DEFENCE

NASA/USAF plan P&W nozzle tests on F-15B
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IN ATLANTA

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ASA and the US Air Force
are to flight-test Pratt &
Whitney pitch/yaw-vectoring en-
gine nozzles on a McDonnell
Douglas F-15 Eagle, starting in
September 1994.
The USAF already plans to fly
a General Electric axisymmetric-
vectoring exhaust nozzle on a
General Dynamics F-16 Fighting
Falcon, beginning in May 1993.
The F-15B, which is used to
flight-test Pratt & Whitney's
two-dimensional (2D) pitch-
only thrust-vectoring nozzles,
will be modified for the NASA/
USAF aerodynamic-control-
technology integration vehicle
(ACTIVE) research effort, says
P&W programme manager
Roger Bursey. Only minor struc-
tural modifications will be nee-

Fifth production

C-17 first flight
imminent

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he fifth production
McDonnell Douglas
(MDC) C-17 (P-5) is ex-
pected to make its first flight
shortly, before delivery to the
US Naval Air Test Center at
Patuxent River, Maryland,
where the aircraft is sched-
uled to undergo lightning-
strike and electromagnetic-
interference testing.
Work on aircraft P-14 has
begun and MDC says that
"...efficiencies in production
have resulted in a 17% reduc-
tion in the cost of quality on
each succeeding aircraft".
The P-6, which is now 80%
complete at MDC's Long
Beach assembly line, will be
the first C-17 to be delivered
directly to an operational unit
— the 437th Air Wing at
Charleston AFB, South Caro-
lina — when it flies to the
base in May. •

essary, according to Bursey.
P&W ground-tested the pitch/
yaw balanced-beam nozzle on an
F100-229 in 1992, vectoring
thrust exceeding 134kN
(30,0001b) by up to 20°, through
a full 360°, and producing
17.8kN of force normal to the
engine centreline. The nozzle
"...operated flawlessly" and
"...looked superb" after disman-
tling, says Bursey.
The company will build two
flight-demonstrator nozzles,
which will be ground-tested in
mid-1994. These will be able to
vector thrust at up to 807s,
compared with 45°/s for the
ground-test unit, Bursey says.
Other changes will be limited to
repackaging the divergent-
section actuators to fit in the
aircraft, he says.
The F-15 short take-off and
landing/manoeuvre-technology
demonstrator (SMTD), now
minus its 2D nozzles, will be
flown to NASA's Dryden Flight
Research Center early in 1993
for flight tests with conventional
engine exhausts to determine
the baseline performance. This
will allow changes resulting
from use of pitch/yaw vectoring
to be measured, Bursey says.
Pratt & Whitney used a repro-
grammed nozzle controller from
the F-15 SMTD to conduct its
ground tests of the pitch/yaw-
vectoring nozzle and Bursey says
that the same units will be used
for flight testing. Nozzle opera-
tion in response to commands
from the flight-control comput-
ers will be "100% transparent"
to the pilot, he says.
GE will deliver its axisymmet-
ric vectoring engine nozzle
(AVEN) to GD early in 1993 for
installation in the F-16 variable-
stability inflight simulator test
aircraft (VISTA) for the 60h
multi-axis thrust-vectoring
flight-test programme. The com-
pany ground-tested the AVEN
early in 1992 on an Fl 10-129
and completed a second series of
ground runs in December on the
- 100 engine, which powers the
VISTA F-16. •

Italy might upgrade its G.222s after a loss in Bosnia

Italy wants four more C-130 Hercules T

he Italian air force is plan-
ning to acquire four addi-
tional Lockheed C-130 Hercules
to add to its fleet of 12 aircraft,
subject to funding availability.
Italy is also retrofitting its exist-
ing Hercules with new wings, to
extend their service lives.

In the wake of the shooting
down of an air force Alenia
G.222 transport in Bosnia in
1992, Italy has speeded up a
programme to give its transport
fleet an element of self-defence.
A C-130 is being used to test the
compatibility of a suite of defen-
sive aids with the aircraft's avi-
onics. The suite includes a
radar-warning receiver and
chaff- and flare-dispensers.
In addition, a new radar and
navigation suite is being consid-
ered for the G.222.
The air force will also decide
during the next few months on

the extent of an upgrade for its
Lockheed F-104 Starfighter fleet.
Some 44 of the 143 aircraft are
in the fighter-bomber configura-
tion and are scheduled to be
phased out in the next few years.
The remaining interceptors
are to be provided with a serv-
ice-life extension, including new
wings, partial re-wiring and a
new inertial-navigation system,
to stretch life until the Euro-
fighter 2000 becomes available
in the year 2000.
Two aircraft are at Alenia,
pending a decision to proceed
with the programme, before pro-
totype work starts, probably
later this year.
The air force says that it
remains committed to taking
130 Eurofighters, although it
concedes that the possibility of
cutting numbers has been
considered in recent months. D

NEWS IN BRIEF

TURKISH RADAR
The Turkish ministry of de-
fence has signed an $8 million
contract with Aydin of the USA
to complete Phase III of the
automation, control and system
integration of NATO radars in
Turkey. Bids received from
Hughes and General Electric
were rejected. Phases I and II
of the radar programme were
completed by Hughes in 1991.
The new work will be under-
taken jointly by Aydin and its
sister company, Aydin-Aymet.
Completion is expected by the
first half of 1994.

JAPANESE CUTS
Japan plans to raise defence
spending by just 1.7% in 1993,

the smallest increase for 33
years. The ¥4.63 trillion ($37
billion) budget includes provi-
sion for four McDonnell
Douglas F-15s and two air-
borne early-warning Boeing
767s. Japan has cut its ¥22.75
trillion 1991-6 defence build-
up programme by ¥580 billion.

TOW ORDER
The Spanish army is to buy
2,000 TOW anti-tank missiles
and 200 launchers from
Gyconsa, a joint venture be-
tween Hughes Aircraft and
Spain's state-owned Inisel.
Gyconsa also will study the
feasibility of developing a new
medium-range anti-tank mis-
sile in Spain.

FLIGHT INTERNATIONAL 6 - 12 January, 1993 11