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If someone from AW&ST is reading this, please excuse excessive quoting, but keep in mind, this is for non-profit and educational purpose only -- and actually some sort of free advertisement too. :)

The front page shows an artists impression of a single-seat stealth helicopter and the title:
"LIFTING THE CURTAIN ON THE MILITARY'S BLACK WORLD"

The cover story consists of 4 articles:

"U.S. BLACK PROGRAMS STRESS LEAN PROJECTS", pages 18-21,
by David A. Fulghum and John D. Morrocco, Washington;
and William B. Scott, Colorado Springs

"LONG-RANGE STRIKE NEEDS DRIVE BLACK PROGRAMS", pages 20-22,
by David A. Fulghum, Washington

"DARA SOUGHT STEALTHY ROTORCRAFT", page 23,
by staff, no name given

"JUST TO BE SINGLE SEAT/ENGINE DESIGN", pages 22-23,
by John D. Morrocco, Washington

First Article:

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"Standoff weapons dominate U.S. military black program development, but fixed-wing aircraft and helicopters continue to draw Pentagon investments

The U.S. military currently is pursuing twelve significant black aviation projects, according to high-ranking Pentagon officials.

AVIATION WEEK & SPACE TECHNOLOGY has confirmed that these classified projects include two fixed-wing aircraft prototypes, two rotary wing projects and eight weapons programs. There are believed to be more, but some may not fall into traditional "development" categories, and several may be proof-of-concept vehicles or production prototypes."

[The next two paragraphs are about budget and the likelihood that a new stealth aircraft program is about 10-15 years away. -- Andreas]

" Defense and industry officials confirm there are at least two U.S. and one British classified, fixed-wing aircraft prototyping programs underway. Others are believed to exist, based partially on numerous in-flight and on-ramp sightings over the last few years, but these have not been verified.

"There are studies and cardboard [mock-up] aircraft, but no follow-ons to the F-117 or F-22 have flown yet, although at some point we will [fly some]," a senior U.S. defense official said. When they do appear, however,

it will be obvious that current predictions of "long range and unusual weapons capabilities are vastly overstated," he said.

The two U.S. fixed-wing projects were described as fighter-attack-type aircraft with moderate range and payload. Their chances of going into production currently are slim because they have yet to show promise of "significant improvement over the F-117 or F-22," the senior defense official said. "We're just not there yet."

[The next paragraph talks about employing standoff (and small amounts of active) jamming to mask the aircrafts signature into the background noise -- Andreas]

" "It will take another generation of aircraft before the major technological hurdles are cleared that will make building a stealth follow-on worthwhile," he said."

[That could mean, that the TR-3A is the same (old) generation of stealth design as the F-117A, and would probably not fall under the category of new black programs or new stealth aircraft -- Andreas]

" "The British have designed a manned aircraft with a low RCS from the frontal aspect, but I don't think they have anything flying," the first senior U.S. defense official said. "It is easier [and cheaper] to treat the nose, the frontal hemisphere, than it is the aft. That is how most of your engagements are flown -- nose to nose."

[Maybe that's the one that crashed at Boscombe Down? -- Andreas]

" In addition, the U.S. military has been working for years on at least two helicopter projects. The more recent is development of a light, very quiet helicopter with a mast-mounted sight. An older, long-term project is aimed at trying to reduce the radar signature of helicopter rotors.

"The helicopter work going on at the Nellis [AFB, Nev.] ranges is not Air Force," a third senior U.S. defense official said. "They are treating blades and jet engines to reduce the radar reflectivity. They are working on RAM [...] for the blades and a redesign of the blade tips to reroute the radar signals."

[The next seven paragraphs describe the small helicopter, but more about the helicopter in the third article -- Andreas]

" Many of the Defense Dept.'s classified projects appear to be associated both with improved stealth and precision-strike capabilities. The resulting requirements for space, security and radar measurements by both U.S. and foreign equipment ensure that new models or prototypes of aircraft and weapons are flown or tested at one or more facilities."

[RCS and other radar test facilities listed are:

- Nellis Test Range, north of Las Vegas, Nev.;
- Northrop Grumman's Tejon Test Range, west of Edwards AFB, Calif.;
- a McDonnell Douglas facility, south of Edwards;
- Lockheed's Helendale, Calif., RCS range near Barstow, Calif.;
- RATSCAT (Radar Target Scatter) facility at Holloman AFB, N.M.;
- RAMS (RATSCAT Advanced Measurement System) facility, also at Holloman AFB;

photos of RAMS and RATSCAT (with F-117) are included
- and a not specified facility in the U.K.]

" Most of the reputed sightings of aircraft in flight, U.S. defense officials associate with unmanned aerial vehicle prototypes or proof-of-principle designs for the Tier 2, 2-, 3- and now-canceled Tier 3 reconnaissance programs; the stealthy Tri-Service Standoff Attack Missile (TSSAM), and stealthy helicopter programs. Moreover, there are projects that do not involve airframe development. A Pentagon Advanced Concept Technology Demonstrator (ACTD) project is flying a manned aircraft at the classified Groom Lake, Nev., facility. A project, until recently named "Ivy," involves an aircraft coating that changes hues and brightness when subjected to an electrical charge."

[Ok, here we go again: ACTD or "Senior Citizen" (not 'fixed-wing', not 'rotorcraft', not 'reconnaissance drone') manned LTA (what else is left?), maybe incorporating the "Ivy" coating to become 'invisible'? -- Andreas]

[The next paragraph says that the Pentagon is more concerned with RAM than with active camouflage, and the following article blames all the 'UFO' sightings on flying scale models and RCS mock-ups -- Andreas]

" Defense Dept. and industry officials confirm that there are classified aircraft on the large, restricted Nellis ranges, but they make that assertion with a number of caveats.

"The aircraft being tested are either not manned, not flying or not Air Force," the third official said. "There are one-half and three-quarter scale mockup aircraft that have been loaded in Air Force aircraft and transported that people may have seen."

HOWEVER, that leaves open the possibility that some are aircraft that belong to the U.S. Navy, Central Intelligence Agency, Advanced Research Projects Agency or other organizations with black budgets. Aerospace companies also have their own closely guarded research projects.

"There were numerous private [companies] designing aircraft and they may have flown something," he said."

[The article contains artists impressions of the Loral Tier 2+ flying wing concept study, the Lockheed/Boeing Tier 3- (which looks 'different' :)) and again of the little stealth helicopter -- Andreas]

Second Article:

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[It mainly talks about stealthy and precision (GPS) guided weapons, to substitute or accompany the more or less stealthy aircraft. It also mentions HPW (High Power Microwave) and Carbon-fiber warheads to take out electrical grids, antennas and C3I installations. It ends with the description of a stealthy first strike -- Andreas]

" Stealth advocates draw a scenario in which waves of the longest-range cruise missiles would strike first, particularly against low-frequency radars that can glimpse stealthy aircraft, a Pentagon warplanner said.

Then, Tomahawks with carbon-fiber warheads would strike antenna arrays and electrical grids to knock out a city's electricity and thus any ambient light that might reveal an F-117 or B-2 to a foe.

Next, stealthy aircraft would strike hardened command and control structures with large, penetrating bombs. Finally, partially stealthy aircraft would approach within standoff weapon distance of the target, shielded by flights of decoys and standoff jamming. The new generation of classified, high-precision, mid-range standoff weapons would ignore any GPS jamming to finish destroying high-density surface-to-air missile threats and key strategic targets."

[The article also includes two photos of the canceled A-12 Avenger II mock-up, a frontal view and a side/top view -- Andreas]

Third Article:

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[This article describes the two stealth helicopter projects from the mid-80s, mentioned earlier -- Andreas]

" The larger of the two was a secret version of the NASA/DARPA/Sikorsky X-Wing Rotor Systems Research Aircraft (RSRA), and it is not clear if a prototype ever flew. The unclassified RSRA X-Wing program was canceled in 1988 after several flights in only its fixed-wing mode [...]. However, DARPA's secret version of the X-Wing -- also run by Sikorsky -- was a larger program than its unclassified cousin, according to sources familiar with both programs."

[It describes the three main stealth technologies employed as:

- the stopped X-Wing (at 45-deg.) reduced frontal radar reflection and enables fast flight without the tell-tale Doppler signature of a helicopter;
- NOTAR-like -- but more conventional -- thrusters in the tail booms tip for torque control;
- convertible engines (modified TF34), able to switch between turboshaft and turbofan modes;

It concludes with some deception practice -- Andreas]

" The RSRA X-Wing program provided an open method to develop the crucial X-wing technology, and provided cover for the broad nature of the classified effort. The white program could order parts for the black program, and vendors would be none the wiser."

[The description of the other, smaller helicopter is combined from the first and the third article -- Andreas]

" THE SMALL ROTORCRAFT is a McDonnell Douglas Helicopter project conducted with the renamed Advanced Research Projects Agency. Configuration details are sketchy, and it is not known if it uses the McDonnell Douglas no-tail-rotor (Notar) technology.

More than one of the McDonnell Douglas craft may have been built, and flights are conducted in the restricted airspace of the Nellis AFB range. Tests include flying against radar sites to measure the rotorcraft's signature. The program is considered "extremely black," and the aircraft fly at night or out of sight of uncleared personnel during the day. Flights are scheduled to avoid spy satellite coverage."

[In the first article, the aircraft is described as a single-seat,

"twin-turbine-powered helicopter", "said to have four rigid, slightly scimitar-shaped rotor blades and a four-port, no-tail-rotor (NOTAR) boom". The main rotor blades are supposed to have very little droop when the aircraft is sitting at the ramp. "The rotor hub is claimed [...] to be configured so that the main rotor-disk diameter can be reduced several feet by sweeping the blades, ostensibly to reduce noise and allow higher-speed forward flight. A mast-mounted electro-optical sight extends above the main rotor hub." It "has an overall length of about 33 ft. Short stub wings can carry external weapons, augmenting a single-barrel gun mounted on the aircraft's belly and may aerodynamically unload the main rotor during high-speed flight." -- Andreas]

" Senior defense officials contend that while progress has been made with reducing the noise signature of helicopters, major RCS improvements on the main rotor and hub have proved elusive."

[This quiet helicopter, which is supposed to have flown for years, is believed to utilize new RAH-66A Comanche technology improvements. The (third) article also mentions that Bell apparently has not developed a stealthy helicopter design, mentioning that Bell's usual high tail rotor designs are not very stealthy -- Andreas]

Fourth Article:

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[This article describes the latest concepts for JAST, which will be a single-engine, single-seat (with growth capability) aircraft, with several more or less stealthy versions, with CTOL and STOVL capabilities. Engines in questions are the F119-PW and maybe the YF120-GE. It will have a small internal weapons capability, and the less stealthy versions use external loads. It might be possible to eliminate most of the vertical stabilizers, incorporating vectored thrust, but the (non-)stealthiness of axisymmetrical thrust-vectoring nozzles may prove problematic -- Andreas]

" OVERALL, CONTRACTORS are looking at graduated levels of signature reduction for each version of the baseline aircraft. "You are going to see a range of signatures as a function of the application of the airplane," Mueller [Maj. Gen. George Mueller, head of the JAST program -- Andreas] said. The Navy's desire for a first-day survivable aircraft will require a very low observable [VLO -- Andreas] signature as compared to that for an Air Force F-16 replacement, for example. For Marine Corps close air support, infrared signature control is more critical than radar signature."

-- Andreas

PS: This text may contain more errors than usual, but it is late, and Kathryn, who usually proof reads longer articles, is sound asleep. :)

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