



# ComFut: Options to Address

Angel Perez Martin-Nieto, from NTGS, supporting Oficina de Programa Combatiente Futuro looks at the options for the way forward on Spain's ComFut programme

**The Combatiente Futuro (ComFut) programme concluded its design and development phase in November, a three year process initiated in 2006, with a decision to extend a further year made in 2008 due to the complexity of the work. The next scheduled step was to be the launch of ComFut's production phase, or at least the pre-serial production phase. However, following the trial results which were not completed in the depth required, and other factors outside the programme, ComFut may embark upon a further redesign and additional trials.**

Angel Perez Martin-Nieto, NTGS' consultant for Oficina de Programa Combatiente Futuro said, "We are prepared to refine the system to the satisfaction of the infantry and then, after final user and operational trials, launch pre-serial and serial production. We are satisfied with the functionalities that have been achieved so far. Mostly the functionalities which were foreseen in our requirements."

The ComFut trials addressed all aspects of the system, but not in the depth and duration required. Martin-Nieto explained this, "We wanted to expose the system to continuous operation under the most difficult conditions, but in some cases it was not possible. Time to repair and change the design of the cables, mainly, it slowed down our overall progress. In the near future we have to conduct some of the exercises again to be totally sure of the results from both the functional and the operational point of view."

"We now have a quite good idea of the system and of all the functionalities that the soldier can manage. Not everything we have produced in this phase will be

carried by every soldier. We have split functionalities between each of the soldiers in the Squad to make a smart distribution of functionalities and weight. We know where we are and we know what we have to do in order to accomplish our goals. In these kinds of programmes there is always much to learn. You only know everything when the soldier is satisfied with the system and it accomplishes all of your needs."

Another factor in the equation is self evidently budget. "That doesn't depend on us," said Angel. "We are offering different lines of action to solve some of the simple problems that the system has. These are integration, weight reduction and weapon adaptations, not only on the optronics but on the weapon itself.

Throughout the design and development phase the ComFut team selected by EADS/Cassidian as prime contractor has remained the same with no further addition to the team members which comprise Indra Sistemas, Iturri, Amopack SL, Fedur and GMV. Martin-Nieto said, "They have enough technology to build the system."

## Weapon changes

Amongst the options are changes to Spain's standard infantry assault rifle, the G36E. These would see the addition of NATO rails on the weapon's hand guard in the Three, Six and Nine o'clock positions. A Picatinny rail has already been installed on the top of the weapon to host the optronics system.

Another area for weapon improvement is the butt stock. Spain is looking at improvements made in this area by Germany in support of its IdZ-ES/IdZ-2 programme. Martin-Nieto recognises that change of the butt stock doesn't imply modification of the weapon itself and

the Programme Office is keen to leverage the work undertaken elsewhere, if possible, rather than fund its own modifications.

Another weapon mounted change to be considered is the location of the ComFut control box, mounted on the weapon and which swings out from the weapon's optronics module. A strong option is to transfer some of the button controls to the hand guard position.

In addition, the ComFut team are considering further changes to the sighting subsystems which consist of four modules, beginning with the basic module with a video camera with the objectives being to reduce volume and weight. Some conclusions have already been drawn. Martin-Nieto said, "Remove the laser from the weapon mount and place it in the binoculars carried by somebody at Squad level. Once you know the distance, you enter that in the system and the ballistic computer does the rest with a very high level of accuracy when shooting with the 40mm GL."

The optronics solution carries with it a number of devices and features not seen in other programmes at this location such as a round counter and DMC (Digital Magnetic Compass). Martin-Nieto said, "There is one reason for the DMC, to alert soldiers to potential fratricide. Whenever you are aiming with your weapon and one of the members of the Squad is within the defined aiming sector, you will receive an acoustic and visual alarm. It makes the soldier think again and saves lives. Whatever happens we will keep that." The DMC is also linked to a worn GPS unit.

A further change related to the sight is battery life. The internal battery is sufficient to power the device for four to five hours continuous operation, deemed sufficient

► by the ComFut customer to sustain a 24 hour operation with periods on standby. Martin-Nieto said, "If you run out of energy you can also connect your system and draw power from the soldier's main battery. The main power cable is also used for data and video allowing soldiers in contaminated spectrum to have the ability to communicate."

Currently the untethered sight communicates data regarding the rounds remaining in the magazine, DMC and on board fire control system via Bluetooth with a second RF device communicating video imagery.

#### Early acquisition?

In Spring 2010, the Ministry of Defence said that ComFut would be sent to Afghanistan. Martin-Nieto said, "In the very short term we will be ready to deploy part of the system, but before we want to be sure that all the functionalities delivered really work and are accepted by users. In the short term the whole system may follow. Further work is needed before that."

Potential subsystems for early deployment to theatre include night vision, binoculars and C4I. Martin-Nieto said,

"Integration with the vehicle is also ready to go because it works and it is a functionality that can be helpful there, supporting situational awareness, communications and logistics to the debarked Squad/Team."

"The C4I we are implementing in the system is the same for the single soldier, Squad leader and the vehicle. The system is configured in such a way that the individual soldier can operate dismounted and always be linked to the vehicle. The squad leader has no need of two different radios."

To support vehicle applications, the ComFut system will be using a new ITT power amplifier (PA) for SpearNet radios within the Company. Martin-Nieto said, "We asked for the PA because we need more range from the vehicle. ComFut is not aimed just at light infantry it is aimed at mechanised infantry too which requires longer distances. By the end of November we will have two amplifiers sets to test the overall ComFut capability on vehicles."

#### Ballistic protection

The uniform is a Government Furnished Equipment element to ComFut although the team has made some

inputs to the army for modifications, largely to carry inserts for elbow and knee protection. In terms of protection, the programme has emphasised the need for a very flexible vest with the ability to draw perspiration away from the body as part of the key requirement for soldier comfort. In addition, the programme has identified a need for a minimum for four sizes for the rigid ceramic plate inserts in order to accommodate all sizes of troops.

#### Weight

Martin-Nieto is realistic about weight on the soldier, "If we talk about 25 kg for ComFut we will not be telling the whole truth. With all the clothing, armament and equipment, electronics and protection included, the combat weight added to the soldier is more like 45kg. The weight of ComFut's itself is 10-12Kg but then you include only the weight of the electronics. A weight of 45kg is our approximate requirement for the full system, the objective being an assault combat weight of 25kg." ■



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