TECHNICAL: PROPULSIO N

Boeing compares 767-X engines
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IN HONG KONG

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omparative data released to
airlines by Boeing about the
rival General Electric (GE), Pratt
& Whitney (P&W) and Rolls-
Royce (R-R) engines offered to
power the 767-X show the Brit-
ish company's engine to be the
lightest. General Electric's GE90
has the lowest specific fuel
consumption (SFC).
According to the Seattle-based
manufacturer, the GE90 offered
by GE for the 767-X "... is
2,400 kilos per engine heavier
than the Trent 800", says Cathay
Pacific engineering director,
Stewart John. The P&W
PW4082 is "also about one tonne
heavier", according to John.
The news is an unexpected
boost for R-R which has been
constantly handicapped by the
weight' of its RB.211 big-fan
family compared with GE's CF6
series and P&W's JT9 and
PW4000 families.
R-R's RB.211-524 series, at
around 7t installed weight, has
been up to it heavier per engine
than either the GE or P&W
competition. John says that this

disadvantage has been made up
for by "far better performance
retention".
Figures released by P&W user
Singapore International Airlines
show that in 747 service the
PW4000 shows a 3% deteriora-
tion in SFC over l,000h levelling
off at about 4% beyond this time.
The GE CF6-80C2 meanwhile
levels off at around 3% over
10,000h compared with roughly
2% for the RB.211.
R-R hopes to maintain the
retention performance with the
Trent by maintaining lower tur-
bine entry temperatures (TET)
for the three versions. According
to data released by the manufac-
turers, the TET will be up to
100K cooler than the PW4000 on
the MD-11, and for the Trent 700
on the A330, 60K cooler than the
CF6-80E1 or the PW4164. Simi-
larly, the Trent 800 is claimed to
have a TET some 100K lower for
the 767-X than the GE90's.

Despite these advantages, the
Boeing-released data shows the
GE90 plans to offer a 2% better
SFC than the Trent 800 and a
2.5% advantage over the
PW4082.
The first run of the Rolls-

MARSH-MODIFIED GRUMMAN S-2F TRACKER UNVEILED

A pair of Garrett TPE331-14/15 turboprops of l,227kW (I,645shp) driving Hartzell/ive-bladed propellers power the Grumman S-2F Tracker modified by Marsh Aviation and just certificated by the US Federal Aviation Administration. Single-lever control, automatic start sequencing, torque limiting and an 800A DC electrical system feature on the converted carrier aircraft, now marketed for low-cost patrol and anti-submarine warfare. Carrier trials will start this year with the aircraft, called the Turbo Tracker

Royce Trent turbofan is sched-
uled for August following the
completion of rig and compo-
nent testing at the UK engine
manufacturer's Derby site.
The first engine run will start a
certification programme set to
cover development of three ver-
sions between 1990 and Jan-
uary 1994.
Schedules revealed by Rolls-
Royce show certification of the
293kN (65,150lb)-thrust version
of the Trent 600 is expected to
take place in around 13 months'
time. The engine is being de-
signed to power the McDonnell
Douglas MD-11 and will be fol-
lowed by a more powerful 306kN
version if the US company de-
cides to launch the MD-12X.
Both versions of the Trent 600
will use the same 240cm fan and
turbo-machinery. Given an
MD-12X go-ahead, certification
of the later Trent 600 is timed for
around May 1993—shortly after
the Trent-powered MD-ll's
entry into service with the UK's
Air Europe.
Certification of the more
powerful 304kN Trent 700 for
the Airbus A330, ordered by
Cathay Pacific and TWA, is now
planned for November/Decem-
ber 1993 with an entry-into-ser-
vice date of early 1995.
No timetable has yet been
issued for a prospective Trent
700 version, capable of 320kN
and planned for the long-range
A330-600. Both versions would
use the same 248cm fan.
Certification of the baseline
Trent 800, designed for the pro-
posed Boeing 767-X, has been set
for around February 1994 with
entry into service due around the
middle of 1995.
Up to three versions of the
Trent 800 could be produced for
the three 767-X types offered to
airlines.
All will use a 279cm fan, al-
though so far R-R has only given
outline certification details of the
321kN version planned for the
767-X "A market" transcontinen-
tal variant. A larger 370kN ver-
sion is being designed for the
intercontinental "B market"
while larger-thrust type awaits
definition for a very-long-range
"C market" 767-X. •

CFE738 readied for its first run

CFE738 passes
full-rated test

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he new CFE738 turbofan,
chosen by Dassault to power
the Falcon 2000 business
twinjet, has run to its full-rated
thrust of 26.7kN (6,0001b)
following an initial run at the
General Electric/Garrett partner-
ship's factory in Phoenix, Ari-
zona, on 16 May.
Operation was normal and fuel
bu m lower than expected, claims
CFE. The engine had initially
been rated at 24.9kN.
CFE will build 11 engines for
the development effort, sched-
uled for competion in late 1992.
Dassault is the first company to
select the engine. •

GE talks to new

GE90 partners
General Electric has opened

talks with prospective part-
ners in the new GE90 pro-
gramme following MTU's
withdrawal from the large turbo-
fan project proposed for the
Boeing 767-X widebodied twin.
GE says that it aims to secure
foreign partners within "several
months" to replace MTU, which
had a risk- and revenue-sharing
stake of around 25%, and which
was involved in work on the
engine's low-pressure turbine.
MTU defected to GE's rival Pratt
& Whitney.
MTU's replacements may not
be offered all of the West
German company's stake, how-
ever. GE says that it may perform
some of the work itself because
of the strength of the market. D

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