Douglas studies V2500 as possible propfan replacement on MD-90

by John Bailey
in Long Beach
McDonnell Douglas is con-
sidering whether to offer the
International Aero Engines
V2500 powerplant as an
alternative to ultra-high-
bypass propfans on its
proposed MD-90 series
aircraft.

Kim Still, vice-president and
general manager of the MD-90
programme, says that such a
decision would end plans
for the UHB engine/airframe
combination for the foreseeable
future. "This is an either-or
situation," he says. "It is not
our intent to offer both
engines, and, if we were to do
that, it would be considerably
down the line. Not much of
what we are doing in devel-
oping this (V2500-powered)
aeroplane reads across to the
UHB".

Douglas first studied the
V2500/MD-90 combination
more than three years ago, but
decided to proceed with propfan
development because of the
greater fuel savings offered
by UHB engines, according
to Still. A modified MD-80
has already completed a limi-
ted demonstration program-
me with a proof-of-concept
General Electric GE36 unduc-
ted fan mounted on to the port
pylon. The aircraft appeared
at last year's Farnborough
Air Show.

Propfan flights
The demonstrator is due to fly
with the POC Pratt &
Whitney/Allison geared prop-
fan within the next week, and
Douglas has been actively
marketing MD-90s equipped
with either engine. The
company has not yet received
the orders it needs to launch the
programme formally, although
at least three airlines (Delta,
SAS, and Midway) have report-
edly agreed to convert later
MD-80 options when MD-90s
become available. Douglas is
offering two ' versions, the
114-seat MD-91, and the
165-seat MD-92.

At least two major carriers
have now told Douglas that they
would be more interested in
ordering V2500-powered MD-
90s, prompting Douglas to
study again the feasibility of the

engine /airframe combination.
Still tells Flight: "It is not clear
to me whether these requests
are motivated by the desire to
have an alternative, or because
there is something intrinsically
better in their minds about the
V2500 engine.
"People are concerned about
the technology risks with the
UHB, but it's more a concern
about the inevitable teething
problems. Maybe it would be
easier to do with an already
certified engine. We are
responding to that." Airlines
have appeared reluctant to
gamble on the propfan's greater
fuel efficiency while oil prices
remain low, but Still says: "How
broadspread that is I don't
know, and that's why we want to
go out with the alternative. We
are hopeful that if we treat the
V2500 as an alternative, we will
get a clear and crisp answer to
that question."

Discussions

Still adds that no formal agree-
ment exists between the two
companies, although he adds:
"We are having ongoing
discussions with IAE. We have
told them that we are looking at
their engine on our aeroplane,
and we will share information
with them when it becomes
available. We will decide where
we go from there if we can reach
a satisfactory agreement with
them on business issues."
Although the study is still at a
preliminary stage (Douglas has

not given the proposed
airframe / engine combination
an alternative designation), Still
says that his team will be ready
to approach airlines with details
in approximately two months.
He says: "We won't reach a
conclusion until we go out to
the airlines. We will tell them
what we think this aeroplane
will do, what a rough-cut esti-
mate of the price will be, and
whether it makes sense for their
fleet planning, as opposed to the
UHB."

The turbofan-powered MD-
90s would still undergo substan-
tial airframe, systems, and
avionics modifications com-
pared to the MD-80. Because of
the increased weight of the rear-
mounted engines, the horizon-
tal stabiliser will be increased in
span, and made from composite
materials. The internal struc-
ture of the vertical fin will also
be altered to cope with the
different loads.
The most visible difference
between the UHB- and
V2500-powered versions, apart
from the appearance of the
engines themselves, would be
in the engine mounts. Both
UHB engines require enlarged
pylons to accommodate the
span of the propulsors, whereas
the V2500 could be mounted on
pylons similar to those used for
the current Pratt & Whitney
JT-8Ds which power the
similar MD-80s.

However, Still says: "It may
look like the changes are

modest, but thev are quite
substantial, even for the V2500.
The engines are just as heavy as
the UHBs, and the thrust levels
are virtually identical. Because
we don t have quite the fuel effi-
ciencies [with the V2500], the
aeroplane either does not have
the range, or we have to
increase the gross weight,
which means strengthening the
structure. It's not as easy as it
might look."

End-year launch
If a launch decision was made
by the end of this year, the
V2500-powered MD-90 would
be ready for deliveries in mid-
1993. Still says: "We could do it
a little faster than the UHB,
although I'm learning in my old
age that aeroplanes need their
gestation times". The company
is still deciding where to locate
the MD-90 assembly line,
which will need different tool-
ing than the MD-80 line
because the fuselages will be
built in barrel sections, rather
than as "clamshells".

Still says: "We would like to
do it here in Long Beach, but
we continue to have very strong
sales for the MD-80. In my
view, we are going to have to
convert later options for the
MD-80s into the next version
[MD-90s], and then we will
have room for it here. If we
don't, then the way we are
building this aeroplane makes
it amenable to doing it
elsewhere."

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