TECHNICAL: AI R TRANSPOR T

Saab designs "fastest turboprop"
BY ALAN POSTLETHWAITE
IN LINKOPING

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aab has finalised the configu-
ration and major systems of
the Saab 2000 regional turbo-
prop. The Swedish company is to
build a high-performance aircraft
capable of cruising at 360kt and
equipped with advanced systems
including six-tube electronic
flight instrumentation (EFIS) and
dual-redundant full-authority
digital engine control (FADEC).
The $12 million aircraft will,
Saab hopes, be the fastest
turboprop airliner available and
be significantly quieter inside
than the smaller Saab 340.
Manufacture will be character-
ised by a strong element of sub-
contracting, involving suppliers
in the USA and Europe, and at
least two governments taking a
stake in the $550 million
programme, although production
of the main fuselage and final
assembly will take place at Saab's
Linkoping factory.
Performance targets include:
• 360kt (Mach 0-62) cruise
• lOmin climb to 20,000ft
• ability to cruise at between
18,000ft and 31,000ft
• block times comparable to jet
airliners and block fuel per
passenger equal to the Saab 340
• balanced field length of 4,500ft
• internal noise 10 dB(A) below
the Saab 340's, at 76 dB(A)
• economic range flexibility
between 100 n.m. and 1,000
n.m. (maximum 1,340 n.m.).

340 CROSS-SECTION

The Saab 2000 fuselage has the
same cross-section as the Saab
340, but is stretched by some
272-5in to accommodate 15
extra seats at 32in pitch, forward
toilets and wardrobes, aft galley,
and storage space for eight cater-
ing trolleys. There is 8ft3

of
checked luggage space per
passenger. Overall fuselage
length is 88ft 7;n. The wings, tail-
plane, and fin are scaled up from
those on the Saab 340.
The conventional structure,
which has less than 5 per cent of
composite parts by weight, is to
be guaranteed for 60,000h and
75,000 cycles—a shift in empha-
sis from the Saab 340's life of

Saab 2000

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45,000h and 90,000 cycles.
Power is to be provided by a
pair of Allison GMA 2100 turbo-
props. Now being developed,
these engines use the core of the
T406 turboshaft that powers the
Bell-Boeing V-22 Osprey tilt-
rotor, driving a gearbox based on
the unit in the T56 turboprop. To
be type-rated at 4,500 s.h.p., the
GMA 2100 will deliver 3,500
s.h.p. at take-off and 2,200 s.h.p.
in the cruise. The engines, deliv-
ering about twice the power of
those in the Saab 340, will drive
six-bladed propellers with highly
swept blades.
A £ADEC, simplified from the
more complex T406 military
unit, will integrate engine and
propeller handling for single-
lever control, and will include a
health monitor capable of send-
ing data to the cockpit displays or
a mechanics computer for on-
condition maintenance.

Saab has completed prelimi-
nary aerodynamic and structural
design and expects to finish
detailed design work within three
months. Further windtunnel
tests are due to start in Switzer-
land and the Netherlands this
month.
CASA of Spain last week
signed a $500 million. contract

with Saab to perform detailed
wing design and build 300 wing
shipsets. Westland of the UK is
understood to be negotiating to
supply the rear fuselage and
empennage—announcement of a
supplier is expected next week.
Dowty is negotiating to supply
the propellers, though Saab has
said the firm must improve US
product support if it is to be given
the order. Rockwell-Collins is in
"final negotiations" to supply the
six-tube EFIS, similar to the
system in the new Boeing
747-400, says Saab. A request for
proposals on the interior has yet
to secure a supplier. The under-
carriage supplier has yet to be
chosen.

KIT ASSEMBLY
Saab will be assembling much of
the new aircraft as a kit, Allison
providing engine/nacelle units
ready to bolt on to CASA's wings.
The wings will be complete with
moving surfaces, lower nacelle
structure, undercarriage, d'oors,
moving surfaces, and all systems
ready for mating with the fuse-
lages at Linkoping.
Saab is expanding the Lin-
koping plant to accommodate
production of the new aircraft
and an anticipated increase in

output of the Saab 340B. A
new automated fuselage-riveting
machine will stitch together fuse-
lage sections, including the two
cabin sections, each made up of
four reinforced and bonded
panels. Saab 340B fuselages will
also be assembled there, the
company aiming for maximum
flexibility to alter the production
mix. Employment is to increase
by 800—mainly on the shop
floor.

Saab is seeking a "royalty-
based" loan of $155 million from
the Swedish Government to fund
further development and pro-
duction of the aircraft, with
repayment in the form of royal-
ties. The proposal invites the
Government to become a risk-
sharing partner.
CASA is understood to have
sought about half of the $8-4
million investment from the
Andalusia regional government.
Manufacture of the first three
test aircraft will start in January
—the third will become the first
production aircraft. Allison
expects to deliver the first test
engine in the first quarter of next
year, and Saab predicts a Saab
2000 maiden flight in 1992, with
certification and deliveries late
the following year. •

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