

Chapter 10

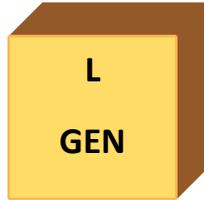
LEFT GEN light illuminates, Electricity, and “It is an ELECTRIC airplane.”

Left GEN light illuminates.

What is your first action?

Write down your steps to fix this.

(Do NOT use your checklist – for now...)



Drill: This abnormal procedure is used to explore what many pilots have been told “Light comes on, use the check list to put it out.” Guided discussion is used in the class room to correct the error in going to the checklist and not asking first “What is the problem? - Am setting up the same circumstances for a simulator period next week.

This was one of my favorite examples of going from pedagogy to andragogy in G. Heart Country. We will go from rote to understanding in basic learning – what most teaching is – to correlation and application in adult learning – which is sometimes beyond the checklist - and gets into the nitty gritty of finding out what the PROBLEM is and THEN going to the proper/correct checklist to solve the problem.

History: This ~~loss of generator~~ illumination of the generator light evolved over the years and was changed finally to keep from resetting over an overvoltage generator and causing the loss of both generators. The checklist finally reflected the wisdom of first checking the DC Voltmeter to see if the other GEN (the one on line) was showing a high voltage – which would have dropped the good GEN off line – and if so, the correct steps would be to turn the overvoltage GEN switch OFF, and reset the other unpowered GEN that had been knocked off line.

In the past watching a crew in the sim and pressing the button to fail a generator two things would happen. One would say “GEN light” and the next thing someone would be reaching for the checklist to follow the steps to reset the GEN. In the example above for my lieutenants to work with used to be about the same thing: 1. Get the checklist out, or 2. Reset the generator.

My experience in walking pilots through the self-discovery of “Oh, that makes more sense” or “Ain’t gonna do that again” lead me to what is best called as “a theatrical episode” where I would announce (something like) “I tell you what you can do with this checklist” and throw it completely to the back of the room to slam into my metal cabinets. I was called a “checklist chucker!” The civil sentiment for this activity would be “put the checklist on the floor and look to see if you can find out what the real problem is.”

[Pause. Want my audience of distinguished graduates (DGs) of G. Heart Country and my civilian readers (friends, family, Riflemen, and my attorney) to understand this book, the meaning of each chapter, comes from 16 years of teaching/instructing this same five day, 40 hour class about 15 times a year – plus the simulator flying. In the class room on the table/desk in the southwest corner were seven boxes of folders/files/articles/paraphernalia to augment my brain and the class if I needed an important piece of information or a tool to enlighten the roaring rhetoric of the day. This means this book and each chapter is a snippet of the whole class. This means we are just reviewing highlights of the class. What would be better would be a book written by some of the lieutenants – for the real no-sh*t story...]



"O.K. Houston, we've had a problem here."¹

"Say again please."

"Houston, we've had a problem. A Main B Bus Undervolt."

And a little later Lovell reports: "Looks like we are venting something."

The transcript reflects they (Lovell) finally say they had some sort of an explosion or a bang but the issue here is, in my opinion, going for the Main Bus B Undervolt checklist is not the first thing to do. This was not the problem.

They must ask "What happened?" "What did we hear?" "What do we have reflecting the problem?"

[*****And then I corrected my teaching.** Rather than go with the "reality of the movie" I decided to do my own investigation and get the timing exactly right by looking at the recording or the tape² of the flight. Bringing a hard copy to show the class was self-critiquing for me and now I am not as hard on my comments about Lovell not coming forth with 'the bang' as it took him just about 51 seconds to announce "...we had a pretty large bang" and this is quite good enough – well, for government work!]

02 07 55 19 LMP Okay, Houston - - __

02 07 55 20 CDR I believe we've had a problem here.

02 07 55 28 CC This is Houston. Say again, please.

02 07 55 35 CDR Houston, we've had a problem. We've had a ,_ MAIN B BUS UNDERVOLT.

02 07 55 42 CC Roger. MAIN B UNDERVOLT.

02 07 55 58 CC Okay, stand by, 13. We're looking at it.

02 07 56 10 LMP Okay. Right now, Houston, the voltage is - is looking good. And we had a pretty large bang associated with the CAUTION AND WARNING there. And as I recall, MAIN B was the one that had had an amp spike on it once before.

¹ <https://www.youtube.com/watch?v=7f51Jzm7M4w> *Failure Is Not An Option A Flight Control History of NASA* 1:29:45 in time.

² https://www.jsc.nasa.gov/history/mission_trans/AS13_TEC.PDF Tape 36/13, page 160.

Lovell then reports:

02 08 09 07 CDR ...and it looks to me, looking out the hatch, that we are venting something. We are venting something out into the - into space.

In the movie this report sounds like a long time after the bang but Lovell saw the leak and reported it in less than two minutes.

A little later Kranz says "Ok, let's everybody keep cool and solve the problem – and let's not make it any worse by guessing."

Kranz asks "What do we have in the space craft that is working?" and maybe that got them all going in the same direction. Then the help (all the other 'teams' - the smartest guys on the planet) showed up and after a while one of them (John Arron) said "You are wasting the emergency batteries, you are going to have to power down and turn off the power for the Mother Ship."

The rest is a great successful recovery of the crew.

The movie and the book by Kranz "Failure is Not an Option" is worthy of our time as stuff like this happens not only in space craft but aeroplanes too (and operating rooms, bakeries, class rooms).



"Let's not make it any worse by guessing"

GEMEINSCHAFTSGEFÜHL

My Learjet 35 checklist has the word GEMEINSCHAFTSGEFÜHL taped on the front. This word will help describe, in part, what we have been talking about during Apollo 13s recovery. There are actually three words here: GEMEIN-SCHAFTS-GEFÜHL and in English they represent Common-Community-Feeling (CCF). In the jet for this class it starts with the crew - with the crew working together.

The next word after crew is what the crew does and that is "use all resources." This reflects the crew of three on the space craft with Lovell as commander and mission control with Kranz as "Flight" and then the various parts of the team and their areas of operation. Again, they used all their resources and were thankful to have them in support of the reprogrammed mission of "get Apollo 13 back home."

The term 'all resources' could be for a C-21A Learjet crew starting with "anyone in the back" as you may have someone who is also qualified as a pilot or mechanic to help with the problem. The radio could be used to call the command post, operations, dispatch, mobile control, the Learjet factory, or someone at home who knows about the jet – just like Kranz called for backup after their oxygen bottle blew up.

Will pause to point out the radio in some cases won't get you out of, for instance, being in 'uncontrolled flight' – like losing a wing or spinning into the ground. I am talking about going down the list of people who can help bail you out to 'get the gear down' 'get the engine running again' or can help solve the problem(s) of getting the ship back on the ground safely.

A crew has access to the check list, operating handbook, the Dash-1, the Airplane Flight Manual, and perhaps some more maintenance items to help run down how to fix the problem. This is using all your resources. Calling ATC with a "Mayday" may be helpful if you have the ship under control and stabilized to work the problem. I am biting my tongue here as sometimes ATC, the radio (Marconi), won't be able to help you in spite of EVERY f'ing airplane accident in the world is reported the pilot did/did not call ATC. I have covered this point in the V1 cut steps to accomplish in the climb out – ATC is last.

OVERRIDING CONSIDERATIONS

Most of the flight manuals I have in my library talk about immediate action procedures, checklist procedures, and emphasize "there is no substitute for good judgment." This puts the flying right back where it should be and that is with the crew (pilot – in some aircraft). However, the Learjet Operating Handbook and Aircraft Flight Manual give some guidance worth repeating and this has to do with Overriding Considerations:

In all emergencies, the overriding consideration must be to:

- Ñ **Maintain Airplane Control**
- Ñ **Analyze the Situation**
- Ñ **Take Proper Action**

Note: This "overriding consideration" page is reproduced in Chapter 8 on page 108.

A pilot staying 16 miles ahead of his jet will follow these steps (says "must") and when something comes up He will fly the airplane. Then when the problem is determined he will use all his resources getting it back on the ground safely noting he may even consult the checklist...

Are you going to land or not?

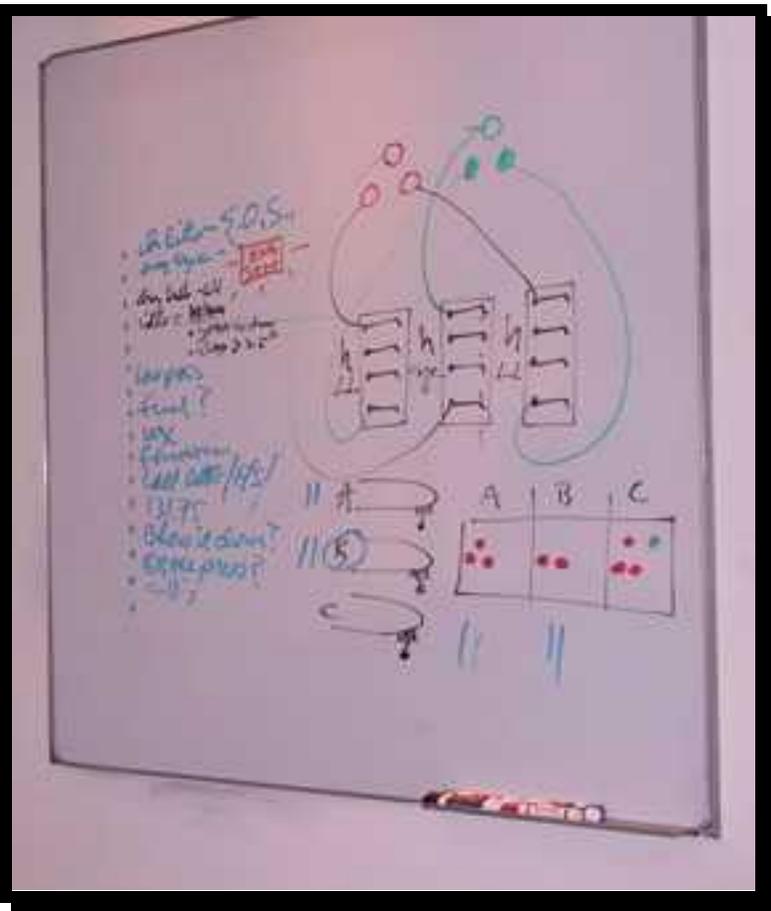
On the white board I draw three red circles and three green circles signifying the landing gear lights for the jet. Then I fill in the bottom two green lights with green leaving the top circle 'not lit.' Course, this indicates the two main mounts (gear) are down and the nose gear light is not showing a down and locked indication.

"Are you going to land or not?"

Better:

"What is the problem?"

"Ok, let's make a list of the options and discuss each one while we 'just park our jet' on a five mile final."



Here is a shot of a typical finish for a teaching event in 'guided discussion' and in my opinion one of the better ways to teach at this level. These students have been to initial ground school and a few recurrent classes so the 'rote' to 'understanding' is pretty much done. Taking them to 'application' and 'correlation' depends on what kind of a list they come up with. Then comma I can take them from where they are to where they should be to fly, fight, teach, and enjoy their instructing.

The first item on the list is check to see if the lights (system/bulbs) all work. I'll start it off with these bullets to get the list going:

-) *ck lites* – S.O.S
-) *ENG SYNC* – illuminates

Then I ask “You ready to land? Why/Why not? – and then more discussion. Of course you can land, the gear is down but should you? Then we have more discussion. Well, it depends on the mission, the weather, and where you are.

*

*

More dots.

For variation in delivery but still meeting the learning objectives for this lesson I would put the six colored circles up on the board and then ask “Write down 14 items you would consider or do before you land the jet.”

Will lead to the same list of dots.

Course, a third way would be to have them one by one come up and fill in a dot and explain the logic and reasoning for what the dot does.

Another way of starting this lesson was by telling a true story - I was landing at Love Field in a 35 Learjet N711Whiskey Delta (and remark the call sign reminded me of some of them – ‘weak dicks’) yes, they were awake...this feat is called positive motivation. All students need motivation. It was also an example of my passion to teach – in spite of sometimes letting my impertinence exceed my exuberance.

After the gear was extended I noticed the unlit light on the nose gear and promptly checked the lights. All illuminated but the nose gear - same-ole-stuff. I moved the ENG SYNC switch to the SYNC position and the lights illuminated indicating the nose gear is down. Did I land? No, I had a fed in the left seat finishing his check ride so we went around ‘to make sure’ everything was working. My error was not making him do all the work and having him figure it out by himself. My boss was upset on the go-around and I had to do pushups because I did all the work for the fed...I freally rucked that up.

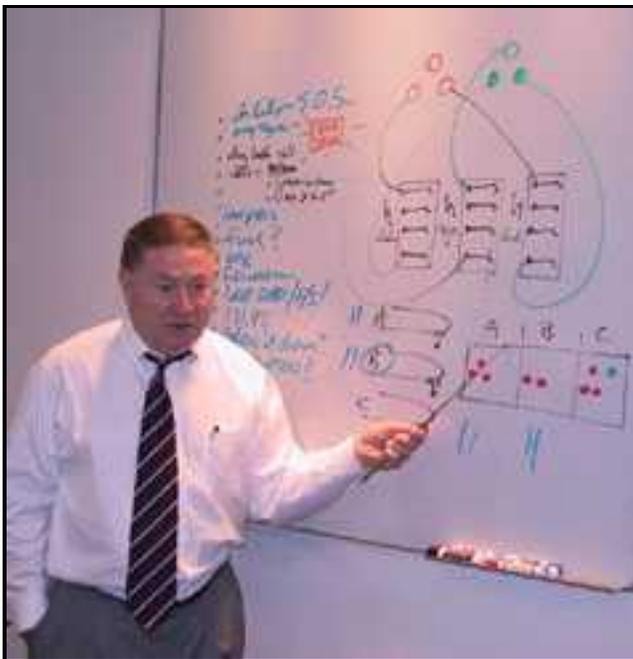
From the white board picture you can see the 14 or so dots the students suggested. In three cases (at least) I asked a few questions or had one of my tangential cadenza’s and then drew it out. The first one was to get input from the four in this class whether or not the nose gear when extended was a little forward, straight down, or a little back? This question comes up if a pilot decides to make a fly by the tower so they can look to see what is hanging - if anything. I doubt if the tower could tell if the gear is “a little forward” as it should be and will say “it appears to be down.” But, the tower could say for instance “You have NO gear” or “There is NO wheel” or “The tire is 90 degrees to one side” so they may be of some help. Note: some airplanes have a round mirror placed on the engine pod so the pilot can see for himself whether the gear is down or not – like a light twin or small turbo prop aeroplane.

One of the guys I worked with drew out the sketch on the top right side of the board. He started off by saying somewhere on the Learjet are nine boxes. Each box has a switch. One side says on and the other says off (lights will illuminate to show on/off – down/not down). I was amazed at the logic and firmly remembered to help others understand, for instance if the switch is one way the light will be out

and if the other the light is on showing the particular wheel is down or not down. One switch will have an oral sound if not down. So for each of the three wheels (gear) one box for gear is up, going up or down, and the other shows each gear down. Each wheel has a switch that will cause an oral horn if the gear (one or more) of the three is not down – if the flaps are in the down position. Again, for sure, if the gear is down no horn will sound if the gear is down.

The last three boxes with all the red lights (one is green) is setting up my punch line or the *coup de gras* of this lesson – see if you agree in a minute.

So, let's go back to putting the gear down. "What lights do you see first? A -Three red, B -two red, or C – Three red and one green. Notice on this example I marked a blue line for each answer – as I did on the previous example of where the nose gear goes. I split the class...a mark of a good instructor I would add but now it not the time to tout the expertise of the instructor but to tout the effective learning, better known as discovery learning. "They won't forget these **blue** lines..."



Notice again I split the class on where the nose gear goes and what lights first show up when the gear is extended (or raised, by the way). I should point out in this picture, and being a Boyd fan, this is a vivid example of what I just mentioned above – this is a *tangential cadenza!*

Oh, the dots! How about:

-) *Change the light bulb?* &^+%, No! Could in a C-32 but not a Learjet – have to stand on your head, use tweezers, and hold your tongue just right!
-) *Blow the gear down?* &^+%, No! It is already down!!!

) *Ask your passengers?* &^+%, No! Well, maybe. Use all your resources. You might have a guy in the back that wired them jets while he was in college. Captain Al Haynes had an experienced United check airman come up and help him with his DC-10 in Sioux City (Was in the Air Force with the flight engineer).

The punch line.

Very few came up with this before I got into the theory of my erstwhile and ecclesiastical weight. To which:

“I am going to cover up the green lights with my hand and extend the gear (gear switch -DN). The two red lights illuminate, the red nose gear light illuminates and goes out (pretty quick), and then the two red lights go out. Is the gear down? --- &^+%, **YES!**”

Have I connected the dots yet?

One more time.

Whoever puts the gear switch down, pauses, and watches the complete sequence of lights to KNOW it is down or NOT down and be the first to announce: “Gear is down” or (maybe) “the nose gear light bulb is burned out, but the gear properly cycled and is down.”

The lesson of course is every time you move a switch, check to see if it **worked**, didn't work, or **blew up**.

Next, go down the hall, smoke 'em if you've got 'em, we got a movie to see – or a test to take....

*“To burn always with this hard, gemlike flame,
to maintain the ecstasy, is success in life.”*

Walter Pater

A Journey Through G.HEART Country

As I have gotten older and progressed with my career, especially in an institution as structured as the Air Force, I have found that less and less surprises me. This cannot be more true than when it comes to formalized instruction. This is by no means to say, that an interesting idea, or a really great instructor has not stood out a long the way, and I hope will again in the future, but with these few exceptions, much of my class room instruction has been relatively benign. This all changed the day I entered G.Heart Country.

Everything I have experienced in the Air Force had really not prepared me for the first day I stepped in the door of G.Heart Country. Sure, I had a little of the gouge and been warned, but I don't think any level of prior planning can truly prepare you for what you are about to encounter when you step through that door.

The first day seemed to be a tangled web of thoughts, ideas, and profanity that have no relation to flying, the Air Force, or instructing in any shape or form. Mostly, I found myself gasping, catching my breath, and too shocked to be offended. It's only until late in the second day or early in the beginning of the third that you can truly appreciate that there is in deed a method to this madness. It is so complex and intertwined that the creator of which, is either a true genius, or certifiably insane. Most likely it is a combination of both. As my journey through this strange and exotic land continued I found myself making connections and piecing things together, that at first I thought made no sense at all, very quickly became evident.

I quickly discovered that the sock and aw campaign of the first day, was not an MEO exercise, but at least, in my humble opinion, was carefully designed to jump start the class and get us past the awkward introductory phase of getting to know each other and very quickly out of our comfort zones. It made us realize that we were not going to be merely bystanders in this strange land. We were going to be active participants, whether we liked it or not!

As the journey continued I found myself looking at things a little differently. I discovered, that everything was there for a reason. It may be a story, a piece of paper on the wall, a class activity, or some strange object in the middle of the room. I not only learned what these random objects, pieced together represented. I learned what they had to do with me and why I needed to understand them. I found the relationship of these objects, these stories, as well as my fellow classmates were as carefully orchestrated as the assault on Omaha Beach. That everything happened for a reason. It was all designed to make me think, act, or perform in a way I never had before or was uncomfortable with. I discovered that nothing was set in stone and the ground beneath me was constantly changing as the class decided to go in a new direction or discovered a new path. The journey was our own and the rewards ours for the taking.

G.Heart Country is a strange yet fascinating place. There are many pitfalls and traps along the way, but there are also hidden treasures and rewards if you are willing to seek them out and find them. Ultimately the choice becomes yours and the decision is left up to you. What kind of aviator, leader, and educator do you want to be? The journey may seem frightening and fraught with danger, but I can assure you, you will discover the answer in the end.



"Gunny, we are dressed the same!"

"The same as me?"

"How the hell are supposed to know?"

*"You **IMPROVISE, OVERCOME, & ADAPT!**"*

"Get off those damned shirts now!"

"Right face! Forward, March! Double time, hoo-rah!"³



"Shouldn't litter, Fag Eddie."

³ <https://www.youtube.com/watch?v=ZOo4ir1Mtol>

Eastwood, Clint (Producer), & Eastwood, Clint (Director). (1986). *Heartbreak Ridge* [Film]. United States: Warner Bros.



Having given a lot of you graduates a card to cut when you got home, here is mine.



Tell you what, while waiting I went through a couple boxes of shells cutting the whole f'ing deck...