OPERATIONS: GENERAL

JL

Owners of all Beech King Air 300s will need to replace wing-attachment bushes

King Air operators face wing mods
A

lmost 400 Beech King Air
. 200 and 300 turboprop exec-
utive aircraft will need modified
wing-attachment fittings, follow-
ing tests which suggest that the
original expected life will not be
reached. The manufacturer had
thought that regular 2,500h
inspections, probably from
10,000h, would be sufficient, but
now considers bush replacement
in lower forward spar caps on
aircraft built in the past five years
to be more prudent.
Beech says that 368 King Airs
— post-1983 Model 200s and all
Model 300s—are affected. It
expects to call for modifications
to be carried out at around
7,500h flying time, which it calls
a very conservative estimate of
the life of original fittings.
On King Air 300s and post-
1983 200s the lower forward-
spar shear-bolt is located in
bushes which have been chilled
before fitting into a heated lug to
achieve an interference fit.
Fatigue tests have shown that, in
extremely hostile conditions, the
bushes could begin to rotate, and
that this could lead to failure.
The manufacturer has intro-
duced a so-called force mate
process, which uses a tapered
mandrel to expand bushes in the
fitting to increase fatigue resis-
tance. King Air operators will be
advised to book their aircraft in
for modification at a service
centre when the advised flying
time is reached. They will have to
pay for labour and incidental
parts, but Beech will provide the

new bushes, fitting tools, and
ensure the presence of a service
engineer.
During development of the
King Air 300, which is more
powerful and 1,5001b heavier
than the earlier 200, Beech
changed the attachment at the
centre-section/outer-wing joint
to a double clevis and pin
arrangement from the previous
bolt-in-tension fitting. The upper
forward and both aft spar attach-
ments remained as before. At the
same time, a three-element
bonded aluminium spar was
introduced in the lower forward
position, in the place of the
earlier single-piece beam.
In 1987, Beech fatigue tests
examined a "worst conceivable
case", in which eventually the
lower forward left-hand attach-
ment clevis failed at 7,730h as a
result of fatigue cracking initiated
by fretting. Analysis by Beech
concluded that, under more real-
istic (but still conservative) flight
conditions, the structure would
endure at least 127,000h, and
that a greater interference fit of
0 0028in could raise this time to
200,000h. This translates to an
engineering safe-life of 34,700h.
Following the test, Beech
advised owners last year that it
expected to recommend regular
2,500h inspections from
10,000h. Now, Beech expects to
adopt 7,500h as the point at
which lower forward-spar attach-
ment bushes should be replaced
as a standard action in Chapter 4
of the maintenance manual. •

Commander tackles product issue

A

novel approach to product
liability persuaded Gulf-
stream chairman Allen Paulson
to sell the Commander piston-
single line to Commander Air-
craft, says president Randall
Greene.
Commander Aircraft had to
assume liability for some 1,000
Rockwell-built aircraft still flying
and produce acceptable pro-
posals covering the new aircraft it
planned to produce.
The result is the Commander
cost-assurance programme,
which Greene believes will mini-
mise lawsuits by reducing the
risk of accidents and limiting
insurance payouts.
Any new Commander cus-
tomer must undergo three days of
initial training to build pro-
ficiency on the aircraft. This
includes use of a cockpit pro-
cedures trainer and flight in the
actual aircraft covering all
approach paths and grass land-
ing. Thereafter, there will be an
annual check ride.

Secondly, Commander will
provide $5 million combined
single limit insurance (five times
the norm). In an effort to limit
insurance claims, the company
has signed non-subrogation
agreements with its vendors
—principally engine supplier
Lycoming—which prevent them
joining any lawsuit against
Commander Aircraft. This, and
the use of a single underwriter,
keeps the premium to acceptable
levels, says Greene.

Thirdly, the engine will have
an extended warranty equivalent
to the time between overhaul. On
reaching TBO the customer will
automatically receive a recon-
ditioned engine in return for his
time-expired unit. This should
avoid accidents caused by pilots
flying beyond engine TBO and
experiencing catastrophic failure.
Aircraft values are likely to
remain high, because, as a
Commander gets older, it also
gets closer to receiving a new
engine, says Greene.
While the cost of product-
liability insurance has kept
Cessna's piston-single out of
production, the cost-assurance
programme has enabled Gulf-
stream—which never built any
Commander singles after it pur-
chased the line from Rockwell in
1981—to sell the line and for
production to restart.
Commander Aircraft will
complete the first four
new-production aircraft in
December. The aircraft are being
built in Kenosha, Wisconsin.
Gulfstream parent Chrysler is
providing production financing
in an effort to offset the impact of
closing down its Kenosha car
manufacturing plant.
The aircraft being put back in
production is an aerodynamically
refined version of the
Commander 114, with cruise
speed raised from 149kt to at
least 164kt from the same
260 h.p. Lycoming IO-540
piston engine. •

NEWS IN BRIEF

SQUIRREL REFURBISHED
European Helicopters has
refurbished an Aerospatiale
AS.355F1 Twin Squirrel, pur-
chased in the USA, for the
Charter Group, a London prop-
erty organisation. EHL asso-
ciate company Lynton Aviation
will operate the helicopter
under a management contract.

GABON GRANT

The United Nations has granted
$8 million aid to the Multi-
national Civil Aviation Training

Centre in Mvengue, Gabon.
The centre, which trains pilots
and technicians from 14 Afri-
can countries, has financial
problems because some
member states have not paid
contributions.

AIRSPORTS GROUP

Sport aviators seeking unified
representation to the European
Commission have formed
Europe Airsports, a pressure
group with members in the 12
states of the European Commu-
nity. Its president is Frederick
Marsh.

14 FLIGHT INTERNATIONAL 1 July 1989