TECHNICAL: GENERA L AVIATIO N

Pinguino gear is tested for strength

Italy's Pinguino

undergoes static

drop testing

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taly's General Avia is con-
ducting static drop tests of
the main undercarriage of its
F.22 Pinguino two-seat primary
trainer to examine aircraft
weight increase options. The
tests, which are being carried
out at Milan University's depart-
ment of aeronautical engineer-
ing, will help determine how
much extra weight can be added
without strengthening the
undercarriage.
The design house is consider-
ing a larger engine of around
134kW (180shp) for the air-
craft. The first F.22 Pinguino
has an 86.5kW Textron Lycom-
ing 0-235-2NC, and the second
prototype, the F.22R Sprint, has
a T19kW O-320-D2A engine. •

US Modus rotorcraft patented
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esign details of a hybrid
rotorcraft concept, the
Modus, are available following
a US patent granted to its devel-
opers, Modus Engineering of
Cincinnati.

The rotorcraft concept is
based on a pair of counter-
rotating disks with a series of
45cm-long blades on the pe-
riphery of the disk-shaped lift-
ing surface, where the most
effective lift is created. In for-
ward flight, lift is created by the
disks, eliminating retreating
blade stall. Modus says the disk-
shaped wine will make full use
of the aerofoil, since laminar
flow will not be disturbed by a
fuselage and all the wing area
generates useful lift.
The counter-rotation of the
disks eliminates the need for
anti-torque devices such as a
tail rotor.
The concept's developer,
Frank Black, says a scaled
proof-of-concept prototype is
being built, and Modus has
applied to the US Department of

Defense for a small business
initiative research grant. The
prototype's fibreglass body has
been made and gearboxes are
being built.
The demonstrator will weigh
around 410kg with a 2.1m-
diameter disk. Eleven rotor
blades will be fitted to the top
disk and twelve to the bottom,
although this can work the
other way around, says Black.
Ascent, hovering and descent
are controlled by the power

applied. Control for horizontal
or forward flight is achieved by
increasing the percentage of
power from a pusher or puller
powerplant. This is a radical
departure from the transitional
characteristics of a helicopter,
which achives forward flight by
increasing cyclic pitch and tilts
into the direction of travel.

In the event of engine failure,
the aircraft can glide like a
fixed-wing aircraft or autorotate
like a helicopter. •

Modus rotorcraft concept

Reed Business Publishing Group

Garrett APU chosen for Falcon 2000

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arrett's GTCP 36-

150(F2M) auxiliary power
unit (APU) has been selected
for the Dassault Falcon 2000.
The value of the deal is esti-
mated at more than $45 million
over the life of the programme.
The GTCP 36-150(F2M) gen-
erates more than 150kW
(200shp). It is designed to start
and operate up to 37,000ft
(11,212m), higher than any
other comparable business jet

APU, claims the company.
As of January, Dassault Avia-
tion and Falcon Jet had received
over 30 deposits for the Falcon
2000, which can fly eight pas-
sengers at Mach 0.8 more than
4,800km (2,594nm) with full
reserves. First deliveries of the
Falcon 2000 will begin at the
end of 1994.

Garrett already has power
units on the Falcon 50 and the
Falcon 900. •

SJ30 FLIES

The prototype Swearingen-Jaffe
SJ30 business jet made its first
flight on 13 February from
Stinson Field, Texas. The four-
to six-seat Rolls-Royce/Wil-
liams FJ44-powered aircraft
did not retract its undercar-
riage during the 2h flight.

FIRST FOR MBB CANADA

MBB Helicopters Canada has
received complete design au-
thority for the MBB BO.105LS
— a first in Canada, according

NEWS I N BRIEF

to the company. Design trans-
fer, from MBB Germany, means
all future developments of the
helicopter will now be initi-
ated, completed and certified
in Canada.

FUEL EASY APPROVED

A collapsible external-load fuel
container for helicopters, Fuel
Easy, has received certification
from Transport Canada. The
British Columbia-based manu-

facturer SEI Industries claims
that the container, when full,
is stable and predictable at
speeds up to 103kt.(190km/h).

LONGRANGER OXYGEN

US Omniflight Helicopters has
received a supplemental type
certificate for the installation
of a 10-litre liquid merlical
oxygen system in the) Bell
LongRanger. The kit incorpo-
rates extensive safety features,
including a pilot-operated
emergency shutoff.

Roll out for Air

Tractor AT-802

firefighter
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ir Tractor has rolled out its
latest, and largest agricul-
tural aircraft, the AT-802. The
aircraft has a 17.6m wingspan
and a maximum gross take-off
weight of 5,670kg.
The prototype AT-802 is
powered by a l,060kW
(l,425shp) Pratt & Whitney
Canada PT6A-67R turboshaft
and is to fly under contract to
the California Department of
Forestry as a firefighter. Air
Tractor, based at Olney, Texas,
says the AT-802 is its front-line
competitor to the twin-engined
aircraft that currently dominates
the firefighting market.
With a 3,140-litre capacity
hopper, almost double that of
other Air Tractor's such as the
AT-503 and the -501, the -802
approaches or exceeds the
capacity of some smaller twins
in the market. •

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