DEFENCE

Pilatus PC-9 makes maiden flight
STANS

The Pilatus PC-9 turboprop-
powered trainer flew for the
first time on May 7, reports
Mike Gaines. The PC-9,
shortlisted for the Royal Air
Force's Air Staff Target 412
Jet Provost replacement, is
not a quick update of the
PC-7. Pilatus started design
of the PC-9 in May 1982, after
a market study indicated the
need for a turboprop trainer
in the 1,000 s.h.p class. At
that time delivery of the first
production aircraft was
scheduled for late 1985.

Flight-testing of major
PC-9 components and aero-
dynamic optimisation of the
new design took place
between 1982 and 1983. The
PC-9 is envisaged as replacing
jet trainers in the basic-
through-advanced section of
the pilot-training syllabus.
Pilatus emphasises that the
PC-9 is an entirely new
aircraft, although it owes
much to the PC-7. The PC-
9 is powered by a 1,150 s.h.p.
Pratt & Whitney (Canada)
PT6A-62, flat-rated to 950
s.h.p. maximum and to 900
s.h.p. for normal operations.
The engine is canted 2° down-
wards and 2° to the right to
offset the torque of the four-
blade Dowty Rotol propeller.
Electronic torque and temp-
erature control is incor-
porated and engine operation
is via a single lever.

The aircraft is of all-metal
semi-monocoque construc-
tion. Empty weight equipped
is 3,3501b. Aerobatic take-off
weight is 4,8501b and utility,
or maximum, take-off weight
is 7,0551b. Two integral wing
tanks house 230gal of useable
fuel, delivered by jet and/or
electric boost pumps to an
engine-driven main fuel
pump. Up to 60sec of inverted
flight is possible.

Flight controls are manu-
ally actuated with electric
trimmers. Split flaps are
hydraulically operated, as is
the flat-plate airbrake be-
neath the fuselage, a feature
new to the PC-9. The hydrau-
lically actuated tricycle
undercarriage, unlike that of
the PC-7, has drag-reducing
doors on main and nose gear.
Nosewheel steering and
brakes are also hydraulic.
The most obvious differ-

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Hans Galli checks out the Pilatus PC-9 on its first flight last week

ence between the PC-9 and
the PC-7 is the cockpit. The
rear seat is raised 15cm (6in)
to provide the instructor with
a good view over the student's
head. Martin-Baker CH-11
ejection seats are installed.
These are modifications of
the Mkl l rocket-powered
zero-zero seat, and are not
fitted with the rocket pack,
resulting in an ejection
envelope from 0ft/60kt up to
maximum altitude and 400kt.
The ' headrest parachute
containers are sculptured to
improve the view, and ejec-
tion is through a new one-
piece canopy.

Instrument layout is partic-
ularly neat, and is dominated
by two Rockwell-Collins
mini-CRTs stacked vertically

in the centre of each panel.
The upper CRT is an electro-
nic altitude director indicator
(EADI), while the lower is an
electronic horizontal situ-
ation indicator (EHSI). These
are not fitted to the first
prototype PC-9, but the
second aircraft will have full
production-standard instru-
mentation. This includes a
King Radio navigation and
communication system with
digital readouts arranged in
four blocks across the bottom
of the panel—two for nav and
two for comms.

The first flight of the PC-9,
made with a three-blade
propeller fitted, lasted 24min.
It was preceded by a high-
speed taxi run, checking the
controls and confirming the

calculated rotation speed of
80kt. On the second run the
PC-9 was rotated at 80kt and
"positively leapt into the air",
according to Pilatus chief test
pilot Hans Galli.
With the PT6 turboprop
delivering 900 s.h.p., climb-
out to 5,000ft was maintained
at 80kt. Control checks were
then carried out, Galli
describing harmonisation as
good, with low stick forces.
The first prototype will
have accumulated sufficient
hours to be displayed at the
Farnborough Air Show in
September, and the second
aircraft will be flying in July.
Pilatus is aiming for certifica-
tion by the end of 1985, and
the first Swiss-built PC-9s
should be available early in
1988.

Should the RAF chose the
PC-9 to replace its Jet
Provosts, the 155 aircraft
required would be built by
British Aerospace, with final
assembly probably located at
Brough. The AST should firm
up to an Air Staff Require-
ment within the next two
weeks.

The PC-9 will be made
available for flight evaluation
against the competing
Embraer/Shorts EMB-312
Tucano, NDN Aircraft
NDN-1T Turbo-Firecracker,
and the Australian Aircraft
Consortium A.20 Wamira II
still on the drawing board. If
the PC-9 is chosen, BAe
would prepare for licence
manufacture in 1986, opening
the assembly line in 1987.
BAe and Pilatus have
joined forces to promote their

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