

MDHI has high hopes of further export sales for its family of light attack rotorcraft. (All photos: author)



Desert gunships

With the imminent delivery of a second batch of six MD 530F light attack helicopters to the Afghan Air Force due, **Scott R Gourley** visited the MD Helicopters production facility in Mesa, Arizona, for a programme update.

MD Helicopters' recent effort to further develop its MD 530F light attack platform evolved from a 2011 contract to provide training helicopters for the Afghan Air Force (AAF), according to Roger O'Dell, director of programme management at the company.

MD Helicopters delivered six MD 530Fs under that training package, although one has been subsequently lost.

O'Dell described follow-on interest in an MD 530F gunship configuration as a rapid response 'gap-filler' until the projected availability of A-29 Super Tucano fixed-wing aircraft to fill the AAF's close support requirements in 2017.

The near-term gunship programme is providing 12 new-build MD 530Fs. The first six were recently delivered to Afghanistan, with the second batch slated for delivery in June. In addition, later this year the programme will return the remaining five training aircraft to Mesa, where they will also be converted to armed configuration.

O'Dell said that the original gunship consignment included seven aircraft but one was 'held back for follow-on government testing'.

'That seventh one is going to be the first of the next six,' he added. 'There are still going to be six plus six but we staged it so we always had an aircraft that was flying and ready to do whatever we needed it to do.'

TOP GEAR

Early April saw the remaining five aircraft in the second batch in various stages of build. One visible difference to the aircraft was the presence of the new upgraded high-capacity landing gear on one of the fuselage units that just arrived from the company's factory in Monterrey, Mexico.

O'Dell said that this landing gear, which supports an increased rated maximum gross take-off weight of 3,750lb (1,700kg), will be a modification performed on the other 11 gunships. He added that initial reports on the first six aircraft delivered to Afghanistan are that they are being flown hard in training and performing well.

'The Afghan pilots are still going through their training regimen,' he explained. 'And my understanding is that it will be some time in May before they will actually run operational combat missions.'

Walking down the production line, O'Dell described a cockpit reconstruction process that augments the standard avionics suite with new Rohde & Schwarz 6000-series tactical radios, coupled with new antennas from Aviatech, 'and re-wickers some of the cockpit gauge clusters over the F model to make it more amenable to the mission'.

'In this aircraft that's a right-hand command, whereas most of our aircraft are left-hand command. And then we had to add some capability for firing the weapons,' he noted.

He pointed to a new weapons mount platform from Dillon Aero, which worked with Fulcrum Concepts on the design. Acknowledging that MD Helicopters had originally envisioned use of the Mace Aviation Extended Range Weapons Wing (ER2W), he said that qualification scheduling challenges eventually shifted direction to the Dillon/Fulcrum solution, which he praised for 'rapid response' and 'excellent performance'.

Dillon Aero has since developed a Mission Configurable Aircraft System (MCAS) for Hughes 369/MD 530-series armed helicopters, which it claims is lighter, more capable and easier to support than other systems.

MCAS can be configured for Hellfire, M134D, GAU-19B, HMP-400, M260 or M261 rocket launchers, while the outer wing sections are capable of smart weapon carriage such as the Raytheon Griffin B.

PERSONAL PROTECTION

'Another thing that these models have are armour panels provided by a company called Kinetic Defense, located in Flagstaff, Arizona,' O'Dell continued. 'So you have full protection for both pilot and co-pilot under the seat, under the floor and in the back. It's an easy to install/easy to remove high capability for low cost and low

interference in terms of both dollars and weight.'

Another modification involves the addition of an auxiliary fuel tank. Based on a current commercial offering, it tucks in behind the crew seats to add an additional 95l of fuel over that in the main cells.

'We needed to add that to make sure we could still complete the mission that was sent to us as a requirement,' O'Dell said. 'Because of the weights at which we can fly this aircraft it burns more fuel, so we had to add that. But it was already an FAA-certified part so we were able to put it in quickly with no certification or qualification needed.'

The rear cabin doors are derived from the company's MD 530G gunship design.

O'Dell moved across the hangar to the location of the 'seventh aircraft' from the first order, which he said had accumulated approximately 40-plus flight hours to date.

'The last test we had to do before we delivered was called the mini weapons survey,' he explained.

'And we took this out to a range in Texas called Mile High Resources, where we shot the guns to prove functionality and made sure that everything worked as part of the plan. And now it's here and available for anything we might need to do with the aircraft.'

FLYING HIGH

MD Helicopters' chief pilot Jay Wigginton, who had just returned from completing the 'delivery flights' on the first six aircraft in Afghanistan, climbed into the cockpit to demonstrate the operational simplicity of the gunship design.

Asked how the new weapons 'plank' changed the MD 530F's flight dynamics, he said that 'it doesn't change it that much, other than the fact that with any of these Little Birds you don't have

The MD 530Fs for Afghanistan augment the standard avionics suite with new Rohde & Schwarz 6000-series tactical radios.



hydraulics so the more you load up the rotor disc the more you're going to feel the controls'.

'But it flies real nice at 3,750[lb], as long as you don't get too aggressive with it,' he added.

He described shooting the dual FN Herstal HMP400 .50cal machine gun pods on the plank outboard stations as 'very nice', noting: 'The guys who are in-country right now training with this aircraft are really surprised at how smooth the guns shoot.'

He continued: 'They also really like the two extra radios. Now they can talk air-to-air and have three frequency bands – UHF, VHF and FM – instead of just the VHF that we had in the trainer aircraft. They have a lot of jamming signals over there that affect different frequencies. So now they can pick and choose on what they want to talk on air-to-air to get good comms.'

Wigginton characterised the weapons system as 'straightforward', noting: 'We've got the PC 17, which sets your rounds and your burst limiter, ➔

MD 530G guns for global requirements

IN PARALLEL WITH ONGOING PRODUCTION OF THE MD 530F GUNSHIPS FOR Afghanistan, MD Helicopters has also been marketing an armed configuration of the MD 530G.

Describing the 'G' prototype, O'Dell explained that some of the big differences between the armed 'F' models and the 'G' model design involve levels of technology integration.

'We took it a big step beyond the grease pencil [canopy reticle markings],' he began. 'The first thing you see is the MX-10 [targeting pod] from L-3, so we have full EO/IR capability on this aircraft. We've got the Garmin G500H primary flight display for the pilot. And we have a [multi-function display] that runs the Moog Stores Management System.'

He said that the system provides the capability 'to do all of the advanced features, including laser-guided rockets', referencing the Raytheon TALON munition fired off the 'G' at Yuma Proving Ground in 2014.

'We're going to be doing a Hellfire programme this year – that's our next step,' he added. 'And we'll run all of that out of the Stores Management System from Moog.'

He summarised the technology integration as 'taking it from a point-and-shoot to a full scout attack helicopter that can do all the things that the higher-end machines can do, but with the same low cost, low complexity – relatively speaking – that we get out of the tried and true 530F.'

Although utilising the same Rolls-Royce engine as the armed 530F, O'Dell said that the 'G' design takes advantage of a capability to add more torque range to the powerplant.

'It's still within the ratings that Rolls-Royce has for the engine, but it expands the torque envelope outside of what the FAA-certified version is. So it gives the operator just that much more torque margin and a lot more capability – especially for high/hot. Because of the weights they want to run these things at they needed that margin.'

He said that the 'G' model has the 'heavy gear capability' already built into the fuselage, so the upgrade 'is just a matter of putting the gear on – no mods required'.

While the radio suite in the current 'G' prototype includes the Garmin GTX 330 and GTN 650, O'Dell noted that 'it is somewhat customer-configurable depending of what radios they want to have or what gauge clusters they want to run'.

The 'G' model utilises the ER2W wing from Mace Aviation to carry its munitions packages, with the current design featuring twin M134 miniguns from Dillon Aero mounted inboard, with an M260 rocket pod and FN Herstal HMP400 or RMP pod on the outboard stations.

'The salient features that distinguish this from anything else out there are that it's all composite and that it has internal fuel storage,' O'Dell explained.

'It has 34 gallons of fuel in bladders under these four access panels. They are hooked together inside by tubing that dumps into the main fuel systems. So, where our MD 530F for Afghanistan uses the Fargo [Manufacturing Company 21-gallon auxiliary fuel tank] this is all integral in one piece.'

He noted that the ER2W had been on the 530G prototype for 'at least a year' and that both the 'G' model prototype and the ER2W owned by MD Helicopters had 'just returned from the LIMA show in Malaysia'.

O'Dell described the target market for the MD 530G gunship as 'those small air forces and armies that are looking for capability that is beyond what they are able to get in traditional markets. You are still able to afford this at just about a "base" commercial helicopter price. But it gives you all the capability of a fully armed helicopter. And because of the way we build these we can make one or two – you're not into a fleet buy from us.'

'It's going to hit soon,' he offered. 'We've just got to stay active, stay aggressive and keep our eyes out. We're hopeful that it's going to be imminent that we get our first launch customer on this.'



Each batch of six aircraft is being delivered to Afghanistan by Boeing 747 cargo plane.

and the BT 14, which is the master arm and jettison capability. So if you have to you can jettison the pods.'

He said that the pod jettison capability is required for auto-rotation. 'We didn't want them to try to auto-rotate at 3,750. The actual 530F is FAA-certified to [auto-rotate] to 3,100lb. We took that up to 3,300. So we can safely auto-rotate to land at 3,300lb. Depending on how you're armed, the pods could take you above that. With the high-capacity gear it can land and take-off at 3,750 with no problem. But for auto-rotation you need to jettison the pods above 3,300.'

In terms of firing simplicity, he described a process of 'master weapons arm; left gun; right gun; and when those lights extinguish, you're clear to shoot. It's that simple.'

Explaining the 'grease pencil sighting' evident on the canopy, he said that trainers in-theatre had developed an effective solution to rapidly boresight the markings and quickly achieve machine gun accuracy on live-fire ranges.

'It's real simple to train guys who have never shot weapons before,' he said. 'And we proved that it works.'

He added: 'Right now the gun is the only capability they have. But hopefully here in the near future they're going to have rockets too. In fact, we're told that it will be sooner rather than later.'

Each batch of six aircraft is being delivered to Afghanistan by Boeing 747 cargo plane.

Nearby, O'Dell pointed to more advanced gunships in the shape of the company's single prototype MD 530G aircraft (see box) as well as the MD 540A, which he described as the next evolution of the 530F airframe with a new engine and six-bladed rotor.

'So where we talked about the 530F at 3,750, the 540A is going to be more like 4,500 – a huge leap in terms of lift.' **DH**