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TU-134 replacement decision due
Y

akovlev and Tupolev expect
to know within a few
months which of them has won
a contest to supply Aeroflot, the
Soviet airline, with hundreds of
medium-range airliners.
The result of the competition
the two design bureaus have
entered will mean life or death
for the three designs involved.
Aeroflot has a requirement
for a long-overdue Tupolev Tu-
134 replacement and was be-
lieved to be taking the Tu-334
as part of a long-term re-
equipment strategy.
Following delays in the Tu-
polev development, however,
the airline has received bids
from Yakovlev with two ver-
sions of a stretched Yak-42,
known as the Yak-46. Despite
the delays, Tupolev says its bid
is aimed at an entry-into-service
by 1994.
Tupolev has proposed a two-
stage development of the Tu-
334. The initial design, powered
by two Progress (ZMKB and
formerly Lotarev) D-436T tur-
bofans, will carry up to 102
passengers. A second, definitive
variant, will be powered by two
Progress D-236 propfans and
will carry 126. It will offer a
range of 3,450km, with a pay-
load of 11,430kg, or a slightly
shorter range, with a maximum
payload of 13,500kg.
The D-436T-powered variant
is to have a maximum range of

2,000km, with a 9,251kg pay-
load, or a shorter range, with a
maximum payload of 11,000kg.
Tupolev is confident about
winning the competition. "We
now have a definite project and
we are thinking of starting flight
testing in 1993," says vice presi-
dent Viacheslav Sableu. "We
offer a comfortable aircraft, with
up to 50 litres of baggage space
for each passenger in the cabin."
Yakovlev is waiting for Aer-
oflot's decision before going
ahead with its proposed Yak-46
development. It has, however,
formed a joint venture with
engine builder Progress (Lo-
tarev) and the Ministry of Civil
Aviation to prepare the ground.
"The Aeroflot situation is
good, the airline has signed all
the documentation concerning
our association and is prepared
to donate several million rubles
to help us build a prototype,"
says Yakovlev chief designer
Yuri Yankevich. "This money
would come to our joint ven-
ture, if it is not given to any
other programme, by the end of
this year."
Two very different designs
have been offered. One Yak-46
has a T-tail and two D-27
propfans, while the other re-
sembles an Airbus A320 and is
powered by two turbofans. Both
offer considerably more passen-
ger capacity than the Tu-334,
with room for up to 168 people.

The turbofan version is being
offered for ranges of up
to3,450km with a normal pay-
load, while the propfan has
slightly longer range of
3,500km.
Yankevich says that if it is
selected, construction of a
prototype will begin early next
year, leading to an eventual
production run of up to 100 per
year until 2005.
Other new aircraft to be in-
troduced include the Let L-610,
the llyushin 11-114, Yak-42M,
Ilyushin 11-96-300 and the Tu-
polev Tu-204.
•Yakovlev has approached
BMW-Rolls-Royce over possible
re-engining of the Yak-42M
with the BR700 family of new
turbofans. The most likely can-
didate would be the top-of-the-
range lOOkN (22,0001b) BR720,
replacing the 74kN thrust Lo-
tarev D-436. Development of
the 42M is going ahead, despite
being far behind the original
schedule calling for entry-into-
service in 1987 — the pro-
gramme is expected to take a
further three years.
Deliveries of a previously un-
recorded Yak 42 variant, the D,
are going ahead. The aircraft is
representative of the second -42
prototype, which had three
more rows of seats offering ac-
commodation for 120. The first
of up to 10 aircraft for Cubana
and China. •

Yakovlev Yak-46 (turbojet high by-pass engines)

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Cryogenic A300

feasibility study
D

eutsche Aerospace and Tu-
polev are planning to begin
feasibility studies of an Airbus
A300 fuelled by hydrogen meth-
ane later this month. The devel-
opment follows news that the
Tupolev-developed Tu-156 liq-
uified natural gas (LNG) pow-
ered aircraft will fly in 1993, a
year earlier than expected.
German aerospace minister
Erich Riedl said in a joint state-
ment issued with his Soviet
counterpart Apollon Syszow
that Deutsche Aerospace is
"...ready to proceed on the
(cryogenic fuel) project". Reidl
also said that a testing and
development phase will follow
the feasibility study first an-
nounced four months ago.
Tupolev's indigenous cryo-
genic fuel programme, now re-
lying on LNG rather than hy-
drogen, is set to begin flight
testing in 1993 according to
Vladimir Andreev, the design
bureau chief designer responsi-
ble for the scheme.

Outlining the bureau's three
point cryogenic fuel strategy ,
Andreev says "We will convert
between 100 and 300 Tu-154Ms
to LNG.
Kuznetsov NK-8 turbofans
will be modified to burn either
standard kerosene or LNG and
re-designated NK-89s (Flight, 9-
15 May). The engine bureau is
designing a new pump and heat
exchanger unit to enable the
turbofan to handle the fuel in
gas form. "A new combustion
chamber will be needed and
other systems will be changed"
says Andreev. "In an emergency
it will take only five seconds to
change fuels."
Stage two of the alternative
fuel strategy is the conversion of
a bigger type, in this case the
Tu-204 medium range airliner
currently under development.
Stage three would be "an LNG-
only powered aircraft which
would be lighter because it
would lack all the heavy instru-
ments needed for dual fuel" says
Andreev. "The main result of all
this is ecological, and I think
the second result will be eco-
nomical. It's half the price of jet'
fuel and in the future it will be
even cheaper." •

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