers. It contains a lot of things that make life easier, including:

50 meter spool loop material, finger trapping needles, discs, temporary pins, silicone, a user's guide and the 'Packer's Checklist' with detailed installation instructions for nearly all containers, tips for packing of CYPRES equipped rigs etc.

Further information on CYPRES installations and for packing CYPRES equipped rigs can be found at [www.cypres.cc](http://www.cypres.cc)



**Please follow your country's requirements concerning repack cycles and authorisations for reserve pack jobs.**

## 10. The CYPRES Loop and Disc System

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 took

care of this issue. In 1991 and 1992 we designed a loop and disc solution to reduce these risks as much as possible.

The CYPRES loop is woven like a tube, so it can be inserted into itself to create the closing loops 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 12/10 inch (3 centimeters) to maximise the smoothness of its surface giving it even less friction.

Although the loop is really narrow, its breaking strength is in excess of 450 lbs (200 kg).

The CYPRES washer (often called a smileie because of its looks) is a small piece of artwork. It is a round aluminium disc with no sharp edges on its outer contour. 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 will shrink the knot and pull it through the disc.

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.



- extremely flexible
- extremely slippery
- breaking strength: 450 lbs
- diameter: 11/16 inch



- no sharp edges
- minimal loop tearing

Both, loop and washer together as a system has certainly made skydiving significantly safer during the last decade. Totally separate from CYPRES.

Since the system was introduced to the scene in 1992 approx. 510,000 discs and approx. 2,100,000 loops have been manufactured by Airtec and being given to rig manufacturers, riggers and packers worldwide to improve the 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.

## 11. Abbreviated User's Guide

### **Switch CYPRES on only when you are on the ground !**

When airfield and dropzone are at the same place, always switch CYPRES off and back on again when:

- CYPRES arrives at the dropzone by any means other than under an open canopy (e.g., by car, or by walking back from landing away from the dropzone.)
- total flight time (leaving the ground until back to the ground) is longer than 1.5 hours.

If airfield and dropzone are at different locations:

- Before every jump, switch CYPRES off and then back on at the airfield where your aircraft takes off from, and change the altitude reference as appropriate.

General recommendation: If in doubt, reset CYPRES.

## 12. Switching Rigs

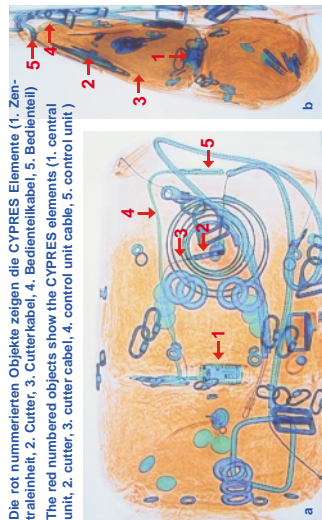
Switching your CYPRES to another CYPRES ready rig will require only a few moments of work for your rigger. If the container swap requires a change in the number of release elements (cutters), this can be done quickly on-site by unplugging the old cutter and swapping with the required type cutter (1-pin or 2-pin). It is not necessary to send the CYPRES to the manufacturer. The necessary cutter can be purchased at any CYPRES dealer.

### 13. Regarding Air Travel

A CYPRES equipped rig may be transported in freight and passenger airplanes without restrictions. All its components (e.g. measuring technique, electronics, power supply, loop cutter, control unit, plugs, cables, casing) as well as the complete system, contain parts and materials that are approved by U.S. DOT and other agencies worldwide, and are not subject to any transport regulations.

Because of the size of a rig we recommend to check it in as normal luggage and to not take it on board as hand luggage. In case of questions or objections of the security personnel, please use the card shown on the right which you'll find in the back cover of this book. The card shows an X-ray of a complete rig with CYPRES 2. Depending on type and design of the rig the X-ray on the security's screen may vary.

Presently the Parachute Industry Association and the USPA are working with the Transportation Security Agency concerning traveling with parachutes.



Die rot nummerierten Objekte zeigen die CYPRES Elemente (1. Zentraleinheit, 2. Cutter, 3. Cutterkabel, 4. Bedienteilkabel, 5. Bedienteil)  
The red numbered objects show the CYPRES elements (1. central unit, 2. cutter, 3. cutter cable, 4. control unit cable, 5. control unit)

original card located in the back cover

If you've lost the card, you can get a new one from Airtec or SSK.



## 14. Technical Data

### Data common to Expert, Tandem, Student and Speed models:

Length, width, height of the processing unit:	approx. 85 x 43 x 32 mm
Length, width, height of the control unit:	approx. 65 x 18 x 6,5 mm
Length, diameter of the release unit:	approx. 43 x 8 mm
Cable length of the release unit (including release unit):	approx. 500 mm
Storage temperature:	+71° to -25° Celsius
Storage pressure:	200 to 1070 hPa ( 5,906 to 31,597 In.Hg)
Working temperature:	+63° to -20° Celsius *
Maximum allowable humidity:	up to 99,9 % rel. humidity
Waterproof:	up to 15 minutes down to a depth of 15 feet
Altitude adjustment limits:	±1500 feet or ±500 m
Operating range below / above sea level:	-1500 feet to +26,000 feet (-500 m to +8000 m)
Functioning period:	14 hours from switch-on
Power supply:	lifetime warranty**
Maintenance:	4 and 8 years from date of manufacture
Total lifetime:	12 years from date of manufacture***

\* These temperature limits do not mean the outside (ambient) temperatures but rather temperatures inside the processing unit. Therefore, these limits won't have any meaning until the processing unit itself has reached the temperatures in question. In actual fact, these limits will rarely be reached due to the mandatory location of the CYPRES in the reserve container, and the insulating properties of the processing unit pouch and parachute canopies.

\*\* If required maintenance has been performed.

\*\*\* Anticipated, according to the present knowledge base.

#### Special data for EXPERT CYPRES:

Cable length of control unit: ..... approx. 650 mm  
Volume: ..... approx. 139 cm<sup>3</sup>  
Weight: ..... approx. 188 grams  
Activation altitude: ..... approx. 750 - 130 feet  
..... (approx. 225 - 40 meter)  
Activation speed: .... approx. > 78 mph (35 m/s)

#### Special data for TANDEM CYPRES:

Cable length of control unit: ..... approx. 650 mm  
Volume: ..... approx. 139 cm<sup>3</sup>  
Weight: ..... approx. 188 grams  
Activation altitude: ..... approx. 1900 - 130 feet  
..... (approx. 580 - 40 meter)  
Activation speed: .... approx. > 78 mph (35 m/s)

#### Special data for STUDENT CYPRES:

Cable length of control unit: .... approx. 1000mm  
Volume: ..... approx. 144 cm<sup>3</sup>  
Weight: ..... approx. 205 grams  
Activation altitude: approx. 1000 / 750 - 130 feet  
..... (approx. 300 / 225 - 40 meter)  
Activation speed: ..... approx. > 29 mph (13 m/s)

#### Special data for SPEED CYPRES:

Cable length of control unit: ..... approx. 650 mm  
Volume: ..... approx. 139 cm<sup>3</sup>  
Weight: ..... approx. 188 grams  
Activation altitude: ..... approx. 750 - 330 feet  
..... (approx. 225 - 100 meter)  
Activation speed: .... approx. > 96 mph (43 m/s)

## 15. Warranty

Technical defects that show up during the first 2 years from the date of manufacture will be repaired by the manufacturer at no cost.

The manufacturer reserves the right to decide whether the unit will be repaired or replaced. Neither repair nor replacement will change the original warranty period of 2 years from original DOM.

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.

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.

## 16. Disclaimer

In designing and manufacturing CYPRES, the aim of Airtec GmbH is that the device should never cause an accidental canopy opening, but should open a reserve canopy at an appropriate altitude when the activation criteria are met.

All investigations and experiments performed during the product's development, and all laboratory and field tests accompanying trial and production phases have shown to date that CYPRES meets both requirements.

However, the occurrence of a malfunction cannot be excluded. We accept no responsibility for damages and consequences resulting from any malfunction.

Airtec GmbH also accepts no responsibility for damages or problems which are caused by the use of non original Airtec parts and supplies.

The use of CYPRES does not automatically prevent injury or death. Risk can be reduced by assuring that each component has been installed in strict compliance with the manufacturer's

instructions, by obtaining proper instruction in the use of this system, and by operating each component of the system in strict compliance with this User's Guide.

Automatic activation devices (AADs) sometimes fail to operate properly, and sometimes activate when they should not, even when properly installed and operated. Therefore the user risks serious injury or even death to themselves and others during each use.

By using or allowing others to use CYPRES, you acknowledge that you accept responsibility for the proper use of the device, as well as accepting the consequences of any and all use of this device.

Airtec GmbH, their Dealers, Service Centers, and Agents total and complete responsibility is limited to the repair or replacement of any defective device.

CYPRES is strictly a backup device, and is not intended to replace proper training or timely execution of appropriate emergency procedures.

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## 18. Packing List

In addition to the CYPRES 2 unit and the user's guide, the following items will be delivered:

For 1-pin CYPRES 2:

- 2 1-pin Loops
- 1 pull up
- 1 disc
- 1 spare filter
- 1 filter changer

For 2-pin CYPRES 2:

- 1 2-pin Loop
- 2 pull ups
- 2 soft bodkins
- 2 discs
- 1 spare filter
- 1 filter changer

## Trade Marks

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33181 Bad Wünnenberg, Germany.

CYPRES 2 User Guide as revised November 2005  
Further informations and the latest revision of the user's guide can be found at: [www.cypres.cc](http://www.cypres.cc)

Printed on chlorine-free bleached paper.

Maybe one day it is helpful to have these data:

## **Container**

Manufacturer + Model:

Size / Color:

Options:

Serial Number:

Date of Manufacture:

Purchased from:

Date:

## **AAD**

Model:

Serial Number:

Date of Manufacture:

Purchased from:

Date:



## **Main Canopy**

Manufacturer + Model:

Size / Options:

Color / Pattern:

Serial Number:

Date of Manufacture:

Purchased from:

Date:

## **Reserve Canopy**

Manufacturer + Model:

Size:

Color / Pattern:

Serial Number:

Date of Manufacture:

Purchased from:

Date:

## Personal Info

**The sky is not the limit.**

**The ground is.**