TECHNICAL: DEFENC E

Rutan unveils ARES

fighter contender
BY CRAIG SCHMITMAN

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caled Composites has un-
veiled its prototype ARES
(agile-response effective sup-
port) close-air-support/anti-heli-
copter fighter at Mojave,
California.
The privately developed air-
craft, designed by Burt Rutan,
marked its public debut with a
short demonstration flight, the
fifth since ARES first flew on 19
February.
ARES is designed as a highly
agile, low-cost, multi-role dem-
onstrator platform, optimised for
the anti-helicopter mission. With
a projected turn rate of 36°/s, a
maximum operating speed of
300kt (550km/h) and a l,400nm
(1,600km) range, the prototype
will test the suitability of the
ARES configuration for close air
support, border patrol, forward
air control, drug interdiction and
special operations requirements.
The most unconventional fea-
tures of an otherwise typical
Rutan canard design are the Gen-
eral Electric GAU-12/U 25mm

cannon and single engine inlet
on the aft portion of the left
fuselage. The 13kN (2,9001b)-
thrust Pratt & Whitney JT15D-5
turbofan and inlet are offset 8° to
the left of the centreline to avoid
ingestion of the gases produced
by firing the cannon. The aircraft
can carry 220 rounds of ammu-
nition, two AIM-9L Sidewinders
and four Sjjnger missiles.
Rutan is targeting ARES at
foreign governments, particu-
larly in the Pacific Rim, rather
than at the US Air Force, which
is already examining the LTV
YA-7F and a version of the Gen-
eral Dynamics F-16 as contend-
ers for its close-air-support role.
This is one reason why ARES is
not yet equipped for infra-red
suppression. Rutan says: "We are
being very careful initially to not
develop in this aeroplane tech-
nologies that could be deemed
non-exportable".
No particular attention was
paid to other low-observable fea-
tures, although the main fan
blade is not visible from the front
of the aircraft, because of the

Rutan heritage is clearly visible as ARES overf Mojave (inset). The ojfjfset engine intake prevent gun-gas ingestion.

curved inlet, with the engine
mounted slightly across the
centreline. The fuselage is offset
to the right of the wing
centreline. The fuselage shape in
the gun area shields the canopy
from blast pressure loads and
uses these loads to offset, yaw
caused by the recoil from the
cannon.

Director of flight operations
Douglas Shane says that the all-
composite aircraft handles well,
although there is a slight yaw
trim change when thrust is in-
creased. On the aircraft's third
flight, there was a failure of the

primary hydraulic system, but
Shane says that the backup
system worked "just fine". Last
week's demonstration flight was
flown with gear extended and
speed brakes taped shut.
The aircraft is not yet
equipped with operational fire-
control systems or avionics. After
initial testing of its handling
qualities is complete, ARES will
be fitted with armament and a
"limited avionics suite", and will
"undergo evaluation to deter-
mine its survivability and
detectability in simulated threat
environments". •

Pakistan ready to
receive P-3s

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akistan will receive the first
of three Lockheed P-3C
Orion maritime patrol aircraft
later this year, says the
manufacturer.
The three new-build aircraft
will replace the four Atlantic 1
aircraft which are nominally part
of the Air Force but are operated
under naval control.
The Pakistani purchase, re-
ported to be worth around $250
million, was announced in July
1988 and has caused concern in
India. Adm J G Nadkarni, India's
Chief of the Naval Staff, has said
that the Indian Navy was consid-
ering ways of countering Paki-
stan's P-3C force. A navalised
version of the Su-27 Flanker for
aircraft-carrier deployment is
one option thought to be under
consideration (Flight, 28 Feb-
ruary-6 March). •

IAI scoops Chilean F-5 upgrade I

srael Aircraft Industries (IAI)
has won a $200 million con-
tract to upgrade the Chilean Air
Force's F-5E/F Tiger II fleet.
The upgrade is based on IAI's
F-5 Plus package which includes
the installation of central mission
computer, multiplex databus

with modular avionics system
architecture and a pilot-friendly
cockpit incorporating headout
and hands-on-throttle-and-stick
concepts. The upgraded cockpit
features an El-Op headup dis-
play, two multifunction displays
and the option to install a

helmet-mounted display.
The package also includes a
new multi-mode radar, derived
from the EL/M-L 2023 developed
by Elta for the now-defunct Lavi,
and a version of Astronautics'
weapon-delivery system.
The upgrading of Chile's F-5
fleet of 12 F-5Es and two F-5Fs
will be carried out by the Bedek
Aviation division of IAI. D

Sentinel readies for flight
Airship Industries (AI) expects
x\t o fly the Sentinel 1000, its
largest lighter-than-air craft, on 1
April. It is a half-linear-scale ver-
sion of the proposed Sentinel
5000 for which AI and Westing-
house are building an opera-
tional development model
(ODM) for the US Navy.
The Sentinel 1000 carries a
Skyship 600 gondola and is to be
used to obtain aerodynamic and
performance projections for the

larger craft. Some 70% of parts of
the 1000 are already at the
Westinghouse-Airship Industries
plant at Weeksville, North Caro-
lina. The 1000 is to be powered
by turbocharged piston engines
driving propellers in ducts, simi-
lar to those proposed for the
5000 ODM.

Controls will use a fly-by-light
system developed from that al-
ready proved on a Skyship 600.
The 1000 will be equipped with a

set of cathode-ray tube (CRT)
displays supplied by Ferranti; the
5000 will have two crew stations
fitted with CRTs.
The smaller trials machine will
prove the 5000's general aero-
dynamics, as well as the pro-
posed diagionally configured tail
fins that provide greater ground
clearance than did previous cru-
ciform arrangements.
The Sentinel 1000 is based on
the planned Skyship 600S, which
AI sees as leading a new genera-
tion of civil airships and in which
it reports growing interest. •

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