with a pair of counter-rotating integrated shrouded propfan (CRISP) engines mounted on the wing.
In a significant departure from large trans-port and military aircraft, Yakovlev is study-ing business jets. The bureau is looking at an 8-12-passenger, 5,000km (2,700nm)-range twinjet offering a high level of comfort.
The 30kN-thrust engine needed is not made in the Soviet Union, and Yakovlev says that a joint venture would be needed. Studies at Hyushin also include a business jet, making it the third Soviet design bureau working in this field. The first to have emerged was Sukhoi's ambitious supersonic business jet, to be marketed by Gulfstream. Ilyushin is considering a replacement for its I1-62M long-range narrowbodied four-engined jetliner, designated the 11-90. The aircraft is also a narrowbody, but Ilyushin says nothing about it.
The design bureau is more open about plans for extending the 11-96-300 long-range four-engined widebody family. Ilyushin says that up to ten derivatives are likely, with ranges of up to 14,000km (7,600nm) and seating for up to 400. passengers. One might be a twin with a pair of 300kN-thrust deriva-tives of the Lotarev D-18 unit instead of the four 160kN-thrust Soloviev PS-90A turbo-fans on the current (300-passenger) aircraft.

Ilyushin says that a pair of Rolls-Royce Trents would work, but there have been no negotia-tions with the UK engine firm.
Ilyushin took the wraps off its experimen-tal assembly shop in Khodinka last month, giving an opportunity to inspect a pair of 11-114 60-seat regional airliner prototypes. Ilyushin says that 100 of these aircraft will be made annually in a Tashkent factory for Soviet airline Aeroflot.

COMPOSITE STRUCTURE

The fuselage mockup at Khodinka shows the 11-114 interior to be modern in appearance with galley, toilet and baggage compartment. The cockpit has five-tube electronic flight instrumentation.
Ilyushin is predicting an II-114 fuel burn of less than 19g per passenger-kilometer and a range, with 60 passengers, of 1,000km (540nm).
The TV7-117 l,860kW (2,500shp) turbo-prop engine, designed by the Isotov bureau and built in Moscow, has been under test for the past two years. A turboshaft derivative will power the new Mi-38 helicopter, similar to the EH Industries EH. 101. The turboshaft will fly next year, says an Isotov official. Early aircraft will have an all-metal prima-ry structure, but later examples will have carbonfibre-reinforced plastic tailplane and

Soviets are marketing their transonic mndtunn (left), engine altitude test cell (above) and fluid dynamics software. Cyrillic logo is the acronym the Central Institute of Aviation Motors

fin boxes—the first Ilyushin aircraft to have composite primary structure.
The Il-114's structure is composed of an unusually large number of subassemblies which can be built in compact, distributed production centres and swiftly assembled. Derivatives planned include a 72-seat stretched version. The standard 60-seat air-craft will be available in the West from 1993 at a price competitive with the British Aero-space ATP, says Ilyushin. Contrary to earlier reports, it will not appear at this year's Famborough show, says Ilyushin.
The Ilyushin-X twin-pusher, unveiled at the recent Asian Aerospace 90 show in Singapore and similar to the Embraer-FAMA CBA-123, is under "serious consideration". The 19-passenger regional or 7/8-seat execu-tive aircraft would use engines being de-signed by CIAM that drive pairs of contra-rotating propellers. Ilyushin says that the gearboxes pose practical design difficulties but that the arrangement offers increased propeller efficiency.
Ilyushin has developed a fire-fighting ver-sion of the 11-76 transport. The I1-76D has two large water tanks in its cargo bay, which spill water out of rear drains over the rear cargo-loading ramp.
The 11-76 advanced propeller testbed, called a "propfan" testbed by Ilyushin, is to be displayed at the Hannover Air Show in May. Although Soviet marketing is improving, the outcome of the many talks on possible collaboration taking place is likely to be influenced not least by the still bureaucratic nature of Soviet society, the severe shortage
of high-quality hotel rooms in the capital and
lack of direct dialling or telephone lines to
the West. These problems look set to ease,
however, and there might soon be an East-
West chorus of "Da, kanyeshna!". Q

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