AIR TRANSPORT

Engines hold clue to SAS MD-81 crash
BY DAVID LEARMOUNT

T

eardown of both engines
from the Scandinavian Air-
lines System (SAS) McDonnell
Douglas (MDC) MD-81, which
crashed on 27 December soon
after take-off from Stockholm
Arlanda Airport, is expected to
hold the clues to the accident
cause, according to chief techni-
cal investigator, Henrik Elinder.
He hopes teardown of the Pratt
& Whitney JT8D-217 engines
will be complete within a month.
Meanwhile, in case ice shed
from the wing into the engines
may have -been the cause of
engine power loss, the airline
has sharpened its preflight de-
icing procedures, requiring the
de-icing mechanic to test the
wing surface for ice by actually
touching it and the captain to
confirm the touch check with
the mechanic. The Federal Avia-
tion Administration has also or-
dered icing check uprades in the
United States.

When the flight took off for
Copenhagen, the weather was
overcast, there was a slight wind
and a temperature of 0° C. There
had been recent light freezing
rain. The scheduled 08.30 de-
parture had been delayed by
18min to carry out additional
de-icing, and the mechanic re-
ported no ice on the wings.
During the climb, between
2,000ft and 3,000ft (610m and
915m) the pilot reported double
engine failure; he maintained
full aerodynamic control and
put the aircraft down in a snow-
covered field about 16km (9nm)
north-west of the runway's end,
near the small town of Gottrora.

There were no deaths, but eight
of the 123 passengers and six
crew were seriously injured.
Investigators have studied the
print-out from the flight data
recorder (FDR) and the cockpit
voice recorder and have inter-
viewed the pilot. Shortly after
take-off there were "low-fre-
quency bangs" from the right-
hand engine, then the left. The
FDR shows fluctuating engine-
pressure ratios and rising ex-
haust-gas temperatures. The
crew extinguished an indicated
left-hand engine fire, by which
time both engines were spooling
down almost to windmilling.
The maximum altitude
reached was about 3,000ft and it
broke cloud in descent at 800ft.
The captain, familiar with local
terrain, was maintaining con-
stant heading to minimise the
descent rate. On going VMC
(visual), he says, he had about
4s to decide which of three
fields to land in, and lowered
the landing gear shortly before
hitting tree tops on short finals
to the chosen field. With the left
wingtip removed by the trees the

aircraft was descending at a 30°
profile, no longer flying, before
hitting the surface about 50m
beyond the trees and sliding
200m to a halt, the fuselage
broken into three sections.

The US National Transporta-
tion Safety Board says that the
MD-80's predecessor, the DC-9-
10, had been peculiarly aerody-
namically sensitive to wing-ice
contamination, with four crashes
following icing loss of control
just after take-off. Despite lim-
ited relevance to the SAS inci-
dent — because control was
maintained and the MD-80's
wings have leading edge slats
(the DC-9-10s do not) — the
experience shows that rear-
mounted engines are susceptible
to foreign object ingestion from
wings and undercarriage.
Finnair has reported evidence
several times of engine ice inges-
tion. MDC says MD-80s now
have wing tufting in areas where
ice accumulation is more likely,
to help visual ice-detection. One
area is the mid-chord upper
wing in line with the engine
intakes. n

Passengers and crew survive MD-81 crash

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United to resume Pan Am's routes

nications Economics, the total
market saw an increase of about
40%. Compass had a national
market share of over 10%, with
load factors exceeding 70%, and
secured 21.3% of the markets in
which it was competing.
Compass entered the market
at 80% of its competitors' core
fares for daytime flights and 50%
on off-peak services, sparking a
highly damaging discount and
commission war over the follow-
ing 12 months.
A few days before its collapse,
Compass had claimed a major
financial victory when the rental
it had been paying to Aust-
ralian Airlines for terminal leases
in the key ports of Sydney and
Melbourne was more than
halved by a landlord-tenant arbi-
tration hearing.
Australian disputed the
amounts and appealed the deci-
sion immediately. Compass said
on 2 January that it has sued
Australian for A$50 million in
damages in a hearing to be held
within two weeks.

Pre-deregulation, the Austra-
lian Government signed 20-year
leases with Ansett and Australian
on key airport terminal build-
ings, also granting them options
on all available expansion land.
Although each says that termi-
nal access is a major hurdle,
other proposed start-up carriers
claim they are still on course.
AAA Airlines, largely funded
by shareholder-pilots, plans to
fly four hush-kitted DC-9s on
the highest-density routes be-
tween Melbourne, Sydney and
Brisbane on non-scheduled
"shuttle" services, expected to
get underway by April.
Southern Cross Airlines had
lodged a prospectus with the
Australian Securities Commis-
sion in preparation for a public
float. It planned a start-up last
July, but has now withdrawn the
prospectus until early this year.
The airline would operate five
McDonnell Douglas MD-83s.
Transcontinental Airlines,
which has announced several
variations to its start-up plans
since November 1990, says it
will now lease six of its planned
fleet of 12 Boeing 737- 500s, and
will begin operations in Western
Australia in May from Perth to
several major regional centres
recently made available by the
lifting of state government pro-
tection for Ansett. •

U

nited Airlines plans to begin
services on former Pan
American World Airways routes
to Latin America beginning on
15 January. United acquired the
routes for $135 million at an
auction following Pan Am's col-
lapse on 4 December, 1991. The
airline also agreed to hire 1,000
former Pan Am employees.
United planned to replace Pan
Am's suspended services on
some of the Central and South

American routes after gaining US
Department of Transportation
approval. Plans for anNearly start
to services were boosted when
the Department of Justice failed
to object to the transfers., •••
United plans to inaugurate
most of its new Latin Anierican
services, from Miami, New- York
Kennedy and Los Angeles, by 2
March. Some services, including
flights on Caribbean routes will
begin later this year. •

American chops jobs

A

merican Airlines is to elimi-
nate 1,250 ground jobs by
February. The carrier's 97,000-
strong workforce is still expected
to grow as it hires flight crews to
operate new aircraft.
No further layoffs are planned,
although American has scaled
back plans to build up its aircraft
fleet (Flight International, 27 No-
vember-3 December).
The airline is expecting losses
approaching $190 million for
Financial Year 1991. •

FLIGHT INTERNATIONAL 8 - 14 January, 1992 •