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GROUND SUPPORT

Mass bomb drop: 80 targets in 22 seconds

BRISBANE – There is a lesson for the Australian Army in a US Air Force demonstration drop that delivered 80 500-pound (227kg) smart bombs from a Northrop Grumman B-2. The delivery, in a single, 22-second pass, took out 80 designated targets.

The test used orthodox Mk-82s fitted JDAMs. The drop highlighted the role of heavy bombers in direct ground support, as was demonstrated in Afghanistan and Iraq.

If required, a bomber, standing away from the battlefield at altitude, could precisely deliver heavy ordnance on to ground targets, for instance taking out a series of blockhouses holding up a ground advance, with the coordinates of each target “dialed in” to individual weapons.

The capability is even more striking when the new, “thin” 500-pounders under development become available with GPS JDAM fits. Many more can be carried in standard bomb-bays or wing racks.

The demonstration highlights the new role of bombers in battle. With long endurance, they can loiter at height and distance and deliver ordnance as required by ground troops.

Rather than depending on small

Bombs, to Page 2



USAF images

WRIGHT-PATTERSON AFB – USAF and the US Navy evacuated aircraft from their east coast stations as Hurricane Isabel approached. Wright-Patterson (top) serves as one of safe havens. It gave sanctuary to C-141s from An Drews AFB near Washington, while the P-3s arrived from Naval Air Station Patuxent River. Meanwhile, 75 F-15Es from Seymour Johnson AFB, NC, waited out the storm at Tinker AFB, Oklahoma (below).

Sydney enters systems upgrade

SYDNEY – ADI's enhancement of HMAS Sydney, the first of the six RAN guided missile frigates, has moved into the installation phase.

The company says the \$1 billion FFG project, essentially a complex systems integration task, will upgrade combat systems of the

FFGs to ensure their operational effectiveness against regional threats. It will also ensure the supportability of the FFGs as Australia's principal surface combatants throughout the remainder of

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Upgrade, from P1

their life. ADI's Garden Island facility in Sydney has commenced work on Sydney. Work on the other five is due to be completed by 2008.

ADI managing director, Lucio Di Bartolomeo, is confident the upgrade will go smoothly.

"A test site we have established at Garden Island has enabled combat system software integration testing to be well in advance of Sydney being handed over to us," he said.

"Systems already tested with ADI's Australian distributed architecture combat system (ADACS) include the electronic surveillance, automatic radar detection and tracking and underwater warfare systems and on board training."

Bartolomeo says the project tests ADI's credentials as a prime contractor, combat system designer, as well as ship design authority.



**HMAS Sydney at speed
(RANpic ture)**

The upgrade will see enhancements to the FFGs' self-defence and attack capabilities and to their reliability, maintainability, availability and supportability. Key elements include:

The upgraded command and

control capability will enable effective integration of new and existing sensors and effectors.

- Enhanced long-range air surveillance, target indication and automatic detect and track functions give low-elevation performance and increased detection range.

- The upgrade of the Mk 92 Mod 12 fire control system will improve air warfare performance against very small sea-skimming missiles in high clutter conditions, as well as reliability and maintainability.

A multi-layered approach to the detection and classification of target type does will be provided by new, hull-mounted sonars and the addition of a passive, towed array and helicopter sonobuoys.

- A compact on board training system, integrated with the existing combat system will enable continuous training both in port and at sea to maintain FFG proficiency.

Shore support facilities will be also provided or enhanced.

Bombs, from P1

fighter-bombers delivering a few weapons in a sweep, the loiter capability can provide a standing cab-rank of firepower that can be called in, using precise target guidance and even images.

In ADF terms, this means a small force of F-111s can provide continuous support for ground troops over the battlefield, responding within minutes to calls for support.

The F-111 can carry 24 of the new GBU-38 JDAM 500-pounders with no performance loss, giving loiter time at 450 NM of about 2.5 to three hours on internal fuel. With tanking, loiter time is governed by crew and weapon-load endurance.

With some performance loss, 36 rounds can be carried, using two fixed outboard pylons but again tanking extends cab-rank time indefinitely.

The Boeing-USAF test took place at the Utah Test and Training Range, Hill AFB, Utah. The weap-



USAF image

ons were released from four Boeing-designed and built "smart" bomb racks.

"Placing maximum steel on the target is what we get paid to do as Air Force bomber pilots," said Major William Power, 419th Flight Test Squadron B-2A project pilot. "Dropping 80 JDAM MK-82s in less than 30 seconds, each at attacking individual targets, is truly revolutionary."

JDAM is a low-cost guidance kit that converts unguided, free-fall

bombs into accurately guided "smart" weapons. Kits are available for 2000 and 1000-pound war heads. The company's St Louis facility recently completed development for the 500-pound JDAM, with a USAF contract awarded for 5800 MK-82 JDAMs kits, which will be available in 2004.

The "thin" weapons, designed for cramped bomb bays such as in the Joint Strike Fighter, are also under development.

Swiss for oneworld – and BA aid

SYDNEY – Qantas last week enthusiastically welcomed Swiss into the oneworld alliance, joining partner British Airways, American and Cathay. Like American and to a lesser extent BA, Swiss is on fairly shaky economic ground.

Local commentators say the loss-making Swiss needed the alliance and British landing rights to muster up support from banks for more finance.

The deal falls short of providing the SF500 million (US\$370 million) Swiss says it needs as a cushion. The banks, UBS and Credit Suisse, hold about 10 per cent each of the shares in Swiss, created in 2001

from the ruins of collapsed national flag carrier Swissair.

Swiss told its banks joining the oneworld marketing alliance, will boost operating results by SF100 million Swiss a year within three years.

Under a separate deal with BA, Swiss will get a SF50-million credit facility in return for giving up eight of its 14 pairs of prized daily runway slots at Heathrow.

The two air lines will seek anti-trust clearance to operate joint flights between Britain and Switzerland, and will share route booking

codes on Heathrow flights starting October 26.

Swiss's frequent flyer program will fold into BA's scheme.

Swiss International Air Lines' decision to link with BA, Europe's biggest air line, was a slap in the face for Germany's Lufthansa, which wanted to strengthen ties with its Swiss neighbour.

Lufthansa is the driving force in the rival Star Alliance.

BA CEO Rod Edgington did not rule out BA taking a direct equity stake in Swiss at some point in the future.

US told to spur civil aviation

WASHINGTON – Major improvements to aircraft are needed for the US air transportation system in the next 35 years, according to a report by the National Research Council.

The council says the whole system needs an overhaul if it is to meet a doubling of demand for air transportation.

Cleaner, quieter aircraft are keys to increasing the system's capacity, the report said. Otherwise, public objections to the noise and pollution caused by air planes will limit air port growth.

The council recommended investments in improved aircraft design and new propulsion technologies, such as hydrogen fuel and advanced fuel cells.

"Business as usual, in the form of continued, evolutionary improvements to existing technologies, aircraft, air traffic control systems and operational concepts, is unlikely to meet the needs for air transportation that will emerge over the next 25 to 50 years," said the report.

It was sponsored by the National Aeronautics and Space Administration and the Federal Aviation Administration.

Other kinds of aircraft that could

contribute to a more efficient air transportation system include supersonic business jets; giant flying wings for cargo; and aircraft that can take off and land vertically without runways, the report said.

The report said the United States ignores an important goal for civil aeronautics that Europe recognizes – satisfaction of consumer needs.

The report, written by representatives of industry, academia and the government, notes that a group named by the European Commission set forth a vision for European aviation in the year 2020. Among its goals was primacy of the European aeronautics industry, a supersonic aircraft that would carry 1,200 passengers and an air traffic system that would set the world standard for efficiency.

"They have a strategy, and we don't," said John Hansman, director of MIT's International Center for Air Transportation.

The report said problems with the air traffic system should be dealt with by manufacturers, airlines, pilots, passengers and government agencies, working together.

Talking the Defence talk

LOS ANGELES – Boeing wants US defence contractors to establish a single communication standard so future weapons systems can talk to each other.

Boeing executives invited Northrop Grumman and Lockheed Martin and smaller suppliers to create a standards body that would eliminate competing technologies on planes, ships and other platforms.

"There is a cost as so cited with doing this, but there is a terrible cost to our nation if we don't," said Carl O'Berry, vice president of strategic architecture at Boeing.

The idea is to build display systems, weapons and other applications that can "plug and play" in a networked battlefield.

Boeing believes its competitors could be developing distinct technology that might not talk to its own IP devices.

Boeing is working with the Pentagon on a vision of the "integrated battlespace," where soldiers carry handheld devices that locate fellow troops and enemy forces.

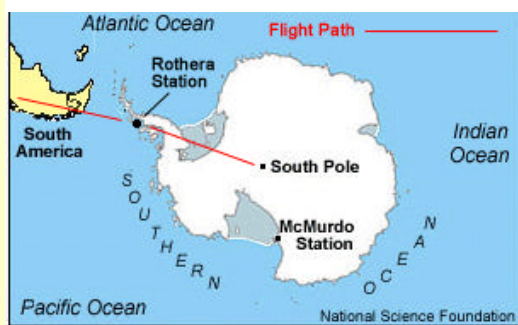
SOUTH POLE – A small Twin Otter has successfully braved the late Antarctic winter to rescue an ailing contractor from the station at the South Pole. With a second Twin Otter in reserve and a RNZAF C-130 standing by in Christchurch, the small plane departed South Pole on Sunday night. It flew, to South America, via the Antarctic gateway of Rothera, while the unidentified patient was put on a flight to Punta Arenas, Chile, before flying on to Houston on a chartered Learjet.

The rescue took place the day before the official first sun rise – a hint of sun over the horizon. When the plane landed in an 11-knot wind, the temperature was about -60 deg Celsius. The pilot, Sean Loutitt, and crew took a 12-hour lay over. Taking part in the exercise were two Twin Otters from Calgary, the operational plane and a spare. The planes flew to Punta and then on to British Antarctic Survey's Rothera Station on the Antarctic Peninsula. The crew made the decision to fly to the Pole on September 9, universal time.

The patient is a member of the Raytheon contract team, whose name and condition haven't been disclosed. Doctors at the Pole



Otter makes risky pole rescue



South Pole scene as the medevac Twin Otter was loaded, the day before the sun officially dawned.

treated him, using telemedicine until the medical team decided he should be evacuated if possible. It was the first time Twin Otters had staged a polar rescue. The de Havilland of Canada aircraft are operated by Kenn Borek Air Ltd. of Alberta, Canada, under contract to Raytheon Polar Support Co in support of the US Antarctic Program.

Usually, the first Antarctic flights into coastal McMurdo take place at the end of September. Flights to the South Pole, however, do not begin until late October or early November, when temperatures have increased.

The average temperature at the Pole at this time of year is -60 degrees Celsius.

Kiwi haka for Afghan region

BAMIYAN – With a haka, New Zealand troops deployed in the Afghan province of Bamiyan, home to the giant Buddha statues destroyed in 2001 by the Taliban.

The NZ Provincial Reconstruc-

tion Team will help maintain security and reconstruct roads, bridges and schools, 150km west of Kabul.

Similar US teams and one from Britain operate in three other provinces to help the transitional government extend its authority into areas controlled by war lords or threatened by Taliban guerrillas.

About 100 men and women from

New Zealand's army, navy and air force replaced a departing US team.

The New Zealand soldiers' Haka took place within sight of giant niches carved in a cliff face that once housed two giant 1500-year-old Buddhas.

NZ special forces have served in Afghanistan with US-led forces pursuing remnants of the Taliban



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MOJAVE – The flight test program for Bert Rutan's SpaceShipOne has started. The air craft made its first flight last month.

The SpaceShipOne was drop-launched from 47,000 feet, some 10 nautical miles east of Mojave, California.

Rutan's company, Scaled Composites, is competing for the worldwide X-Prize, a \$10 million purse to be awarded to the first person or team to fly a privately-funded sub-orbital space ship 100km (62 miles) to the edge of space, return safely, and then fly again within two weeks.

The space ship was dropped from a White Knight carrier craft and released from 47,000ft to glide under control of pilot Mike Melvill to a desert landing.

The vehicle made a smooth touch down, with the entire flight – from launch to touch down – viewable from the ground. All reports suggest that the first SpaceShipOne drop test worked.

Scaled Composite has chosen a hybrid rocket engine technology, liquid nitrous oxide and HTPB rubber propellant.

The propulsion system is

Rutan's SpaceShip1 in glide tests



A dot in the distance: Bert Rutan's SpaceShipOne glides down from 47,000ft.

mounted to the space ship by simple skirt flanges on the oxidiser tank. This concept, which can be directly to the tank, and uses an advanced, all-composite design.

Scaled developed in-house the two main motor composite components – the nitrous oxide tank and a unitised fuel case/nozzle component fabricated using a high-temperature composite insulator with a graphite/epoxy structure.

Scaled awarded contracts to two competing small businesses for the development of the motor's ignition system, main control valve, injector, tank bulkheads, electronic

controls, fill/dump/vent systems and fuel casting.

The ground firing program started in November with a 15-second run, building up this month to a 90-second run by eAc. Both vendors demonstrated full design-duration firings during the nine-month development phase.

The tests validated the inherent safety of hybrid type motors, with no instances of structural failure, hot-gas breach, explosion or other anomaly.

Scaled last week awarded the contract for propulsion support for the SpaceShipOne flight test phase to SpaceDev, of San Diego.

Lima '03 pays tribute to Doc

KUALA LUMPUR – The Langkawi International Maritime and Aerospace show – Lima 03 – opens next month. One of the stars will be a RAAF F-111.

Corporate exhibitors total 510 companies from 25 countries.

Organisers say the biennial pays homage to Prime Minister Dr

Mahathir Mohamad, shortly due to retire, whose electorate includes the northwestern Malaysian island and who has a house there.

China's quick-response rocket

BEIJING – China has successfully test-fired its first four-stage solid-fuel rocket at north China's

Taiyuan Satellite Launch Centre, capable of putting small satellites into space at short notice.

The rocket is capable of putting payloads of up to 100kg into orbit to help with resource exploration, environmental monitoring and surveys or even sports events.

It takes 12 hours or less to prepare for the launch of a satellite using the Pioneer I rocket, whereas about three months are needed to prepare the traditional liquid-fuel launch vehicle.



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Tradition drives pilots mutiny

JERUSALEM – *The high moral ground in Israel's "pilots' mutiny" is not so much the refusal of senior air force pilots to carry out missions in which civilians could be killed. Rather it's whether soldiers in Israel call a people's army can, in matters of conscience, take a stand against official policy – an established tradition.*

A letter from veteran airmen – only nine of whom are still called to active duty as reservists – veered away from the moral aspect of the deaths of innocents.

"We, who were taught to love Israel and contribute to the Zionist enterprise, refuse to take part in attacks on civilian population centres," the pilots wrote in a letter to air force chief Dan Halutz.

"Every one has the right to voice their opinion, but it is unacceptable that a group of military men interfere in such an issue, an issue decided on by the political echelon

after great deliberation," Prime Minister Ariel Sharon said.

Air force chief Major-General Dan Halutz said those in active service would be grounded and given a chance to retract their statement or face dismissal from the air force.

Israel has a small active group of conscientious objectors, but their campaign has been shadowed by the dozens of suicide bombings and air attacks on Palestinian civilians.

"The norm we were taught was that we do not go where we know civilians are present," said Lieutenant-Colonel Zeev Rotem, a retired navigator who did not sign the letter. "To day (we) attack targets where there are civilians – women and children – knowing there's a good chance they will die."

Israel drew international condemnation last year when 16 civilians died after an F-16 dropped a

one-ton bomb on a residential neighbourhood in Gaza City to kill Salah Shehada, a top commander in the militant Islamic group Hamas.

Foreign Minister Silvan Shalom said Israel tries to avoid civilian casualties by striking after 8 am, or by using a smaller bomb to ensure innocents aren't hurt.

Shalom said the pilots appeared to have an alternative political agenda, by saying the occupation in the West Bank and Gaza Strip had "corrupted Israeli society."

Accusing the maverick pilots of self-indulgence, Ezer Weizman, Israel's former president and ex-air force commander, told Army Radio: "I would ground them immediately. It's like...cancer – it will spread if it is n't cut out."

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**John Stackhouse, Killara
September 2003**

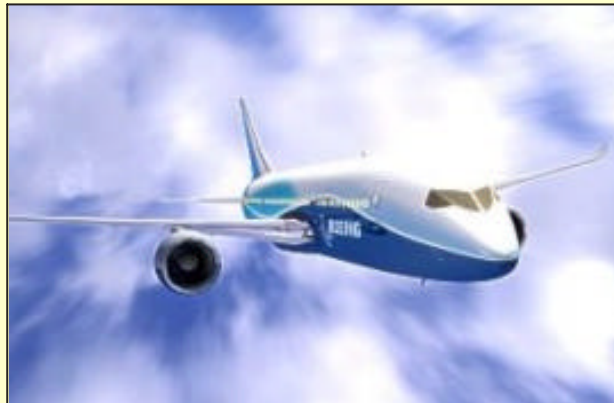
LONDON – Boeing expects management approval by the end of the year to go ahead with its 7E7 Dreamliner – and to announce launch customers by the first half of next year, chief financial officer Mike Sears told reporters.

This schedule would deliver the new plane by 2008 – its first all-new commercial plane in more than a decade. US and Japanese airlines such as Japan Airlines System are the likely launch customers.

Sears said automation and outsourcing will contain development costs.

“We’ll do with less people – that’s one dimension of why costs are going to be less,” Sears added. “The second dimension is we’re going to enjoin major partners in the development process funding.”

Japan, Italy drive Boeing’s dream



of the 7E7 design and manufacturing team.

Sears said one key decision expected by the end of the year is whether Boeing will invite one, two or three

Japan’s big three – Mitsubishi Heavy Industries, Kawasaki Heavy Industries and Fuji Heavy Industries – are bidding for large pieces of the 7E7.

Italy’s Alenia Aeronautica, has also been named as a member

aero-engine manufacturers to develop power plants.

He said aircraft financiers had expressed interest in the 7E7 having limited variations to make it easier for airlines and lessors to trade the aircraft.

Boeing 7E7 image

Metal Storm to fight fires

BRISBANE – Metal Storm has signed a heads of agreement with Pyrogen Corp to evaluate, develop and ultimately commercialise a ‘rapid attack’ fire-fighting system that combines Pyrogen’s aerosol fire suppressants with Metal Storm’s delivery technology.

The ‘rapid attack’ fire fighting system will give deliver Pyrogen fire-suppressant projectiles deep into a fire at very high rates, using Metal Storm’s multi-barrel pods.

Metal Storm CEO Charles Vehlow said potential applications include fitting the Metal Storm system onto fire trucks, helicopters and ships for fighting fires at air ports, in

high-rise buildings, oil rigs, naval and cargo ships, as well as “certain types of residential forest fires.”

Metal Storm has developed non-metallic, non-flammable projectile casings required for such fire-fighting applications.

Pyrogen aerosol is a non-ozone depleting alternative to Halon.

Indos choose Korean subs

JAKARTA – Indonesia plans to buy two submarines from South Korea as part of its plan to upgrade the country’s obsolescent navy.

Navy spokesman Colonel Sumantri confirmed could not provide further details.

SMA diesel wins certification

PARIS – The French aviation authority, DGAC, has certified the Société de Motorisations Aéronautiques diesel SR305-230 engine for the US-built Cessna 182 and the Reims Aviation version, the F-182. The certificate follows tests by the official National Flight Test Centre.

The 230-hp engine, which runs on avtur, offers improved performance and a longer TBO.

The engine has also been flown in the Socata TB20, the Maule and the Cirrus.

SMA says now Cessna certification has been received, it plans flight and demonstration tours through Europe from next month.



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