# smartCHECK V5.11 - Manual



(April 2, 2022)

## What it is

**smartCHECK is a Checklist System for Pilots.** It can be bought and downloaded at Apple's iOS Appstore for iPhone and iPad.

Sophisticated text to speech technology reads written checklists to pilots, just like a copilot in an airliner would. smartCHECK contains a lot of other interesting features like automatic and GPS driven checklist activation, annunciation of altitude above ground after takeoff, and integrated document browser and other tools like tools for noting the fuel level after flight and a tool for tracking the oil consumption of your engine.

## What you need

smartCHECK runs on iPhone and on every iPad under „iOS" but it needs GPS for the more advanced automatic features like automatic forwarding of flight phases, automatic checklist activation or altitude announcements. You can run smartCHECK on iPads without GPS by using an external Bluetooth GPS. You can also use smartCHECK on iPads without GPS - but you will not have the advanced features. The checklists will still be read to you.

Android devices are not supported at this time.

## Normal Mode and Priority Mode

There's two ways to display the checklists, *Normal* and *Priority* Modes.

**Normal Mode** is the „classic view" of smartCHECK that contains all normal, abnormal and emergency checklists for the airplane, sorted by flight phases. The default flight phases are: GND - TAXI/TAKEOFF - AFTER TAKEOFF - IN FLIGHT - LDG - SHUTDOWN.

**Priority Mode** is the **list view** you can select if you want to only use a defined set of checklists in flight. To use PM you have to select the checklists you mostly use in the settings. If you need to get any of the other checklists that are not part of your PM selection you simply tap „Normal Mode" to get back to the full view.

You can select any checklist to use in the Priority Mode: Blue, Red, Yellow - and even the green ones which you use for important documents you might want to access in flight, like pages from your flight manual.

## The 5 ways to use smartCHECK checklists

1. **Tap and Read the Checklist:** Use it like a paper checklist, Every time you tap the screen one line is marked as completed
2. **Tap and Listen:** Every tap on the screen reads one item of the checklist. Tap for the next item until checklist is completed.
3. **Auto Read:** Tap the checklist icon and the whole checklist is read to you the way like a copilot would read it to you. Stop and Resume any time by tapping the screen. If you want it then the checklist title will be read. Another option is to let the checklist say „checklist completed".
4. For each checklist you can define (in Priority Mode only) if you want to **use it in „auto read" or „manual"** mode. For example you can set the Preflight Checklist to Manual and the After Takeoff checklist to automatic.
5. If you select the new **„Challenge & Response" mode** in the checklist settings the app will only read the left side of the checklist – and you have to complete each line (not interactive!).

# How to use smartCHECK in the cockpit.

Depending on your hardware, the equipment of your airplane and your type of mission you can use smartCHECK in several different ways. This is how you can integrate smartCHECK in your workflow.

**If you only use an iPad** in your plane you can display smartCHECK full screen (double click on home button to go to other app like  navigation. Or you can use smartCHECK in split screen / multitasking mode as a window in your navigation (or other) app. This works in portrait AND landscape mode. You can decide how much space you want to give each app. smartCHECK can occupy 1/3, 1/2 or the full screen - just like your navigation app. You can also „slide" smartCHECK out of view by holding the small handle on top of the window and moving it beyond the screen border. You can always get it back just as easily.

**If you use an iPhone AND an iPad while flying** you can run your favourite navigation app on the iPad and smartCHECK on your iPhone. In most installations you can only connect one device to your headset by Bluetooth though. Some audio panels allow the connection of several Bluetooth devices at the same time (PS Engineering PMA450B, Garmin GMA345).

**These are typical ways to use the audio features of smartCHECK in the cockpit environment.**

- Connect the iOS device directly to your Bluetooth headset
- Connect your iOS device to your Bluetooth audio panel. Some audio panels like the two mentioned above let you connect several devices. This way you could get the audio from Foreflight or SkyDemon – but also the audio checklists from smartCHECK
- Connect your iOS device with your conventional headset by using an adapter cable („Y-cable") which is available at many pilots store.
- Some airplanes have an auxiliary 3.5 mm audio-in socket for entertainment which can also be used to connect an iPhone/iPad to the audio system. You could even put a wireless BT adapter into that socket.

# Checklists in the Store

These checklists are available for free now:

- Airbus A319/A320 (abbreviated version for simulator pilots)
- Cessna C-172N Skyhawk
- Cessna C-182P Skylane
- Cirrus SR20-G1/G2
- Cirrus SR22-G2/G3
- Cirrus SR22T-G5
- Diamond DA40-180F
- Mooney M20R Ovation 2 GX
- Piper PA-28-151/161 Warrior
- Piper PA-28-181 Archer
- Socata TB20
- Light Airplane Template

**More airplane types coming** over time

If your airplane type is not available as a ready to use set, you have these possibilities:

1. **Buy the checklist set of a similar airplane, modify and rename and edit it.** For example take the Piper Archer checklist and modify it for the Piper Dakota, which is a very similar airplane with an almost identical checklist. Or use the Cirrus G5 checklist to make one for the G6 model.
2. **Use the Light Airplane Template and your POH to make your own checklist** (more about this later).
3. **Load a checklist another pilot has made for this airplane based on the Light Airplane Template** (more about this later). The other pilot can send you the checklist via eMail and you simply have to tap the attachment and select „smartCHECK" to open the attachment. Before you save it you can rename the checklist (with your own registration).
4.

# Cirrus Aircraft Checklists

**All Checklists made by us for Cirrus Aircraft contain a special checklist for using the CAPS System (Cirrus Airframe Parachute System).** You will see a special red CAPS icon on the screen, tapping it opens the CAPS checklist.

Cirrus pilots (and the pilots of other aircraft equipped with a BRS system) can use the altitude/AGL feature to determine the approximate height above ground*.

**\*Since smartCHECK does not contain a database of elevations the altitude AGL after takeoff is counted from a point on the runway where the plane reaches 35 knots. If the terrain behind the airport is rising the real altitude AGL will be lower than the indication, and vice versa.**

## Checklist exchange

Checklists made or modified by users can be sent to other pilots by eMail and installed in their smartCHECK app. This works with both of the included checklists, meaning that you can modify one of the two included checklists and send it to any other smartCHECK user for installation in their app.

In case of the pad checklists from the store the receiving pilot must have bought the base checklist for that airplane before he can install a modified version of that checklist sent to him by another pilot.

## Checklist types and Editing

**BLUE** checklists are normal checklist
**YELLOW** checklists are abnormal checklists
**RED** checklists are emergency checklists

Any of these three can be created and edited. Simply type the text, the system will convert the text to speech when using the checklist.

**GREEN** icons are for documents you want to store and display inside smartCHECK. You might want to store some of these documents in smartCHECK for quick access:

• Aircraft documents (insurance, noise certificate, ARC)
• Tables from the POH (takeoff performance, cruise settings etc.)
• Photos or drawings
• Blank page for typing notes
• Drawings or notes for procedures (holding entries, procedure turns)
• Frequency tables

**Note about the „text to speech system":** Apple's text to speech system still has some minor flaws regarding the pronounciation of some words. For example „ignition" is read „igg-nyshon" by the system. The workaround is to spell the word phonetically (try and error …) until it works. For the above example „iggnition" works the best. Of course this means that you have the wrong

spelling in the checklist. To avoid this you can edit the checklist on a PC/MAC using a text editor. If you open the file you will have the possibility to edit *both* the spelling *and* the pronounciation. For correct procedure see explanation below.

**Editing Checklists inside the App**

To edit a checklist in the app simply open the checklist. If it starts reading, please STOP the checklist by tapping the screen once and use the edit screen in the upper right corner. Make a long tap in the field you want to edit, then use the SAVE/CLOSE button to save the changes. You can also edit the order of the items in each checklist by touching the „3 lines" symbol at the end of each line and sliding the entry up/down. don't forget to save the changes.

**Editing Checklists with the NEW MAC OS Editor for smartCHECK**

There is a dedicated MAC OS app, the **„smartCHECK editor"** (**available in the Apple MAC OS Store** for $ 3,99) that lets you edit your checklists in a quick and comfortable way.

• Send the checklist you want to edit to your Mac by eMail
• Save the checklist to your desktop and open it with the Editor
• Edit and test the checklist
• Create Green Icons for Documents you want to add to your checklist
• Send the checklist to your iPhone or iPad by eMail and install it

The editor lets you rewrite existing checklists, add new checklists and documents you want to have at hand in flight. In the (rare) case the text to speech system uses wrong pronounciation you can add a phonetic version of the word (in the „spoken" fields) and test it.

You can also use the „spoken" fields if you want to keep your checklist in the original version of the manufacturer in written form but want to use abbreviations etc. when the checklist is being read to you.

**Editing Checklists on PC/MAC manually without the smartCHECK editor**

**Please only try this if you know how to edit .JSON files!**

1. Go to the home screen of the app and send the checklist to yourself (Nut symbol upper right corner, „edit checklist collections". Check the box on the bottom of the screen if you want to send the documents you uploaded for the green icons as well.

2. Open the eMail you send yourself and save the attachment to a folder on your desktop.

3. Rename the file extension („.smckzip") to „**.zip**" and unzip the checklist with a double click.

4. You can now (carefully!) edit the checklist „JSON" file in any text editor, **but keep in mind that the smallest details are important**. One missing blank or comma – and it will not work. Try to understand the structure of the checklist and then edit it according to your needs. Each entry contains a „spoken value" and a „written value". You can use the spoken value field in cases where the text to speech system has problems with the pronounciation. For example „propallur" works better than the correct spelling „propeller" (which I find strange, but who am I …).

5. When you are finished with editing the file you have to zip it again and after zipping you have to rename the extension to **.smckzip** again (that's smartCHECK's version of „zip"). .zip only will not do.

6. Send the file to yourself again by eMail and open the attachment on the iPhone or iPad that contains smartCHECK. Select smartCHECK to open the file, edit the checklist name (if you want) and save it. The new/edited checklist is now in integrated in your smartCHECK app. You can save your checklist on your home computer or in a cloud service.

7. **Important:** If you add an entry to the checklist then the first letter in the „value" field (right field) must be upper case - otherwise there will be no pause between „key and value".

**Note**: We plan to develop a website/user community on which checklists can easily be made and exchanged. For the time being you have to use the above procedure (an occasional „*f\*\*\* you*", when you mess up, is included in the base price).

**Spelling Mistakes in Checklist** (sxxt happens!)

If you find a mistake in the ready checklist sets you have downloaded from our store you might not be able to correct the spelling or pronounciation but instead you have to do it on the PC (because some editing fields are not visible in the app). **The best workaround** im this case is to delete the wrong entry and make a new one with the correct spelling and then slide it to the correct position in the checklist.

If you hesitate to do that please send eMail to info@airwork.biz and we'll correct and update the checklist.

## Automation and GPS

**smartCHECK uses the GPS for some tasks** and this version (V4.2):

• Auto forward flight phases
• Detect, display and announce altitude above the takeoff runway
• Open and read checklist automatically and hands free (and go back to main menu).

**At this time this is what smartCHECK can do hands-free:**

• Switch flight phase from GND to TAXI when first movement of airplane is detected
• Switch from TAXI/TAKEOFF to AFTER TAKEOFF when a groundspeed of 35 knots is reached
• Open and read the AFTER TAKEOFF checklist hands free at an altitude AGL the user has set in the settings
• Read the CLIMB checklist automatically (right after the After Takeoff checklist)
• Open and read the CRUISE checklist at a ground speed the user has set in the settings
• Announce the Altitude above ground after takeoff (set range in settings)
• Display altitude above ground in big red letters (important for airplanes with BRS/CAPS)

# Features and Settings

### Homescreen

### Store (plus sign)

Select and download ready checklist sets based on the original POHs (Pilot Operating Handbook) of these airplane types. After download you can rename the checklist your registration and modify it according your own equipment and priorities. All checklists are free beginning with version 5.9.

### Menu (nut symbol)

Here you will not only find the Imprint and the (legally required) Terms and Conditions but also the Version info – and a feature called „Edit Checklist Conditions".
Use „Edit Checklist Collections" to

- Send edited checklists to other pilots (you can also attach documents you have uploaded)
- Send complete checklists with all attachments to yourself. Store them in a cloud service and have access to your own personal checklist set from anywhere. From here you can also send it to your other devices

Tap the white triangle next to the selected airplane type to select other airplanes in your collection.

Tap **FLY** to start a new flight

### Main Screen

When you first tap „FLY" the main screen of smartCHECK will open with the „GND" (ground) phase open. You can horizontally scroll through the flight phases by using the flight phases bar (iPhone) or also by swiping the pages (iPad only at this time).

If you want to change the order of the checklists on the screen simply make a long tap and move the icons around as you wish. **Note:** works with iPad version only.

### STOP FLIGHT Key

Use this button to stop a flight and to return to the home screen.

**PRIORITY MODE / NORMAL MODE Key**

Use this key to switch between Priority Mode (list view of selected checklists) and the Normal mode (all existing checklists and documents). To use Priority Mode you have to select the checklists you want to use in the settings (see below).

**Settings button and GPS indicator** (upper left corner). Tap the settings button to open a sidebar with all settings. **The settings button also serves as a n indicator for GPS signal strength.** If it's green, the device has good GPS reception and you can count on the automatic features to work.

1. Auto forward flight phases: With the GPS on (check it is on in location services) you can select to automatically forward flight phases. At this moment GND->TAXI and TAKEOFF>AFTER TAKEOFF are possible
2. Auto read ON/OFF: Let the app read the whole checklist. If set to OFF you have to tap for each checklist item.
3. Screen „auto lock" ON/OFF. Some business iPhones will always lock the screen after a certain time for security reason („never" setting not available). With this switch you can force smartCHECK to stay on.

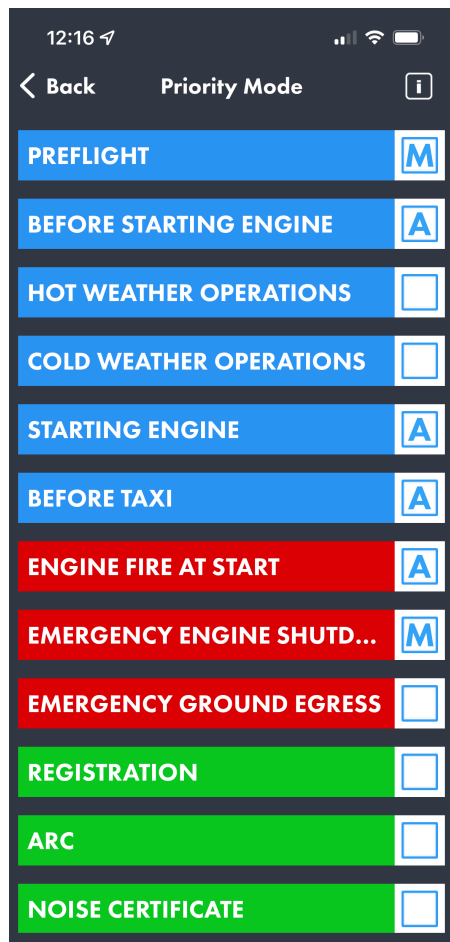**Brightness settings** and Night Mode. Day and Night Switch.

**Audio Settings:** Voice ON/OFF to mute the reading feature, Altitude Callout ON/OFF. If you set it ON you can select a range of altitudes AGL that will be announced after takeoff. With „pause duration" you can set the length of the pause between the items that are beeing read in „auto read" mode.

**Priority Mode** Settings: Use this button  to select the checklists you want to use in „Priority Mode" which is a simplified and more practical list view of your checklists. In normal flight operations you will almost never need all the checklists, abnormal checklists and emergency checklists at hand. With PM you can select the ones you normally use and display them in a more ergonomical list view.

**Here you can also select which checklists you want to use in the fully Automatic mode („auto read") or in Manual mode** (one item per tap). Simply tap the checkbox once or twice to select the mode you want. Checklists that are set to manual will be marked with an „M" on the Priority Mode Main Screen, automatic checklists are marked with „A".

**Example:** The Preflight Checklist is marked „**M**" because the Pilot wants the app to read each item individually when he taps the screen. The Before Engine Start Checklist is marked „**A**", it will be read automatically. Unmarked checklists and documents (green) will not be used in Priority Mode list view). Additionally you can set how you want to use the checklists in the main settings (pause duration, read checklist title, say „checklist completed", challenge & response mode),



**C** **Checklist settings**. Use this button to:

- Select checklist for priority mode (the ones you use most often and which you want to be displayed as a list of checklists for normal flights
- Read Checklist title: Will read the name of the checklist when it's opened.
- Announce checklist completed: Will end the checklist with telling you it is completed.
- Automatic After Takeoff Checklist: Will open and read After Takeoff Checklist at an altitude AGL you will set with the wheel below
- Read Climb Checklist automatically: If selected the After Takeoff Checklist will be followed by the Climb Checklist
- Automatic Cruise Checklist: Select a typical groundspeed for cruise and the cruise checklist will be read to you when reaching this speed. Do not select a speed too high, because you might not reach it with headwind (SR71 Drivers can ignore this note).

**IMPORTANT NOTE:**

**For the automatic and GPS driven features like the „automatic after takeoff checklist" to work or the display of the altitudes AGL after takeoff you will have to reset the app after each flight by using the STOP FLIGHT key.**

**A** **Altitude Settings**. Display Altitudes on Screen:

- The selected altitudes above the takeoff runway will be displayed on the screen in 100 ft steps.
- Note: smartCHECK does not (yet) contain an airport database.
- We make a GPS measurement of the altitude (MSL) at the moment the airplane reaches a groundspeed of 35 kts in the takeoff roll and we go from there.
- If you're at 1312 ft MSL at the moment you reach 35 kts „100 ft" will be displayed (and announced) at **approximately** 1412 ft. Depending on the device the quality of the GPS signal this will not always work precisely.
- In some airplane types you might need an external GPS device.

**F** The **Fuel Reminder** settings. The fuel reminder is just a simple feature that lets you note the fuel status after landing, so that you don't have to switch on the avionics the next time you fly to check the fuel level.

Set the capacity of your fuel tanks and switch on „Display fuel fuel status". When you start your next flight you will first see a magenta colored icon that gives you information about the fuel status from your last flight. You can also set it to „full fuel".

When you reach the „Shutdown" flight phase in classic mode OR when you stop a flight from „Priority Mode" (List view) the reminder will open again and you can set the fuel level before you can use the shutdown checklist.

**Note:** Obviously using this feature only makes sense if your airplane is equipped with a fuel totalizer. Do not guess the fuel status.

There's also a fuel switch timer with two settings which can remind you about switching fuel tanks. You can set the interval you want (60/30/30 … minutes or 60/60/60) and the app will remind you to switch fuel tanks. The timer will start when the airplane reaches 35 knots (groundspeed) and stop again when slower than 35 knots. In the future the fuel switch timer will have a memory feature, for now iit will start counting from zero with the next flight.

**Oil Check** feature. Switch on this feature if you want to keep track of your engine's oil consumption. Enter the total flight time and then note the oil level before flight and how much oil you have added and you will get a list that shows the oil consumption per hour.

**Note:** do not forget to wipe off the dipstick before each measurement to get good results. Oil tends to climb up the dipstick and your actual oil level might be lower than what you first see. Also do not put in too much oil. In many airplane types oil will be blown out of the engine if the level is too high, and this might give you the false impression that your oil consumption is high.

Use this button to **add or to delete checklists**. If you want to add a checklist the next step will allow you to create a …

- Normal checklist (blue)
- Abnormal checklist (yellow)
- Emergency Checklist (red)
- Document Icon (green)

The **Filter toggle button** lets you filter the displayed checklists by their color. Each tao changes the display. The filter button works differently on iPads and iPhone.

*smartCHECK V5.11 Manual, Version 1.0, April 2022. This manual is a work in progress and will occasionally be updated.*

Have fun with smartCHECK! Is it perfect? No, not yet. Is it great fun and a big help in the cockpit? Definitely yes! And it's getting better all the time.



**airWORK aviation media UG (haftungsbeschränkt)**

Destouchesstr. 46

80803 Munich

Germany

info@airwork.biz

www.airwork.biz