



# IHST

**International Helicopter Safety Team**

Our Goal is to Reduce the Civil Helicopter Accident Rate by 80% by 2016.

## Training Fact Sheet – Emergency Decision Making

Contact: Nick Mayhew  
Phone: (321) 567 0386

### *What happens when you lose a critical system?*

You are sitting safely in an out of ground effect hover at 1000 ft while the camera operator focuses in on the traffic accident below in the hope of getting a good story for tonight's news.....when out of the blue the hydraulics give a kick and you feel a big jolt through the controls, the attitude of the aircraft changes and you quickly start to descend. What actions should you take? What is most important? What does the Rotorcraft Flight Manual (RFM) say? What should you do first?

This fact sheet will try to address these questions and offer some guidance and tips on how to safely deal with loss of a critical system or even the loss of a non critical system that can distract and create a situation where you lose another critical system.

The first tip is **don't rush** into making a poor decision where there may be a better one (even with an engine failure you may have more time than you think)! Let's look at an acronym that may help slow you down so you don't make a wrong choice and make the situation worse....something that follows a logical order:

- **R - Recognize**
- **C - Control**
- **D - Diagnose**
- **I - Initiate**

Some will have used RCDI to describe the Rate of Climb and Descent Indicator – also known as a VSI.

Let's break this down a little.



**Recognize** – what has happened? – do I know? – maybe... but don't guess or make a quick assumption. Flying with passengers or other crew? – **warn** them verbally with the symptom NOT the diagnosis! “Control malfunction” or “torque split” or “caution light” for example.

**Control** – contain the situation. Move the controls to keep the aircraft out of danger – achieve a **safe flight** configuration (best IAS for SE flight or fly below max hydraulic out IAS for example).

**Diagnose** – OK now that we have the aircraft under control let's see what went wrong? If you have time and your aircraft has Flight Reference Cards (FRCs) with an Emergencies section now is the time to get them out. If not run through the situation and determine what happened and which systems failed and why. What are the implications? Use your crew and keep your passengers up to date.

**Initiate** – what are we going to do about this? Look for somewhere to land or start a diversion to another location. Make a radio call – do I need to make a distress call – Mayday or Pan? Have I followed my instructor's advice to **Aviate, Navigate and then Communicate (ANC)?** Initiate or continue the descent and pick a good

place to land. Let's get this aircraft and its contents safe.

What does the RFM say about landing? What does **Land Immediately** mean? Each manufacturer will define these actions in different ways so you are best to follow their advice for the aircraft that you fly but let's look at some generic definitions:

**Land Immediately** – continued flight may be more hazardous than ditching or landing in terrain normally considered unsuitable.

**Land As Soon As Possible** – Land at the nearest site at which a safe landing can be made.

**Land As Soon As Practical** – Extended flight is not recommended. The landing site and duration of flight are at the discretion of the aircraft commander.



Remember that if you ever need to move critical controls, especially in an emergen

cy situation, you should always take your time making sure you are holding the right one! If you are part of a crew make sure you use them to confirm the switch or lever using this memory aid:

- **D – Diagnose**
- **D – Double-Check**
- **D – Do**

There have been many occasions where the pilot has shut down the good engine or switched out the working system. Stop, think, check and make sure.

No matter how urgent you think the emergency situation is you should always be able to follow this simple RCDI sequence. Obviously some situations will need you to process through the sequence quicker than others but if you stick to this routine you are far more likely to make the

better choices and keep the helicopter, its crew and passengers safe.

Remember that it is important to always follow the advice and procedures laid down in your aircraft OEM Manual or Handbook. Pilots will improve their chances of making the right decision if you regularly rehearse your actions to unique situations from within the cockpit.

## Summary

- Don't rush. Think **RCDI**.
- **Recognize** the symptoms and **Warn** the crew and passengers.
- **Control** and **contain** the aircraft and get into a **safe flight** configuration if possible.
- **Diagnose. Use FRCs.**
- **Aviate, Navigate and then Communicate.**
- **DDD.** Identify and confirm all critical controls and switches before taking action.
- **Initiate. Tell somebody. Land safely** and appropriately as guided by the RFM.



## References

Further reading on this subject can be found in Ch 17 of the Helicopter Instructor Handbook <http://www.faa.gov/library/manuals/aviation/media/FAA-H-8083-4.pdf> and at the Heliprops site [www.bellhelicopter.com/MungoBlobs/432/954/heliprops\\_22\\_2\\_en.pdf](http://www.bellhelicopter.com/MungoBlobs/432/954/heliprops_22_2_en.pdf) and in the Risk Management Handbook <http://www.faa.gov/library/manuals/aviation/media/FAA-H-8083-2.pdf>.

More information about the IHST, its reports, its safety tools, and presentations can also be obtained at its web site [www.IHST.org](http://www.IHST.org).