

DIMENSIONS OF THE CATALAN DEFENCE FORCES II: THE AIR FORCE

Preliminary considerations

This document is not a final blueprint on the dimensions and hardware of the future branches of the Catalan Defence Forces, but an outline proposal, flowing from previously published documents , in particular “A Strategic Analysis” and “Military Doctrine: Development of Our Own Model”. Since we do not want to speculate either on the outcome of the negotiations on defence assets to be inherited by Catalonia, or on the Spanish military personnel that may wish to join the Catalan Defence Forces, this document only takes into account the real estate assets owned by the Spanish Defence Ministry and located in the Principality of Catalonia. The text starts from scratch concerning hardware and personnel. Officer training will also be a factor having an impact on the process. Training soldiers and sailors, as well as junior officers (up to OF-3), may be a relatively easy goal if one has the suitable resources. However, it takes more time to fill certain MOS¹ slots and to train staff officers and higher-ranking leaders. It is not just a matter of passing a number of courses, but also of acquiring essential experience in the tasks pertaining to each rank and speciality. Given the wish to avoid duplicities and redundant capabilities, the Catalan Defence Forces will have a single Joint Chiefs of Staff, bringing together elements from the three forces (land force, air force, and navy). We will not refer to the support civilian personnel (administration and services), since it is difficult to discuss its volume in a document of this length and level.

The Air Force

First stage: control over air space, mobility and emergencies

Although conventional threats against our air space are almost non-existent, this is no reason for Catalonia to ignore them. If we really want to be taken into account, the international community will demand that we exercise **control over our air space**, as well as over our territorial waters. In any case, we have the advantage of being able to devote to these goals the means that are really necessary, avoiding the costly transformation processes that most Western air forces are going through. Although at this initial stage we shall not consider yet taking part in international operations, we must start practising **air mobility** (even if only at a tactical level).²

As mentioned in the beginning, an essential goal is to **avoid duplicities and redundancies**. This is why the Air Force will also take control over aerial assets devoted to emergencies, search and rescue, and fire bombing. Furthermore, this role will serve as excellent training for pilots, personnel, and ground crews in peace time.

These goals will, of course, require the setting up of **Catalonia's Air Force Academy**. However,

¹ Military Occupation Specialities.

² No matter how easy it may seem to deploy an infantry unit (a squad, for example) by helicopter, it demands a significant degree of synchronization that one can only reach after repeated drills.

while it is not yet operational, we shall need to send personnel to train abroad. Two areas are key in the training of the initial core: pilots and ground crews. Although not widely known, Catalonia has enough talent in both fields to have at hand a good list of candidates.³ It will be more difficult to train radar specialists (for both ground radar and AEW⁴), but the wide pool of physics and telecommunications graduates will likely compensate for this.

We have mentioned the three goals in this first stage: control over air space, tactical mobility, and aerial support against fires. Let us thus move to the necessary means:

1. Catalonia's Air Force Academy
2. Control and Early Warning Command
3. Transportation Command
4. Emergencies Group⁵
5. Logistics and Maintenance Command

Catalonia's Air Force Academy will be the 'first step' towards an Air Force. We have mentioned that Catalonia has fine professionals in the fields of civil aviation and its support services. However, it is necessary for the first candidates (officers, non-commissioned officers, and specialists) to receive the necessary training to enter the military world.⁶ This initial core, which we may train in 3 to 4 years, will fill the first teaching slots at the Academy, although for some years we shall still rely on instructors from other countries. As in the case of the Naval Force, teaching personnel will rotate through operational slots in order to guarantee the proper 'feedback'. Although one can go quite far with simulators, it is a must to have at hand training planes. As a result, the Air Force Academy will have:

- 5 Helicopters⁷
- 10 propeller-driven aircraft
- 5 Jet trainers⁸

In order to be able to effectively respond to threats, we need to enjoy good **situational awareness**. This will be the job of the **Control and Early Warning Command**. It will be made up of the following units:

- Air Command and Control Center
- 3 AEW planes⁹

³ Besides staff with military experience, institutions like Sabadell Airport (pilots) and Vilanova i la Geltrú's Aeronautical Training School (mechanics) have spent decades producing qualified personnel.

⁴ Airborne Early Warning.

⁵ The reason for the label 'group', rather than command, is that this will be an ad-hoc unit set up as a function of the emergency situation (fires, floods, ... and so on) at hand. It will be made up of personnel from other units, with little permanent staff and materiel. It is a concept similar to that of a Task Force.

⁶ Due to her experience in the whole spectrum of military operations, we believe that Israel is the country able to provide the best training for our Air Force.

⁷ For example Eurocopter AS555 Fennec.

⁸ For example Dassault/Dornier Alpha Jet or BAE Hawk.

⁹ At present, unmanned systems have not evolved sufficiently to take over AEW tasks, which is why we are currently betting on manned systems. In this scenario, one of the latest versions of the E-3 Hawkeye would be among the best candidates. The large production runs will also facilitate finding spare parts easily, an issue which is not minor at all

- Between 4 and 6 UAVs¹⁰

The **Control and Early Warning Command** will be an information reception and distribution node, and for this reason it will have to be equipped with the best 'data fusion' technologies. It is necessary to expect and confine an information overflow (a significant risk with current technologies), not just because of the trouble it can entail, but also because the Air Force will be an information provider to both Catalonia's Defence Forces and Catalonia's Intelligence Agency (see the document 'State Structures: Intelligence Services'). All staff at this command, be it officers, non-commissioned officers, or soldiers, must have trained with an emphasis on the quick solving of problems. In other words: in the absence of a quick mind, technology will not save our day. In addition, the command will directly manage all land-based radars.

Let us turn our gaze to aerial systems. **AEW** planes are the mainstay of any modern Air Force. As mentioned earlier, situational awareness is vital.¹¹ We must be aware at all times of what is going on in our skies. The figure of 3 such planes comes from the need to keep one flying at any given time. In the case of the **UAVs** their role would in the main be **ISR**¹², while they should also have a combat capability. The latter both to provide tactical support to the Land Army and, at the stage we are discussing, to defend Catalan air space. Given that AEW planes can direct from a distance a good portion of air-to-air missiles¹³, fighter planes, while not losing significance, are becoming a platform. Thus, if it is radar and missiles that count, UAVs can perfectly play this platform role. Furthermore, they can do so with lower operational costs than those of a fighter plane. Let us stress that scenarios requiring the employment of air-to-air missiles in Catalonia's air space will not correspond to conventional conflicts, but to terrorist threats.¹⁴

Let us now move to the **Transportation Command**. In the first five to ten years, both because of the size of the Land Force and the lack of officers of OF-4 rank and above, we cannot plan aerial mobility over and beyond a company. We shall not be taking part in international deployments yet, and therefore it will still be possible to postpone the purchase of transport planes. Therefore, this command will be made up of the following units:

- Transportation Coordination Centre

- Helicopter Squadron

if one wishes to have a truly operational force.

¹⁰ Unmanned Aerial Vehicle. We are not referring to any UAV in particular, but due to their range and capabilities displayed in real combat scenarios, systems such as Reaper, Predator, and Heron, would fit well with our needs.

¹¹ Let us remember, for example, Operation 'Desert Storm', where Iraqi aviation, a well equipped and trained force, was constantly overwhelmed. The Coalition's AEW planes supplied information about Iraqi moves from the moment Baghdad's planes took off, thus preventing any chance of seizing the initiative, even at the tactical level.

¹² Intelligence, Surveillance, and Reconnaissance.

¹³ It is not our intention to describe all present day air-to-air missiles (AAM), however a brief description is useful to our purposes. Taking guidance systems as our criterion, we can observe two broad categories: IR (infra-red) and radar. IR-guided missiles employ a target's thermal signature. Radar-guided missiles can be further sub-divided into two categories: active guidance and semi-active guidance. The former have their own radar, with which they seek their target, while the latter depend on other radars (that of the warplane having launched them or that of an AEW) 'painting' the target.

¹⁴ Let us think, for example, of what would have happened on 9/11 had an AAM-equipped UAV been flying over New York.

The **Transportation Coordination Centre**, working together with the Air Command and Control Centre, will be responsible for planning and commanding the Helicopter Squadron deployments. As explained earlier, we are discussing a first stage, and as a result this Centre will focus on drills and exercises.

Concerning the **Helicopter Squadron**, it will need to comprise 24 medium multi-purpose helicopters.¹⁵ It will be able to transport a company-sized unit in one go. It is necessary to take into account that, in addition to each helicopter's own self-defence weaponry, we should have available adaptable modules for operations requiring greater fire power.¹⁶ Given that one of the basic foundations of the Catalan Defence Forces must be operability, it is essential to ensure that all helicopters are equipped with night-vision systems (needless to say, with the necessary training).

We shall now move to the **Emergencies Group**. One of the main roles of most Armed Forces worldwide (see our document 'Defence Structures in Some States: a Brief Comparative Study') is to provide support to civilian agencies in emergency scenarios.¹⁷ In Catalonia, these are mainly forest fires and torrential rains, both being characteristic of Mediterranean climate. While this group may have some exclusive assets, others may be provided by other units. The Emergencies Group will need to have:

- A fire-fighting squadron.

- A SAR¹⁸ squadron.

As you can see, we are not including any command and control centre, given that we are stressing that in emergencies, civilian agencies must be in command. The **Fire-Fighting Squadron** will need to comprise between 3 and 6 medium water-bombers¹⁹ and between 9 and 12 light water-bombers.²⁰ The SAR Squadron will be made up of assets from the **Helicopters Squadron** seconded to take part in search and rescue operations. When facing a fire, these helicopters can be equipped with water 'buckets' so that they may support fire-fighting operations. They will also carry out regular drills with the Littoral Patrol Command (see our '[Naval Forces](#)' document), involving the rescue of ships and persons at sea. On a rotational basis, 25 percent of the Helicopters Squadron's assets and personnel will be seconded to the Emergencies Group. This way, all of its staff will be trained in this role, so that in case of need additional personnel may be deployed to carry out that task. During an emergency, it will also be possible to second light helicopters from the Air Force Academy in a command role.

¹⁵ We favour the Bell 412, since it is a veteran technology, with good performance and easy maintenance. Thanks to the long production runs, it is relatively easy to purchase spare parts.

¹⁶ One could employ arrays of high-rate of fire machine guns ('miniguns') or rocket launchers (for example, 70 mm Hidra).

¹⁷ On no account are we questioning that, in the event of an emergency, civilians will be in command. We would also like to make it clear that the Emergencies Group has no 'government publicity' functions, as seen recently with a unit of this kind.

¹⁸ Search And Rescue

¹⁹ For example, the Bombardier 415 Superscooper, a flying-boat widely used in fire bombing, is our preferred choice, both in terms of performance and ease of maintenance.

²⁰ For example, Air Tractor AT-802, originally conceived to support agriculture, has turned out to be an excellent fire-fighting plane. Its small dimensions, together with its manoeuvrability, allow it to operate in complex terrains.

Let us thus conclude our examination of this stage with a look at the **Logistics and Maintenance Command**. The availability of a combat force depends, under any circumstances, of the care taken of its hardware, together with an effective supply system. The Logistics and Maintenance Command will be responsible for the proper working of facilities and for supplying and maintaining Air Force aircraft. It will be made up of:

- General Inspectorate
- Airfields Command
- Supply Corps
- Mechanics Corps

The **General Inspectorate** will be the component responsible for preparing, implementing, supervising, and periodically evaluating the maintenance and supply plans for the whole of the Air Force. We have already referred to how significant availability is, but we also need to keep an eye on operational costs, a chapter in defence budgets one cannot ignore. The **Airfields Command** will be in charge of controlling activities in these facilities, including security.²¹ The **Supply Corps** will carry out all logistics activities flowing from Air Force operations.²² The **Mechanics Corps** will maintain aircraft in the necessary condition, so that its availability always approaches 100 percent.

Once this first stage is over, we estimate that the Air Force will have a staff of some 1,600. As in the other branches of the Catalan Defence Forces, this volume may expand or shrink through a reserve system. Concerning infrastructures, we support concentrating facilities in Alguaire Airport (in Western Catalonia, near Lleida), while having complementary bases in the airports of Girona, Sabadell, and Reus.²³

Second stage: Force projection and tactical air support

Having consolidated a force made up of professionals of different ranks and specialities in the previous stage (roughly over a decade), it is time to take a qualitative leap. This is when we shall be able to ponder, and as a responsible partner we shall be asked to, participate in international operations. Having said that, we are sticking to the criterion that we should not procure anything that we are not going to be employing. The main tasks that the Air Force will have to cover are thus force projection²⁴ and tactical air support²⁵. Accordingly, the following will be necessary:

²¹ Although security will be a job for units of the Military Police, a joint corps shared by the three services (Land Army, Naval Force, Air Force)

²² As explained earlier, in this initial stage they will just be drills and exercises, but later the Supplies Corps will be a unit fully deployable in international operations. The same applies to the Mechanics Corps.

²³ Alguaire is clearly an under-used infrastructure which would make much more sense if it became the Air Force's central node. We should not forget, either, the positive economic impact on Segrià County and Western Catalonia of being home to so many personnel. Reus, Sabadell, and Girona, each to a different degree, may be good support bases, whether permanently or on a temporary basis. Describing this goes beyond the scope of this document. Having said that, we would like to stress that this distribution would constitute evidence that independent Catalonia meant an end to centralism, including the Barcelona-centric sort.

²⁴ This is a task which the Air Force will carry out jointly with the Naval Force, the latter being in charge of transporting heavy equipment.

²⁵ Given that in the confrontation scenarios where we shall find ourselves it is most unlikely that we shall have to carry out missions to ensure air superiority (see our document 'A Strategic Analysis'), tactical air support missions become very relevant.

1. Integration into the NATO Response Force
2. Integration into the Joint Expeditionary Headquarters
3. Setting up an Attack Squadron

The **NATO Response Force (NRF)** comprises a number of high-readiness forces from all member-states, with the goal of being able to quickly react to crisis scenarios, whatever their degree of intensity. It is organized into multi-national 'battlegroups', usually of brigade size, which rotate periodically. These forces obviously need transport platforms in order to be able to ensure their rapid projection in crisis scenarios. We believe that, with this task in mind, the Catalan Defence Forces must be able to project a battalion-sized force by air.²⁶ For this reason, the Transportation Command will need the following units:

- Strategic Airlift Squadron
- Expeditionary Support Group

The **Strategic Airlift Squadron** will be equipped with 5 transport planes.²⁷ With this figure, we would not just guarantee the capability to transport a light infantry battalion in one go, but we would be able to set up a regular air bridge to supply that battalion together with the rest of the 'battlegroup' it was part of. The **Expeditionary Support Group** will be a variable-sized unit made up of personnel from the Airfields Command, Mechanics Corps, and Supply Corps. It will be responsible for ensuring the proper working of aerial facilities assigned to us in the theatre of operations.

Integration into **JEHQ**²⁸ (Joint Expeditionary Headquarters) is an obvious step, but it is necessary to describe it in some detail. This is a company-sized joint unit responsible for the command and control of all Catalan forces deployed in a theatre of operations, and of coordination with other Allied forces. In the case of the Air Force, in addition to supervising the proper arrival and withdrawal of personnel and materiel, it will take care that land forces enjoy precise and round-the-clock CAS ('Close Air Support').

The **Attack Squadron** will be responsible for CAS and, should it be necessary, for ensuring aerial superiority²⁹. It should comprise some 12 multi-purpose fighter planes³⁰, 10 single-seat aircraft and 2 two-seaters so that training may also take place. Although 12 may look like a small number of planes, the current trend is to estimate an Air Force's efficacy in terms of the number of targets that it can put at risk in a single day. Combining target acquisition and painting systems³¹ and

²⁶ We believe that, in order to transport larger units, we may employ a mixture of Naval Force assets together with transport platforms (ships and planes) from bigger allies.

²⁷ We favour the Lockheed Martin EC-130J Super Hercules, since this plane, in service for decades, has proven to be a trustworthy medium transport platform. Thanks to the long production runs (of different versions, regularly upgraded), it will be very easy to find spare parts.

²⁸ JEHQ stands for 'Joint Expeditionary Headquarters'. Let us remember that this is a joint unit bringing together personnel from the three branches: Land Army, Naval Force, and Air Force.

²⁹ Let us remember that one achieves air superiority not just by neutralizing enemy air forces but by also suppressing anti-aircraft defences (SEAD, "Suppression of Enemy Air Defense").

³⁰ We favour the General Dynamics F-16 Fighting Falcon, which, in addition to its 'all weather' capability and excellent manoeuvrability, has been produced in large quantities. This guarantees the possibility of acquiring planes and spare parts at reasonable prices. Ideally, we should look for surplus planes of the C/D variant.

³¹ Be they 'pods' on racks on the fighter planes themselves, or from UAVs or Land Force teams equipped with

precision munitions³² with a good sorties per day ratio, the Attack Squadron can be an excellent tool both in conventional and, in particular, asymmetric conflicts.

At the end of this stage, between 15 and 20 years after independence, the Air Force will be fully on a par with that of fellow NATO member states. Concerning its personnel, it will be close to 1,900, able to expand and contract through a flexible reserve system.

designators.

³² For example bombs with JDAM kits, AGM-65 missiles, and so on.