BUSINESS AVIATION

Gulfstream IV is launched with Tay
LONDON

Gulfstream Aerospace has
become the launch customer
for Rolls-Royce's Tay engine.
It has ordered 200 Tays for its
latest business jet, Gulfstream
IV, in a contract worth $300
million, including spares, as
predicted in Flight last week.
The new aircraft will be a
successor to Gulfstream III, a
top-of-the-line business jet
with intercontinental range.
Tay will burn 15 per cent less
fuel than the Spey on Gulf-
stream III, giving the IV a
range of 4,000 n.m. with
NBAA IFR reserves.

This range can be achieved
with eight passengers and
three crew while cruising at
the comparatively high speed
of Mach 0-8—many business
jets cruise between Mach
0-68-0-74. Tay will easily
meet FAR Part 36 Stage 3
noise requirements, effective
in 1985, and comply with
emission standards.

In addition, Gulfstream IV
will have a 2ft longer fuselage,
giving extra comfort rather
than more seats. All-digital
avionics will be standard,
including six cathode ray tube
(CRT) displays. Sperry is
likely to supply the CRTs,
which will replace the tradi-
tional electro-mechanical
ADI and HSI. Category III
autoland is standard.

Electrical generators with
solid-state electronics are
another feature, claimed by
Gulfstream to be the first such
application on a commercial
aircraft.

Throw in use of improved
aluminium-alloys and com-
posites, and Gulfstream's
claim of having "the most
advanced business aircraft in
its timeframe" is under-
standable.
Gulfstream IV will cost
about $13 • 5 million at today's
prices. After marketing the
aircraft for just ten days,
Gulfstream had 16 letters of
committment—equivalent to
orders in the company's
experience.
Allen Paulson, chairman of
Gulfstream Aerospace, be-
lieves there is a market for
about 300 Gulfstream IVs in
the next decade. He says that
Gulfstream IV will cost about
$50 million to develop.
Current plans call for aircraft
certification in the last

Above Gulfstream IV features Tay engines and a fuselage that is 2ft longer than that of Gulfstream HI. It retains the G-IIIairframe, including its advanced technology wing. Below Tay's HP compressor, turbine, and combustor are taken from the Spey. The fan, LP compressor and turbine, and by-pass duct use RB.211 expertise

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TAY v SPEY
T.K.'

Thrust (lb|
Overall
Pressure-ratio
Bypass ratio
Turbine entry
temperature (K)
Overall length (in)

• 3 550
:5 5 1

3 1
1 300

101
44

Spev
3 300
15 4 1

1 1
1.300

96 7
32 fc

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quarter of 1986, with deliv-
eries beginning at about the
same time. After a transition
phase, production of Gulf-
stream III will end.
Paulson foresees a market
for retrofitting Tays to Gulf-
stream lis and Ills. He points
out that retrofit of the G-IIFs
advanced wing to G-IIs is
already established.
Why has Gulfstream

launched its G-IV now? A
good order backlog on the G-
III is one reason, according to
Paulson, and impending noise
legislation is another. Gulf-
stream III already meets the
noise rules, but in some parts
of the USA and Europe, there
are financial inducements and
less of a curfew on those that
do better.

Did Gulfstream have an
alternative engine choice for
G-IV? "Well, no" is Paulson's
frank reply. Indeed, much of
the credit for getting Tay
launched belongs to Gulf-
stream, which has been talk-
ing to Rolls-Royce about an
improved engine for a year or
two.

For Rolls-Royce, Tay
provides a good opportunity
to retain the market slot
created by Spey. Rolls-Royce
commercial director Ralph
Robbins anticipates a market

of 1,000-1,500 Tays, of which
G-IV is the most important
element. Other possible appli-
cations include Fokker's F.28
and the One-Eleven. A
military application is absent
so far.

Rolls-Royce expects to
spend £50-£60 million in
developing Tay, finding the
money without recourse to the
British Government. The
engine will be made in the
same facilities now used for
Spey, and will help to make
good a shortfall in use of
production capacity.

Tay's high-pressure (HP)
core is more or less the same
as that of the RB.183 Spey
Mk555-15P, which powers the
latest version of the F.28. The
fan features wide-chord
blades and is scaled directly
from that of the

RB.211-535E4. Low pressure
compressor and bypass duct
also draw on RB.211-535
experience.

First engine run is due in
August 1984, according to
Rolls-Royce.
In its Gulfstream IV appli-
cation, Tay will be flat-rated
to 12,4501b at 95°F.
Production of the Gulf-
stream's initial order for 200
engines is expected to occupy
Rolls-Royce for three years.
FLIGHT International, 12 March 1983 645