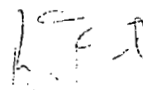


L'Agenzia resta a disposizione per ogni ulteriore informazione e chiarimento.

Si resta in attesa di ricevere un cortese cenno di riscontro in merito agli eventuali provvedimenti intrapresi da codesto Ente.

Il Presidente  
(Prof. Bruno Franchi)



**AGENZIA NAZIONALE PER LA SICUREZZA DEL VOLO**

(istituita con decreto legislativo 25 febbraio 1999, n. 66)  
sede provvisoria: c/o Ministero dei trasporti e della navigazione  
Piazza della Croce Rossa, 1 – 00161 Roma  
codice fiscale 96402040586  
tel. 0644102064/44267091, fax 0644267226

**URGENTE**

Prot. n. 1238/INV/113-14/01  
Roma, 10.10.2001

Al Presidente dell'ENAC  
Dott. Alfredo Roma

Al Direttore Generale dell'ENAC  
Avv. Pierluigi Di Palma

e p.c. Al Capo  
del Dipartimento dell'aviazione civile  
Dott. Ing. Bruno Salvi

All'Amministratore delegato dell'ENAV  
Dott. Ing. Sandro Gualano

Alla Divisione sicurezza volo  
dell'ENAC  
Att.ne Com.te Silvano Imparato

All'ENAV – Qualità e sicurezza  
Att.ne Dott. Ing. Carmine Cianci

**Oggetto: incidente occorso in data 8.10.2001 sull'aeroporto di Milano Linate agli aeromobili MD-80 (volo SAS 686)/C525 (marche D-IEVX) – MESSAGGIO DI ALLERTA.**

I primi atti dell'inchiesta tecnica in corso finalizzata ad accertare le cause che hanno prodotto l'evento in oggetto hanno già consentito di rilevare la non conformità della segnaletica della via di rullaggio R 6 dell'aeroporto di Milano Linate con gli standard previsti dalla normativa ICAO.

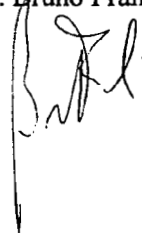
Ciò premesso, si ritiene opportuno che codesto Ente, nell'imminenza del ripristino della operatività dello scalo, valuti l'adozione delle azioni di competenza sull'aeroporto di Milano Linate, stante anche la non disponibilità del sistema radar di terra, al fine di garantire la sicurezza delle operazioni di volo.

Si ritiene altresì opportuno invitare codesto ENAC ad effettuare le verifiche eventualmente ritenute necessarie in ordine allo stato della segnaletica standard anche sugli altri aeroporti aperti al traffico aereo civile, così come già rappresentato da questa Agenzia nel messaggio di allerta prot. 1068/INV/95-27/01 del 4.9.2001 inviato a seguito dell'inconveniente grave occorso sull'aeroporto di Milano Malpensa in data 13.8.2001.

L'Agenzia resta a disposizione per ogni ulteriore informazione e chiarimento.

Si resta in attesa di ricevere un cortese cenno di riscontro in merito agli eventuali provvedimenti intrapresi da codesto Ente.

Il Presidente  
(Prof. Bruno Franchi)



**AGENZIA NAZIONALE PER LA SICUREZZA DEL VOLO**

(istituita con decreto legislativo 25 febbraio 1999, n. 66)  
sede provvisoria: c/o Ministero dei trasporti e della navigazione  
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codice fiscale 96402040586  
tel. 0644102064/44267091, fax 0644267226

Prot. n. 1269/INV/111-22/01  
Roma, 18.10.2001

Al Presidente dell'ENAC  
Dott. Alfredo Roma

e p.c. Alla Divisione sicurezza volo  
dell'ENAC  
Att.ne Com.te Silvano Imparato

**Oggetto: incidente di volo a/m Piper PA-46 Malibù, marche I-CMMA, occorso in data 8/8/2001 — MESSAGGIO DI ALLERTA.**

Nell'ambito dell'inchiesta tecnica in corso finalizzata ad accertare le cause che hanno prodotto l'evento in oggetto è emersa, in sede di verifica sul propulsore, l'avaria di alcuni cilindri dovuta a delaminazione superficiale dei cuscinetti di biella.

La società TEXTRON Lycoming, al fine di prevenire questo tipo di avaria, aveva emesso uno Special Advisory No.59-800 in data 31-8-2000 ed un successivo MANDATORY Service Bulletin No.547 in data 7-3-2001.

Nell'ATTACHMENT 1 del Service Bulletin No.547 venivano elencati tutti i Serial Numbers dei propulsori sui quali si raccomandava l'intervento in questione.

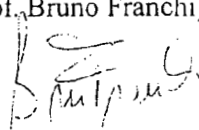
Ciò premesso, si ritiene opportuno evidenziare quanto segue: il motore Lycoming TIO 540 AE2A No.L-9033-61A oggetto di verifica tecnica da parte di questa Agenzia, nonostante non sia stato identificato fra i MODELS EFFEECTED del Service Bulletin No.547, è incorso nello stesso tipo di avaria.

In attesa di più compiute indagini sulle cause dell'evento, nell'interesse della sicurezza del volo, valuti codesto Ente le eventuali azioni di competenza da intraprendere.

L'Agenzia resta a disposizione per ogni ulteriore informazione e chiarimento.

Si resta in attesa di ricevere un cortese cenno di riscontro in merito agli eventuali provvedimenti intrapresi da codesto Ente.

Il Presidente  
(Prof. Bruno Franchi)



## AGENZIA NAZIONALE PER LA SICUREZZA DEL VOLO

(istituita con decreto legislativo 25 febbraio 1999, n. 66)

Piazza della Croce Rossa, 1 - 00161 Roma

codice fiscale 96402040586

tel. 0644102064/44267091, fax 0644267226

URGENTE

Prot. n. *A335/INV/113-34/01*  
Roma, 6.11.2001Al Presidente dell'ENAC  
Dott. Alfredo RomaAl Direttore Generale dell'ENAC  
Avv. Pierluigi Di Palmae p.c. Al Gen.S.A. Andrea Fornasiero  
Ispettore generale  
del Ministro delle infrastrutture e dei trasportiAl Capo del  
Dipartimento dell'Aviazione civile  
Dott. Ing. Bruno SalviAll'Amministratore delegato dell'ENAV  
Dott. Ing. Sandro Gualano**Oggetto: incidente occorso in data 8.10.2001 sull'aeroporto di Milano Linate agli aeromobili MD-87 (volo SAS 686)/Cessna 525 (marche D-IEVX) – MESSAGGIO DI ALLERTA.**

Nella fase iniziale dell'inchiesta tecnica condotta da questa Istituzione indipendente per l'accertamento delle cause che hanno provocato l'evento in oggetto e, in particolare, nella disamina di alcuni aspetti relativi ai tempi ed agli interventi di primo soccorso dopo l'incidente, sono emerse carenze organizzative e di coordinamento.

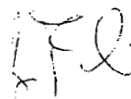
Specificatamente non risulta essere stato applicato il locale piano aeroportuale denominato "Norme e procedure per stati di emergenza e di incidente", emanato dalla DCA di Linate in data 13 luglio 1989 ed in vigore nella sua versione originale senza aggiornamenti. Peraltro, tale piano appare poco dettagliato nella individuazione dei compiti spettanti ai vari operatori coinvolti.

Ciò premesso, si ritiene opportuno suggerire a codesto Ente di verificare che i piani di emergenza in vigore negli aeroporti nazionali aperti al traffico aereo civile rispondano ai requisiti di ricerca e soccorso stabiliti dalle normative internazionali, siano adeguati alle condizioni operative attuali dei singoli scali e vengano valutati mediante l'effettuazione di realistiche esercitazioni periodiche.

L'Agenzia resta a disposizione per ogni ulteriore informazione e chiarimento.

Si resta in attesa di ricevere un cortese cenno di riscontro in merito agli eventuali provvedimenti intrapresi da codesto Ente.

Il Presidente  
(Prof. Bruno Franchi)



## AGENZIA NAZIONALE PER LA SICUREZZA DEL VOLO

(istituita con decreto legislativo 25 febbraio 1999, n. 66)

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codice fiscale 96402040586

tel. 0644102064/44267091. fax 0644267226

## URGENTE

Prot. n. 1336/05/113-35/21  
Roma, 6.11.2001

Al Presidente dell'ENAC  
Dott. Alfredo Roma

Al Direttore Generale dell'ENAC  
Avv. Pierluigi Di Palma

e p.c. Al Gen.S.A. Andrea Fornasiero  
Ispettore generale  
del Ministro delle infrastrutture e dei trasporti

Al Capo del  
Dipartimento dell'Aviazione civile  
Dott. Ing. Bruno Salvi

All'Amministratore delegato dell'ENAV  
Dott. Ing. Sandro Gualano

**Oggetto: incidente occorso in data 8.10.2001 sull'aeroporto di Milano Linate agli aeromobili MD-87 (volo SAS 686)/Cessna 525 (marche D-IEVX) - MESSAGGIO DI ALLERTA.**

Nella prosecuzione dell'inchiesta tecnica condotta da questa Istituzione indipendente finalizzata ad accertare le cause dell'evento in oggetto, è stato rilevato che sull'aeroporto di Milano Linate non tutte le *Runway Holding Positions*, così come definite dalla normativa ICAO, sono provviste delle *Stop Bars* rispondenti ai requisiti degli standard contenuti nell'Annesso 14 alla Convenzione di Chicago.

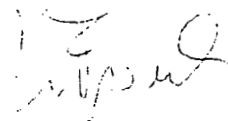
Ciò premesso, si invita codesto Ente, in previsione di operazioni in bassa visibilità interessanti il predetto scalo, a valutare l'adeguatezza delle procedure operative esistenti relativamente alla movimentazione degli aeromobili al suolo al fine di prevenire eventuali *inadvertent runway incursions*.

Si ritiene altresì opportuno invitare codesto Ente ad effettuare le verifiche eventualmente ritenute necessarie in ordine all'installazione e alle caratteristiche delle *Stop Bars* anche sugli altri aeroporti nazionali aperti al traffico aereo civile, particolarmente se soggetti a condizioni meteorologiche comportanti bassa visibilità.

L'Agenzia resta a disposizione per ogni ulteriore informazione e chiarimento.

Si resta in attesa di ricevere un cortese cenno di riscontro in merito agli eventuali provvedimenti intrapresi da codesto Ente.

Il Presidente  
(Prof. Bruno Franchi)





**AGENZIA NAZIONALE PER LA SICUREZZA DEL VOLO**

(istituita con decreto legislativo 25 febbraio 1999, n. 66)  
sede provvisoria: c/o Ministero dei trasporti e della navigazione  
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codice fiscale 96402040586  
tel. 0644102064/44267091, fax 0644267226

Prot. n. 1361/INV/95-40/01  
Roma, 9.11.2001

Al Presidente dell'ENAC  
Dott. Alfredo Roma

All'Amministratore delegato dell'ENAV  
Dott. Ing. Sandro Gualano

e p.c. Al Gen.S.A. Andrea Fornasiero  
Ispettore generale  
del Ministro delle infrastrutture e dei trasporti

Al Capo  
del Dipartimento dell'aviazione civile  
Dott. Ing. Bruno Salvi

**Oggetto: inconveniente grave occorso in data 13.8.2001 sull'aeroporto di Milano Malpensa agli aeromobili B777/B737, voli Air Europe 7924/Egyptair 3008 — MESSAGGIO DI ALLERTA.**

Facendo seguito al messaggio di allerta trasmesso in data 4.9.2001 con prot. 1068/INV/95-27/01, si rappresenta che nella prosecuzione dell'inchiesta tecnica in corso finalizzata ad accertare le cause che hanno prodotto l'evento in oggetto è stato effettuato da questa Istituzione investigativa indipendente un ulteriore sopralluogo sull'aeroporto di Milano Malpensa, da cui è emerso che il raccordo collegante la pista 17R/35L all'area GS Aviation (denominato GS) manca delle seguenti segnaletiche luminose: *Taxiway Centre Line Lights*, *Taxiway Edge Lights*, *Stop Bars* e segnaletica verticale Cat. 2/3.

Ciò premesso, si richiama altresì l'attenzione sulla procedura adottata in data 19.10.2001 dalla DCA di Malpensa al fine di disciplinare le operazioni di ingresso e di uscita dalla citata area di sosta GS Aviation. Tale procedura prescrive, quando le condizioni meteorologiche non consentono il controllo visivo degli aeromobili in manovra da parte della Torre di controllo e/o dall'Apron Management Service, l'uso obbligatorio del mezzo *Follow-me* e la contemporanea chiusura della pista 17R/35L. Sulla base di tale procedura, l'ENAV ha emesso l'Ordine di servizio temporaneo ODS/T n. 23/2001.

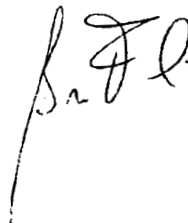
Ebbene, il suddetto provvedimento, finalizzato a prevenire, in condizioni di ridotta visibilità, possibili *Runway Incursion* da parte di aeromobili, non consente, tuttavia, di prevenire eventuali ingressi incontrollati in pista da parte di autoveicoli, in quanto, contrariamente a quanto previsto dall'Annesso 14 ICAO, para 5.3.17, sul citato raccordo sono assenti le luci *Stop Bars*.

Alla luce di quanto sopra, si ritiene opportuno invitare gli Enti in indirizzo a valutare l'adozione delle azioni di competenza.

L'Agenzia resta a disposizione per ogni ulteriore informazione e chiarimento.

Si resta in attesa di ricevere un cortese cenno di riscontro in merito agli eventuali provvedimenti intrapresi dai suddetti Enti.

Il Presidente  
(Prof. Bruno Franchi)



# **AGENZIA NAZIONALE PER LA SICUREZZA DEL VOLO**

(istituita con decreto legislativo 25 febbraio 1999, n. 66)

## **INTERIM FACTUAL REPORT**

**RUNWAY COLLISION  
BETWEEN AIRCRAFTS  
MD 87 REG. SE-DMA (FLIGHT SAS 686)  
AND CESSNA 525A REG. D-IEVX  
Milano Linate, October 8<sup>th</sup>, 2001**

**SYNOPSIS.**

On October 8<sup>th</sup>, 2001, at 06.10 UTC, an MD 87 operating Scandinavian Air System flight 686 collided with a Cessna 525A (CJ2) at Milano Linate airport, in northern Italy.

The airport was operating in CAT 3 conditions with a general visibility reported at 100 metres and Runway Visual Range (RVR) values around 200 metres.

The MD 87 had just been airborne at the end of the take off roll on runway 36 R and the Cessna 525A was taxiing across the same runway, having entered it from a lateral taxiway intersecting the runway.

The MD 87 collided with the CJ2 and fell back onto the runway, skidding thereafter sideways into an airport building.

Both aircraft caught fire and were completely destroyed and 104 passengers and 6 crew members aboard flight SAS 686 and 4 occupants of the Cessna were killed together with 4 other people that were working in the building, while 4 more workers suffered injuries and burns of various degrees.

An investigation was immediately started by ANSV, the Italian Flight Safety Board, an independent body dedicated to promote aviation safety and mandated by the Italian Government to investigate aviation events in accordance with the ICAO Annex 13 standards, with the participation of the accredited representatives of all the entitled member states and their advisors.

NOTE: *all times are in UCT (Universal Coordinated Time)*  
*local time is UCT plus 2 hours.*

**1. FACTUAL INFORMATION.****1.1 - Chronology of events.**

At 5.40 October 8<sup>th</sup> the MD 87 and the Cessna 525A were parked at Milano Linate airport waiting to depart to their respective destinations.

The MD 87 had arrived the previous evening and was parked on the main apron, at gate A13, and boarding of the 104 passengers had just been completed, with a delay of approx 5 minutes on the scheduled departure time of flight SAS 686 to Copenhagen.

Upon requesting start up clearance on the Ground frequency (121.8 MHz) the crew obtained a departure slot at 06.16 and, accordingly, started up ten minutes later requesting then and obtaining, at 05.54, clearance to “*taxi to the holding position CAT 3...*”, with instructions to “*call back entering the main taxi way*”.

Meanwhile on the western apron, designated for General Aviation and executive aircrafts, the Cessna 525A, arrived earlier that same morning from Cologne without passengers and parked in front of the GA Terminal, was intended to be operated in a private demonstration flight to Paris Le Bourget and back, arranged by the Italian Cessna representative for a potential customer.

A flight plan to this effect had been filed the previous day with ETD at 05.45.

Start up clearance was requested by the Cessna pilots on the Ground frequency (121.8 MHz) at 05.58 and obtained one minute later, with a departure slot at 06.19.

At 06.05 the Cessna was cleared to taxi, “*...north via Romeo 5*” and instructed to “*call back at the STOP BAR of the main runway extension*”.

The Cessna pilot acknowledged “*Roger, via Romeo 5 ... and call you back before reaching main runway*”, omitting the words NORTH, STOP BARS and EXTENSION, and, unchallenged by the ATC operator, taxied out of the GA apron taking the ROMEO 6 taxiway.

In the meantime SAS 686, taxiing on the main taxiway, had been transferred to the Tower frequency (118.1 MHz) and been instructed first to continue to the holding position CAT 1 and then, at 06.07, to line up and wait on Runway 36R.

At 06.08 the Cessna pilot, still on the Ground frequency, reported "...approaching SIERRA 4", and, requested by the ATS operator, confirmed his position repeating "approaching the runway, SIERRA 4" and was instructed to "maintain the STOP BAR..."

One minute later, at 06.09.19, the Cessna D-IEVX was authorized by the Ground operator to "continue your taxi on the main apron", and, almost simultaneously, at 06.09.29, SAS 686 was "cleared for take off ..." by the Tower operator and started its take off roll.

At 06.10.21, few seconds after having transmitted via ACARS the Off Ground report, the MD 87 collided with the Cessna at the intersection of ROMEO 6/ROMEO 2 taxiways and the main runway.

At impact the MD 87 sustained structural damage to the right wing leading edge and lost its right main landing gear that, in turn, damaged the right flap and hit the right engine that became separated from its pylon.

The aircraft continued briefly airborne for few seconds and then touched down back on the runway within 400-500 ft of the runway end, skidded through the remaining part of the runway, the grass overrun, the ROMEO 5 taxiway and a service road crashing sideways into an airport building used for baggage handling and located at the west end of the airport terminal building, approximately 67 feet to the right of the extended runway 36R and 1500 feet from the runway end.

The Cessna had remained on the runway at the point of impact, broken in three main sections with the forwards and mid sections on fire.

### **1.2 - Injuries to persons.**

All 104 passengers and 6 crew members on board the MD 87 and the 4 occupants of the Cessna jet were killed as a result of the accident.

4 more people that were working in the airport building lost their lives and 4 more suffered injuries and burns to various degrees.

The total loss of lives amounts so far to 118.

### **1.3 - Damages to aircraft.**

Both aircraft have been totally destroyed in the accident.

### **1.4 - Other damage.**

#### **1.4.1 - Runway.**

The runway pavement showed deep circular gouges caused by the right main landing gear piston and surface scratching along the trail of the RH engine.

Additional damage to the tarmac surface was caused by the burning wing and forward section of the Cessna.

#### **1.4.2 - Airport buildings.**

The airport building hit by the MD 87 collapsed after the front reinforced concrete pillars were shattered and the roof beams fell down.

Further structural damage was caused by the intense heat of the burning fuel.

### **1.5 - Personnel information.**

*Still under investigation*

### **1.6 - Aircraft information.**

*Scandinavian Airlines System (SAS) Boeing (formerly McDonnell Douglas) MD-87 Swedish Registration Number SE-DMA.*

The MD-87 series airplane is a MD-80 with a shortened fuselage and corresponding reduced passenger capacity.

Per SAS, the accident MD-87's takeoff weight was 57,285 kilograms (kg) and the center of gravity was 13% mean aerodynamic chord (MAC). Fuel at takeoff was listed as 10,200 kg.

According to data provided by SAS, the accident airplane was delivered new to SAS on September 21, 1991 and had accumulated approximately 25,573 flight hours and 16,562 cycles, always on duty for SAS that performed all necessary maintenance.

The last periodic check (Check B6:1) was performed on September 3<sup>th</sup> 2001

The load and balance sheet of SAS 686 of October 8<sup>th</sup> reports a take off weight of 57,285 Kg, 10,200 of which as fuel contained in the wing tanks, with the centre of gravity at 13% of the mean aerodynamic chord.

*Cessna 525A, German Registration Number D-IEVX:*

The subject aircraft is a Model 525A (S/N:525A-0036), also known as a Citation Jet 2 (CJ2), is a six to seven passenger corporate jet with a maximum certified take off weight of 5,616 Kg (12,375 pounds).

The aircraft had been built during the current year and was registered in Germany only on September 5<sup>th</sup> 2001, little more than one month before the accident, by AIR EVEX GmbH of Dusseldorf that had requested to have it registered on its Air Operator Certificate.

The registration process had not been completed and the aircraft maintained the status of the private aircraft.

#### **1.7 - Meteorological information.**

The official weather report at the moment of the event reported wind calm, general visibility not above 100 metres with RVR around 200 metres, ceiling at 100 ft, ground temperature of 17° C and atmospheric pressure of 1013 Hectopascals.

Few seconds before the collision the Tower operator informed an aircraft taxiing along the main taxiway that RVR values were reported at 225, 200 and 175 metres on points A, B e C respectively.

#### **1.8 - Navigation aids.**

*Not relevant*

#### **1.9 - Communications.**

Hereunder are transcribed significant extracts from radio communications on the Ground (121.8 MHz) and Tower (118.1 MHz) frequencies.

Integral transcriptions will be attached to the final report.

UTC	SOURCE	TEXT
05.41.39	SAS 686	Milano good morning, Scandinavian 686. Stand is 13, we are fully ready, we have information Alfa.
05.41.47	Ground	686 buongiorno. Slot at 06.16, start up in accordance and cleared to destination via ... etc.
05.54.23	SAS 686	Ground, Scandinavian 686 request taxi from 13.
05.54.28	Ground	Scandinavian 686, taxi to the holding position CAT 3, QNH 1013...etc.
05.58.23	D-IEVX	Linate buongiorno, D-IEVX, request start up with information Charlie.
05.58.28	Ground	D-IEVX, buongiorno, please speak a bit louder, thank you. You are clear to destination via Saronno 5A, Arles 8A transition, 6000 feet initial climb.
05.58.47	D-IEVX	D-IEVX is clear to destination, Saronno 5A, after Argon 8A departure, climb initially 6000 ..., D-VX.

05.58.57	Ground	Arles 8A the transition. Start up is approved according to the slot 06.19.
05.59.04	D-IEVX	Start up is approved according to slot and confirm Arles 8A.
05.59.32	Ground	...break, Scandinavian 686, when airborne squawk 0 treble 4.
05.59.38	SAS 686	0 treble 4, Scandinavian 686.
05.59.41	Ground	That is correct. Passing the fire station call Tower 18.1. Bye.
05.59.45	SAS 686	18.1, Scandinavian 686. Bye.
06.01.24	SAS 686	Tower buongiorno, Scandinavian 686, sequence to 36R.
06.01.29	Tower	Ciao Scandinavian 686 number 4.
06.05.27	D-IEVX	Buongiorno, D-IEVX. General aviation for taxi.
06.05.32	Ground	Station calling unreadable.
06.05.34	D-IEVX	The D-IEVX.
06.05.38	Ground	D-IEVX, Ground, confirm you are ready to taxi.
06.05.42	D-IEVX	Affirmative.
06.05.44	Ground	D-VX taxi north via R5, QNH 1013. Call me back at the STOP BAR of the main runway extension.
06.05.56	D-IEVX	Roger, via R5 and 1013 and call you back before reaching main runway.
06.05.59	Tower	Scandinavian 686 you can continue taxi until CAT 1.
06.06.04	SAS 686	Continue taxi until CAT 1, Scandinavian 686.
06.07.40	Tower	Scandinavian 686, line up and wait 36R.
06.07.45	SAS 686	Line up and wait 36R, Scandinavian 686.
06.08.23	D-IEVX	D-IEVX, approaching Sierra 4.
06.08.28	Ground	D-VX, confirm your position?
06.08.32	D-IEVX	Approaching the runway, Sierra 4.
06.08.36	Ground	D-VX, roger. Maintain the STOP BAR, I'll call you back.
06.08.40	D-IEVX	Roger, hold position.
06.09.19	Ground	D-VX, continue your taxi on the main apron. Follow the Alfa line.
06.09.28	D-IEVX	Roger, continue taxi main apron, Alfa line, the D-VX.

06.09.29	Tower	...break, Scandinavian 686, Linate, cleared for take off 36, the wind is calm report rolling. When airborne squawk IDENT.
06.09.33	Ground	That is correct and, please, call me back entering the main taxiway.
06.09.37	SAS 686	Cleared for take off 36R, when airborne squawk IDENT and we are rolling, Scandinavian 686.
06.09.38	D-IEVX	We'll call you on the main taxiway.

At 06.10.14 and at 06.10.16 on board of MD 87 there were two calls "VEE ONE" and "ROTATE".  
At 06.10.21 transmission from an ELT was heard on the emergency frequency (121.5).

### ***1.10 - Aerodrome information.***

*Still under investigation*

### ***1.11 - Flight Recorders.***

*BOEING MD 87 SE-DMA*

#### Flight Data Recorder (FDR)

Honeywell PN: 980-4100-DXUN, tape type.

The FDR was recovered on 08 OCT 01 and readout was performed on 25-26 OCT 01 at the laboratories of BFU in Braunschweig, Germany.

Reliable parameter data was recorded up to the point of collision with the D-IEVX and thereafter the data acquisition was unreliable for many parameters.

#### Cockpit Voice Recorder (CVR)

Honeywell PN : 980-6020-001, solid state.

The CVR was recovered on 17 OCT 01, ten days after the accident as it had been inadvertently removed from the crash site together with the building debris during the first stages of rescue operation.

Readout was performed on 25-26 OCT 01 at BFU in Braunschweig, Germany and, for the communications in the Swedish language, translated by SAS personnel under the surveillance of ANSV and of SHK (the Swedish Accident Investigation Board).

Good voice recording was made to the point of collision with D-IEVX and the content confirms the communications intervened between ATS and all the other aircraft while SAS 686 was on the respective frequency.

The voice recording stopped at the collision.

#### Quick Access Recorder (QAR)

Penny & Gilles PN: D51434-1.

The QAR was recovered on 09 OCT 01 and readout was performed on 17 OCT 01 at CPHOS in Copenhagen, under the surveillance of ANSV and SHK.

Reliable parameter data was recorded to some second before the collision with the Cessna 525A.

### *CESSNA 525A D-IEVX*

According with the JAR rules there is not a specific requirement of FDR and CVR for this type of aircraft and they were not installed on board.



**1.12 - Wreckage and impact information.***Still under investigation***1.13 - Medical and pathological information.***Still under investigation***1.14 - Fire.***Still under investigation***1.15 - Survival aspects.***Still under investigation***1.16 - Tests and research.***Still under investigation***1.17 - Organizational and management information.***Still under investigation***ACTIONS PERFORMED.**

ANSV has so far issued three SAFETY WARNINGS, all addressed to the competent national Aviation Authority and hereunder briefly summarized:

SAFETY WARNING n. 1, dated 10/10/2001

“The first acts of the technical investigation ... have revealed that the markings on the taxiway R6 at MILANO Linate airport do not comply with the ICAO standards ... and it's deemed convenient ... to adopt the pertaining actions, owing to the unavailability of the ground radar system, in order to guarantee the flight operations safety”.

SAFETY WARNING n. 2, dated 06/11/2001

“In the initial phase of the technical investigation ... it is evident that the local aerodrome emergency plan, in force since July 1989 and never reviewed, appears not very detailed in defining the duties of all personnel involved ... and was not complied with ... and it is deemed convenient to suggest ... to verify that the emergency plans in force on all the Italian airports open to commercial air traffic meet the requirements ... set by the international regulations and are commensurate to the operating conditions of the airport to which they refer ... and are tested through recurrent realistic exercises”.

SAFETY WARNING n. 3, dated 06/11/2001

“During the technical investigation progress ... it has been noted that on MILANO Linate airport not all the Runway Holding Positions are provided with STOP BARS in conformity with the Annex 14 standards ... and it is suggested to asses the adequacy of the ground movement procedures particularly for the case of low visibility operations in force to prevent possible inadvertent runway incursions”.

**INVESTIGATION PROGRESS.**

Although it was immediately apparent that the ultimate cause of the collision was an inadvertent runway incursion by the pilot of the Citation 525A, not detected by the ATC operator on duty on the Ground frequency, the investigating team is still at work.

The agenda will include completion of the technical examination of the wreckage and of the flight recorder data and analysis of all information related to the event, with particular attention to all the environmental and human factors and to survival aspects.

Safety warnings will be issued at any time, if and as required during the proceedings.

Roma, Dec. 27 2001.