

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

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Attachment 6 – Envoy Airline Flight Manual [Excerpts]

OPERATIONAL FACTORS

DCA20CA038



Flight Manual – Part 1

Flight Operations Envoy Air Inc.

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1.13 Safety Awareness – SOCC (14 CFR 121.601)

- A. The Dispatcher shall coordinate all aspects for any irregular operation of a flight including holds, interruptions and cancellations.
- B. The aircraft Dispatcher shall provide the Pilot-in-Command all available current reports or information on airport conditions and irregularities of navigation facilities that may effect the safety of flight. The aircraft Dispatcher will also provide, before the beginning of a flight, all available weather reports and forecasts of weather phenomena that may effect the safety of flight, including adverse weather phenomena such as clear air turbulence, thunderstorms and low altitude windshear, for each route to be flown and airport to be used. During flight, the aircraft Dispatcher shall provide the Pilot-in-Command with the above listed meteorological conditions, adverse weather phenomena and irregularities of facilities and services that may affect the safety of flight.

1.14 Safety Awareness – Crew (14 CFR 91.13, 121.535, 121.537)

- A. Upon receiving information requiring prompt action, the Captain shall take whatever action he deems advisable in view of the circumstances. Time permitting, he will coordinate his plan with the Dispatcher, via the most expedient method, prior to taking action under the Captains emergency authority. If time does not permit the Captain to advise the Dispatcher prior to taking the action, he shall advise him as soon as possible thereafter.
- B. Captains are reminded that timely and detailed information to ground personnel will provide better subsequent trip planning and maximum passenger service.
- C. No pilot may operate an aircraft in a careless or reckless manner so as to endanger life or property.
- D. The simulation of in-flight emergencies with passengers on board is prohibited. (IATA Standard)
- E. Safety Hot Line 1-800-477-3002.

2. CERTIFICATES**2.1 Qualifications – Personnel [14 CFR 121.433, 121.434, 121.383(c)]**

- A. No flight crewmember upon reaching his 65th birthday shall perform revenue pilot services provided by the company under 14 CFR 121.
- B. Each crewmember will notify his supervisor 10 days prior to any qualification expiration, unless appropriate training or other accommodation has already been scheduled.
- C. Pilots who have completed requirement for consolidation of knowledge and skills while serving as Second-in-Command on a particular type airplane in operations under this part are not required to repeat the line operating flight time before serving as Pilot-in-Command on the same type airplane.

7. SEATBELT SIGN**7.1 FASTEN SEATBELT / NO SMOKING Signs (14 CFR 121.317,121.571)**

- A. The NO SMOKING sign shall be turned ON during the pre-flight inspection.
- B. Since smoking is prohibited on all Envoy flights, the NO SMOKING sign will be left ON continuously.
- C. The FASTEN SEATBELT sign shall be turned on during any movement on the surface, for each takeoff, for each landing and at any other time considered necessary by the Captain.
- D. The FASTEN SEATBELT sign should be turned OFF as soon as practical after takeoff, considering existing weather or turbulence conditions. CFRs require that after each takeoff, immediately before or immediately after turning the FASTEN SEATBELT sign OFF, an announcement be made that the passengers should keep their seatbelts fastened, while seated, even when the FASTEN SEATBELT sign is OFF.
 - 1) The script for this PA is described in Section 11. This announcement need only be made once unless the Captain decides conditions encountered during the flight warrant repetition.
 - 2) This should convey to our passengers the message that we expect them to keep their seatbelts fastened while seated.
 - 3) In the event the sign is left on, a PA will be made advising passengers that it has been left on because of anticipated “bumpy” air conditions.
- E. Any time during flight, when the Captain turns the FASTEN SEATBELT sign ON, FAA Regulations require passengers to comply. Should a passenger object, the crew will inform him/her of the regulation. If the objection continues, the Captain should be notified.
- F. The FASTEN SEATBELT sign should not be turned on for prolonged periods except when flight conditions dictate. Never unnecessarily restrict passenger movement. When it is necessary that the sign be left on for prolonged periods, a Public Address Announcement will be made, at regular intervals, to ensure passengers compliance and maintain seatbelt credibility. Judgment should be exercised regarding these announcements between 2100 and 0900 local time.
- G. When leaving cruise altitude for descent into the terminal area, the FASTEN SEATBELT sign should be turned ON if no restrictions on descent are anticipated. If a restriction on descent is anticipated the sign may be left OFF, provided turbulence is not expected. Particular attention should be given to possible turbulence associated with jet streams, frontal and general weather conditions. The FASTEN SEATBELT sign should be turned ON in sufficient time so that the Flight Attendant, if applicable, may accomplish her duties.

- 3) Air Traffic and Airport Advisories
 - a) The airport must have a suitable means for pilots to acquire air traffic advisories. Common Traffic Advisory Frequency (CTAF) is an approved source for air traffic advisories. CTAF is a frequency designated for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating Control Tower. The CTAF may be a UNICOM, FSS, or tower frequency and is identified on the Jeppesen airport diagram and/or approach plate.
 - (1) The flight crew must be able to determine the status of airport services and facilities. This can be done by:
 - (a) Obtaining applicable NOTAMs.
 - (b) Obtaining station's current field condition report.
 - b) Pilots of inbound traffic must monitor and communicate as appropriate on the designated CTAF from 10 miles to landing.
 - c) Pilots of departing aircraft must monitor/communicate on the appropriate frequency from start-up, during taxi, and until 10 miles from the airport unless the CFRs or local procedures require otherwise.
- 4) Airport Lighting
 - a) Pilots must activate the pilot controlled lighting system via the appropriate frequency (as indicated on the Jeppesen Chart) when the control tower is closed. Lighting is controlled by keying the microphone 3, 5, or 7 times within 5 seconds for low, medium, and high intensity lighting, respectively.
- B. Dispatch Responsibility (14 CFR 121.601)
 - 1) During a flight, the aircraft dispatcher shall provide the pilot in command any additional available information of meteorological conditions (including adverse weather phenomena, such as clear air turbulence, thunderstorms, and low altitude wind shear), and irregularities of facilities and services that may affect the safety of flight.
 - 2) Envy dispatchers will inform flight crew members via ACARS or Telesis of any pertinent changes at uncontrolled airports.

2.2 ATC Clearances

- A. At locations without a Control Tower, IFR Clearances will normally not be issued before taxi-out. Clearances can be obtained on Center or FSS frequency or can be relayed through an ARINC frequency.
- B. If a delay is anticipated after the clearance is issued, advise ATC.
- C. There are instances when a conditional clearance may be issued stipulating, "Clearance is void if not off by (time)." After the Void Time:
 - 1) Departure is not authorized.
 - 2) Pilot must state intentions including revised departure times to ATC as soon as possible, but in no case later than 30 minutes past the void time to preclude ATC alerting Search and Rescue.
 - 3) Obtain a new clearance prior to IFR/VFR Departure.

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- IFR ENY2996/7 601/N601AE DFW MAF* ALTN SJT
MIN T/O FUEL 5700 RLS FUEL 006142 FERRY 1232
TOT BRN 2826 PLAN ARR FUEL 4548 02HR/24MIN
ALTN RTE - R41 / FL090 MAF/V68.SJT

FPL - PLAN 1 OF 1 - RTE 11 - RVSN 1

FF KZFWZQZX KZFWZRZX
071435 KTULSYMD
^FPL-ENY2996-IS
-E145/M-SDE3FGRWZ/S
-KDFW1535
-N0421F320 PODDE4 ABI DCT
-KMAF0101 KSJT
-PBN/A1C2C3D2D3 NAV/RNVD1E2A1 DOF/120907 REG/N601AE EET/NONE
SEL/NONE RMK/NONE

1 TO 2 LAT 3 LONG 4 MC 5 IAS 6 GS 7 TD 8 SD 9 ST 10 SB
11 IDENT 12 FL 13 WIND 14 WCP 15 MH 16 MK 17 TAS 18 I 19 TLDR 20 TTLT 21 TTLB 22 TH

23 PODDE N32435 W097440 248 P01 0037
PODDE 26049 M049 248 0
24 25 AWIND...26.AGS...27.ETA...28.ATA...29.ABURN.....
-----
MILLSAP MIN N32435 W097598 264 P01 0013
MQP 26061 M060 261 0
117.70 AWIND.....AGS.....ETA.....ATA.....ABURN.....
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Figure 6 - 3

Domestic Format of Dispatch Release

Detailed segment to segment information and accumulated totals for the column headings listed below:

- [1] TO - Name of points along route
- [2] LAT - Latitude of the point
- [3] LONG - Longitude of the point
- [4] MC - Course in degrees magnetic
- [5] IAS - Indicated airspeed
- [6] GS - Ground speed in knots
- [7] TD - Temperature deviation from ISA in degrees C (P for plus, M for minus)
- [8] SD - Segment Distance in NM
- [9] ST - Segment time in minutes
- [10] SB - Segment burn in tens of pounds
- [11] IDENT - Identifier for points along the route
- [12] FL - Flight level in thousands of feet
- [13] WIND - Wind direction to nearest 10 degrees magnetic, and velocity in knots
- [14] WCP - Wind component in knots (P, tailwind for plus, M, headwind for minus)
- [15] MH - Heading in degrees magnetic
- [16] MK - Mach speed
- [17] TAS - True airspeed in knots

[18] I - Average turbulence index for this segment (numbered from 0 to 7).
 0=Smooth, 1=OCNL Light, 2=Light, 3=Light to OCNL moderate, 4=Moderate,
 5=Moderate to OCNL severe (Mach will be reduced to penetration speed),
 6=Severe (Route blocked), 7=Extreme turbulence (Route blocked).

[19] TLDR - Total distance remaining to destination in nautical miles

[20] TTLT - Elapsed time in hours and minutes

[21] TTLB - Cumulative fuel burn in tens of pounds

[22] TH - Tropopause Height

[23] Waypoint - Name of intersection or VOR

[24] 000.00 VOR Frequency as applicable

The following additional information may be completed by the crewmember.

[25] AWIND - Actual Winds

[26] AGS - Actual Ground Speed

[27] ETA - Estimated Time of Arrival

[28] ATA - Actual time of Arrival

[29] ABURN - Actual fuel burn

RWT	045634	PLD 010030	D001873	GND16	04	Q00 260	SKD 1535/1645
MTOW 046284							

The block of data depicted above is located on the flight release just below the route plan, and just above the fuel plan. It contains planning information used by the computer to compute the release. This information is for planning purposes only and may not agree with other information, such as load manifests.

It is decoded as follows:

RWT [weight in pounds] is the planned ramp weight of aircraft. PLD [weight in pounds] planned payload from Dispatch Release; D [cost in dollars] is the projected direct operating cost; Planned ground taxi times (Out to Off, On to In) are shown next: GND [time in minutes, plus TAXI]; Q [time in minutes] is minutes of fuel added due to historical enroute delay time; IAS for cruise [in knots]; scheduled gate departure/arrival time in UTC and finally MTOW depicts the aircraft's maximum allowable gross takeoff weight.

NOTE

MCR will occasionally appear in lieu of IAS on short flights when average cruise speed cannot be established by FPS.

ENRT	BRN	ARPT MAF	FUEL 002634	TIME 0101	DIST 0269		
RSV			01448	0045			
DISP	ADD		00500	0017		BUFR	00250
ALTN		SJT	01073	0029	0104		
HOLD			00295	0012			
T/O	FUEL		005950			MIN T/O	005700
TAXI		DFW	00192	0016			
TOTAL			006142				
RLS FUEL		DFW	006142				
FERRY			001232	0041			

dictates otherwise.

5. DECS OUTAGE

5.1 Station Outage

In the event of a failure of the station's DECS Computer System, the Captain should acquire the Flight Plan/Release by any available means (i.e., FAX, telephone, teletype, ACARS, HF radio, ARINC, etc.).

6. FUEL REQUIREMENTS

6.1 Fuel Requirements (14 CFR 121.639, 121.647)

- A. Fuel requirements for domestic flights are as follows, and are applicable to all flights that originate and terminate within the 48 contiguous states and for international locations designated in Ops Spec A012.
 - 1) Sufficient fuel to fly to the airport to which it is dispatched;
 - 2) Thereafter, to fly to and land at the most distant alternate airport (where required) for the airport for which dispatched; and
 - 3) Thereafter, to fly for 45 minutes at normal cruising fuel consumption.
- B. Each person computing fuel required for the purposes of this subpart, shall consider the following:
 - 1) Wind and other forecast weather conditions.
 - 2) Anticipated traffic/ATC delays.
 - 3) One instrument approach at destination airport including a missed approach (IATA Standard).
 - 4) Any other conditions that may delay landing of the aircraft.

For the purposes of this section, required fuel is in addition to unusable fuel.

6.2 Domestic Fuel Policy

It is company policy to dispatch with only the minimum quantity of fuel necessary considering safety, regulations, customer service and operating economics. The Captain and Dispatcher are jointly responsible for all aspects of pre-flight planning, including fuel requirements. If the judgment and experience of the Captain and Dispatcher indicate a deviation from the fuel policy is necessary, it is vital that both parties clearly agree and understand the reasons for the deviation. Close coordination between the Captain and Dispatcher are required whenever contingency fuel is planned. ADD and HOLD fuel will be used for operational contingencies as follows:

- A. ADD fuel will be used to account for departure and/or enroute contingencies (i.e., weather, turbulence). This fuel will be put in the ADD fuel portion of the release.
 - 1) Lateral Deviation Fuel

The following table should be used to determine the appropriate amount of ADD Fuel if lateral deviations (i.e., around thunderstorms, anticipated ATC reroutes/delays) are anticipated. The table assumes 30 degree turns away from and returning to the original course line.

Aircraft Type	Lateral Deviation Fuel - lbs	
	25 NM	50 NM
CRJ	180 lbs	360 lbs
EMB	150 lbs	300 lbs
ERJ-175	200 lbs	400 lbs

2) Enroute Turbulence

This fuel allows the flight crew to search for a smoother altitude, 4,000 feet above or below the flight planned altitude. The following table should be used to determine the appropriate amount of ADD Fuel if enroute turbulence is known or forecast. Fuel should be planned only for the affected portion of the flight.

Aircraft Type	Additional Fuel per hour of Affected Flight - lbs
CRJ	400
EMB	400
ERJ-175	500

- B. HOLD fuel will be used for possible and/or anticipated delays in the terminal area. A default hold minutes value has been established for all destination airports based on historical data for the entire flight and should be used unless the Dispatcher and/or Captain determine that actual delays may exceed that value. If HOLD fuel reflects a higher amount than the established default value, the Dispatcher will be required to put the reason for the extra fuel in the remarks portion of the release.
- 1) When an alternate is listed, the default HOLD time will be based on the historical data for the entire flight plus 3 minutes for possible gauge error. The minimum HOLD time will be 12 minutes.
 - 2) When an alternate is not listed, default hold times are adjusted to equal the greater of:
 - a) Hold times for the statistical historical delay values plus fuel to account for gauge error and a missed approach,
 - b) Equivalent time required to fly one circuit in a standard holding pattern, a missed approach at the destination airport, climb to 10,000 feet, fly to and land at either an Ops Spec (C070) approved airport or an airport with a runway which is at least 7,000 feet long and 148 feet wide, or
 - c) A minimum HOLD time of 20 minutes.

NOTE

HOLD minutes may be adjusted below the recommended amounts as long as the Captain and Dispatcher agree to the change.

- C. If an alternate is planned on the release and it is not required by CFRs, the Dispatcher will put the reason for the alternate in the remarks portion of the release.

6.3 Reserve Fuel

Once a flight is airborne and unknown conditions or weather are experienced, continuance to the planned destination with less than required reserve fuel becomes a matter of judgment.

Consideration and coordinated between the Captain and Dispatcher should be given to:

- Enroute altitudes lower than planned
- Unforecast winds aloft
- Enroute diversions around weather
- Distance to destination or alternate (if applicable)
- Available fuel on board
- Flight conditions (i.e., anti-icing systems in use enroute)
- Weather at destination and

1.4 Pre-Flight Briefing

- A. Prior to the start of each sequence, a crewmember change or anytime pertinent information changes, the Captain shall conduct a Pre-Flight Briefing. The briefing should encourage crew coordination and participation. As a minimum, the following items must be covered (**CLEARs**):
- Crew present and introductions made
 - List of special customers and needs discussed
 - Emergency Procedure signals. The Pilot-in-Command will ensure the FAs are familiar with oxygen dispensing and communication equipment in the flightdeck to prepare for the "two person rule."
 - Advisories and weather, including turbulence, anticipated delays, diversions
 - Repairs, MEL, Flight Attendant related cabin items
 - Security related items and signals between flightdeck and cabin
- B. The First Officer and Flight Attendant shall request a Pre-Flight Briefing if the Captain fails to initiate one.
- C. The FOS Flight Planning System provides a Flight Plan Information Form for the Flight Attendant(s). This form covers such items as flight time, weather, etc. Enroute, the Captain will periodically check with the Flight Attendant(s) to advise them of any change in routing, weather, etc.

1.5 Crewmembers at Stations (14 CFR 121.543)

- A. Flight crewmembers will be at their airplane and ready for flight 20 minutes prior to departure time, under normal circumstances.
- B. While at their respective stations, during and after the engine start, at least one cockpit crewmember shall visually scan the area outside the aircraft, and immediately in front of the aircraft, specifically to detect possible forward movement.
- C. During taxi, takeoff and landing, and while in-flight, each required crewmember (flight and cabin, if applicable) shall be at his assigned duty station unless the absence is necessary in the performance of duties in connection with the operation of the aircraft, or in connection with the crewmember's physiological needs. Also, each crewmember (including jumpseat occupant) shall keep his seatbelt fastened while at the duty station, and shall keep the shoulder harness fastened during taxi, takeoff and landing, unless removal is necessary for the performance of required duties.
- D. In-flight, the Pilot-Flying will concern himself exclusively with the control of the aircraft. The Captain will normally exercise control of the aircraft during abnormal or emergency situations but may delegate control of the aircraft to the First Officer when prudent judgment so dictates. When control of the aircraft is transferred from one pilot to the other pilot, under all conditions – normal, abnormal or emergency – the pilot surrendering control will do so with a clearly audible statement that must be clearly acknowledged by the other pilot that he has accepted control.

1.6 Flight Deck Documents (14 CFR 121.695)

The Captain shall retain and carry in the airplane to its destination, the following items in completed form:

- Dispatch Release
- Load Manifest
- Flight Plan

Enroute

1. ENROUTE

1.1 Airspace Classification

- A. Refer to Flight Manual - Part 2, Enroute Section, for current airspace classifications and descriptions (i.e., Class A, B, etc.).

1.2 Enroute Altitudes

Enroute altitudes are minimum altitudes at which flights can be flown under specified conditions. It is suggested that where practical, higher than minimum altitudes be planned and flown with due regard being taken of cloud clearance, surface turbulence, gust conditions associated with ridges or mountainous terrain, higher density traffic at near surface altitudes, migratory bird exposure, noise nuisance, aircraft performance, etc. The Captain shall also give special consideration to the possible effect of colder than standard outside temperatures and drift down profiles over high terrain.

1.3 IFR Cruising Altitude or Flight Level

- A. In Controlled Airspace
 - 1) Each person operating an aircraft under IFR in level cruising flight in controlled airspace shall maintain the altitude or flight level assigned that aircraft by ATC. However, if the ATC clearance assigns "VFR conditions on-top," that person shall maintain an altitude or flight level as prescribed by § 91.159.
- B. In Uncontrolled Airspace.

NOTE

Although these are only required in Uncontrolled Airspace, normal practice will be to operate at these altitudes.

- 1) Except while in a holding pattern of two minutes or less or while turning, each person operating an aircraft under IFR in level cruising flight in uncontrolled airspace shall maintain an appropriate altitude as follows:
 - a) When operating below 18,000 ft. MSL and:
 - (1) On a magnetic course of 0° through 179°, any odd thousand foot MSL altitude (such as 3,000, 5,000 or 7,000); or
 - (2) On a magnetic course of 180° through 359°, any even thousand foot MSL altitude (such as 2,000, 4,000 or 6,000).
 - b) When operating at or above 18,000 ft. MSL but below flight level 290, and:
 - (1) On a magnetic course of 0° through 179°, any odd flight level (such as 190, 210, or 230); or
 - (2) On a magnetic course of 180° through 359°, any even flight level (such as 180, 200, or 220).
 - c) When operating at flight level 290 and above (RVSM, see paragraph below), and:
 - (1) On a magnetic course of 0° through 179°, any flight level, at 2,000 ft. intervals, beginning at and including flight level 290 (such as flight level 290, 310, 330, etc.); or
 - (2) On a magnetic course of 180° through 359°, any flight level, at 2,000 ft. intervals, beginning at and including flight level 310 (such as flight level 300, 320, 340, etc.).

1.4 Reduced Vertical Separation Minimum (RVSM)

RVSM was implemented in the Domestic United States, Alaska, Gulf of Mexico, Southern California, Caribbean and Mexico on January 20, 2005 (0901 UTC). RVSM operations reduce the minimum vertical separation from 2,000 ft. to 1,000 ft. between FL290 and FL410.

A. Limitations

Specified in each Aircraft Operating Manual – Volume 1.

B. Required Equipment

RVSM operations must not be commenced or continued unless all of the required equipment as specified in the Aircraft Operating Manual – Volume 1 is operational.

NOTE

In cases of required RVSM equipment failure, proper notification to ATC must be made. ATC may authorize the flight into RVSM airspace if ATC workload permits.

C. Exterior Pre-Flight Inspection

Particular attention should be paid to the condition of static sources and to the fuselage skin within the marked RVSM Critical Area.

D. Level-off Procedures

- 1) The autopilot shall be used for level-off.
- 2) Avoid climb and descent rates greater than 1,000 FPM within 2,000 feet or within five miles of level-off.
- 3) Do not over or under shoot the cleared flight level by more than 150 feet

E. Cruise Procedures

- 1) The autopilot shall be used during cruise, except for circumstances such as the need to re-trim the aircraft or when it must be disengaged due to turbulence.
- 2) Cross-check the primary altimeters with the standby altimeter every hour. Note the error for use later in contingency situations.

F. ATC Immediate Notification Requirements

- 1) Failure of any required RVSM equipment.
- 2) Primary altimeters differing by 200 feet or more.
- 3) Encountering greater than moderate turbulence.
- 4) Unable to maintain 300 feet of assigned altitude due to turbulence.
- 5) Message phraseology **“Unable RVSM due to equipment or turbulence”**.

G. After Landing

In case of any required system malfunction or failure, the following should be recorded in the Aircraft Maintenance Log (AML) as applicable:

- 1) Primary and standby altimeter readings.
- 2) Altitude selector setting.
- 3) QNE setting.
- 4) Flight Director used with the autopilot to control the aircraft and any differences when the other Flight Director was coupled.
- 5) Use of air data computer selected.
- 6) The transponder selected to provide altitude information and any differences noted when the alternate transponder was selected.

6.2 Aircraft Communications Addressing and Reporting System (ACARS)

- A. ACARS is an Air/Ground Communications System developed by ARINC. The system automatically collects departure and arrival times, as well as other operational data, manually entered into the on board control unit by the flight crew. The information is transmitted from the aircraft via a data link radio channel to ACARS ground stations, then by telephone circuits to an ARINC formatting computer in Annapolis, MD, then to an ARINC switching computer in Chicago. From there the signal is fed into the AA/Envoy DECS computer at TULSA. All DECS responses to the aircraft use the same route, in reverse. The DECS Computer disseminates information to all designated AA/Envoy stations and departments.
- B. On aircraft so equipped, ACARS, (and the ACARS printer) is to be used to the maximum extent possible for transmission and receipt of company messages defined in this section (Company Reports). It is usable when the on board equipment is functioning and the aircraft is within the ACARS ground station covered network.
- C. Should ACARS "NO COMM" occur during any send attempt, an alternate voice procedure ("ACARS not usable") will be used to complete the report in accordance with "Company Reports" in this section.

NOTE

ACARS will store-hold-and-forward data input in the system. Transmission of the stored data will occur the next time the system is activated in the normal manner.

6.3 Communication Equipment

Flight crewmembers are prohibited from using any Envoy communication equipment installed in our aircraft for personal use except in the event of an emergency. This equipment is to be used solely for company and ATC communications.

6.4 Pilot – Dispatcher Communication (FAR 121.99, 121.601, 121.603)

- A. The Mercury Airborne Group, Inc. Dial-Access Communication System ("TELESIS") is a Voice System for pilot-dispatcher communications, designed to provide terminal and enroute area VHF aeronautical coverage. This system is a direct access Voice Communications System allowing company Dispatch or Maintenance Control to dial into selected remotely located company frequency radio transmitters and obtain voice communications with company aircraft. The Communication System uses the public switch telephone network for access and control, thus providing bi-directional communications links. Frequencies are listed and illustrated in the Envoy Pages of Flight Manual – Part 2, Authorized Airports & Enroute Sections.
- B. This system incorporates timers and safety mechanisms to protect against unauthorized access control and use.
- C. Flight crew communication to dispatch is accomplished on a "dial-down" basis from the aircraft using the special Electro-voice Airlink microphone located at a designated position in the aircraft. When the conversation between the aircraft and Dispatch is completed, the ground facility will disconnect automatically. It is not necessary for the flight crew to take any further action.
- D. Dispatch may also signal the aircraft via any other selected calling format (i.e., ATSCALL) if the COMM radio being used for company communication is selected to the appropriate area company frequency the aircraft is equipped to respond.
- E. Flight crews should be aware that conversations may be recorded and may be overheard by other aircraft and ground facilities.
 - 1) System performance is directly related to telephone line integrity. Poor connections can cause premature disconnect requiring redial.
 - 2) Broadcast range and performance is directly related to the range and altitude of the aircraft from the selected ground station. Dispatchers should select the closest ground station to which the aircraft is operating.

- F. The Backup System uses the same Radio System at the stations, passing messages between the crew and the Dispatcher via station personnel. The messages should be short and concise. Read-back technique is recommended.
- G. Flight Manual – Part 2, Enroute Section, pages Envoy-1 and following contain Equipment Operating Procedures, frequency charts and system details to assist the crew with in-flight communications.
- H. When installed and operational, the ACARS unit shall be considered the primary method of communication between the pilot and Dispatcher. During a flight, the aircraft Dispatcher shall provide the PIC any additional available information of meteorological conditions (including, adverse weather phenomena, such as clear air turbulence, thunderstorms and low altitude wind shear) and any irregularities of facilities or services that may affect the safety of the flight.

NOTE

TELESIS should be used only after company radio contact has been unsuccessful.

6.5 Company Reports – Requirements and Procedures: (ACARS and Voice)

For all Envoy flights, it is the Captain's responsibility to ensure that each report described in this paragraph is made in a timely and concise manner. All "time" reports or estimates will be referenced to the officially reported "SABRE" time, which can be found by typing "XPZ" in DECS, followed by the [ENTER] key. Other times in RES may be slightly different and are not to be used.

NOTE

If for some reason ACARS times appear erroneous, the crew may "request a change" of the times via the appropriate ACARS manual entry screen.

For each report below, a format entitled "ACARS usable" describes ACARS code and action to accomplish the requirement. Whenever possible, ACARS will be used as the primary method of communications. This is followed by another paragraph entitled "ACARS not usable", which describes the verbal report to be used. This report will be used when the ACARS Procedure is not completed, for whatever reason.

- A. Pre-Flight
Prior to leaving the chocks, the flight crew shall contact the company to report total Fuel-On-Board. This report is a verification of the actual Fuel-On-Board at departure. In the event the station cannot be contacted prior to block out, the report may be made in conjunction with the OUT time report.
 - 1) ACARS Usable:
Enter required data in "PRE-FLIGHT" screen. Verify pre-flight Fuel-On-Board. Update if incorrect. Send will occur.
 - 2) ACARS Not Usable:
Data described above will be transmitted via company radio or TELESIS.
- B. Gate Hold Delays
After all block out requirements have been completed, if an ATC gate hold is received, which further delays the flight's release from the gate, the crew shall notify the company immediately. This report is not to be sent via ACARS. Data described above will be transmitted via company radio or TELESIS.
- C. Out Time
After leaving the chocks, the OUT time, which is defined as the time at which the aircraft's wheels leave the chocks, whether under its own power or pushed back/towed from the gate, will be given to the station.

NOTE

The OUT time and Fuel-On-Board must be relayed to the departure station prior to takeoff so that station personnel may make the necessary entry into the SABRE System.

- 1) ACARS Usable:
This function is automatic.
 - 2) ACARS Not Usable:
Data described above will be transmitted via company radio or TELESIS.
- D. Takeoff or taxiing delays; when a flight is not airborne (OFF) within 15 minutes of the reported or revised OUT time, the crew shall contact the departure station and provide an Estimated Time OFF (ETO) plus the total Fuel-On-Board. If a flight should be further delayed, so that it will not actually be off within 15 minutes of the ETO, an updated ETO, plus Fuel-On-Board, shall be transmitted to the company.
- 1) ACARS Usable:
Report delays using the "DELAYS" screen.

NOTE

SABRE is programmed to expect an OFF message within a pre-determined time after the OUT message is received. The system will send an ACARS message alert to the crew when this time has expired. The message will ask the crew to "UPDATE ETO AS NECESSARY."

- 2) ACARS Not Usable:
Data described above will be transmitted via company radio or TELESIS.
- E. OFF Time
OFF time is defined as the time at which the aircraft actually becomes airborne. This report should be transmitted to the departure station as soon as practical after takeoff, considering cockpit work load, terminal area congestion, etc.
- 1) ACARS Usable:
This function is automatic.
 - 2) ACARS Not Usable:
Data described above will be transmitted via company radio or TELESIS.
- F. Holding or Flow-Control Delays
When encountering such delays, the crew shall advise SOC of the situation, including the name of the holding fix or point, the new ETA, remaining Fuel-On-Board, and any pertinent remarks.
- 1) ACARS Usable:
Enter data in the "DELAYS" screen.
 - 2) ACARS Not Usable:
Data described above will be transmitted via company radio or TELESIS.
- G. Diversions
When a decision is contemplated, or has been made, to proceed to an alternate airport, the crew shall notify SOC of the name of the alternate airport, ETA at the alternate airport, estimated arrival fuel at the alternate airport, and any pertinent remarks.
- 1) ACARS Usable:
Enter data in the "DIVERSIONS" screen.
 - a) When the "ALT ROUTE" is selected, SOC will assume the crew is requesting guidance and consultation.
 - b) If the "ALT ROUTE" is NOT selected, SOC will assume a divert scenario is in progress.
 - 2) ACARS Not Usable:
Data described above will be transmitted via company radio or TELESIS.
- H. Cruise
Either pilot can update landings using the "POSTFLIGHT" page of ACARS.
- 1) ACARS Usable:
Enter Flying Pilot's employee number in the "POSTFLIGHT" screen. The employee number must be input during the enroute phase of flight.
 - 2) ACARS Not Usable:
Enter landings using HI function in DECS.

7.6 PA Coordination Between Captain and Flight Attendant

Before making an announcement, other than a standard routine announcement (e.x. weather delays, aircraft mechanical failures), the Flight Attendant will call the Captain on the interphone and state her intentions. This will prevent the Captain from repeating information already given or giving conflicting information.

7.7 On Board Delay Announcements

- A. When passengers are on board the aircraft and a delay of five minutes or more is expected, an announcement will be made by the Captain or First Officer when either one is on board the aircraft. Agents will inform the flight crew of the reason for the delay when it is due to a passenger service function (i.e., Ticketing, Catering, Awaiting Connections, Cabin Service, Loading Cargo, etc.). It is the pilot's responsibility to obtain the reason for any other delay. The Captain or First Officer will make follow-up announcements as more information is received or to confirm information previously given. The frequency of follow-up announcements will be at least every 15 minutes.
- B. If neither the Captain or First Officer is available, it is the responsibility of the agent or the Flight Attendant to inform the passengers of the delay. In such cases, the agent will obtain the latest information before making an announcement.
- C. It is the agent's responsibility to advise the Captain or First Officer whenever he has previously made a PA regarding delays. The Captain should be advised of what the passengers were told and given the anticipated length of the delay.
- D. The Captain is responsible for making a PA shortly before engine start explaining everything is normal.
- E. Start the Airline Right Today (START) / Kick Off Delay PA: see Special Conditions Table for script.

7.8 Rerouting and Diversions

Preface these announcements with "We're sorry to inform you..." and include the phrase "We apologize for any inconvenience." Do not overuse the terms "late" or "delay" and do not speculate on the possibility of delays that may never materialize.

7.9 Turbulence

- A. Anticipated Turbulence
 - 1) The Captain will notify the Flight Attendant via interphone whenever turbulence is anticipated that could disrupt in-flight service.
 - 2) This notification should be made with enough advanced notice for the Flight Attendant to secure service items and be seated, and should include expected duration.
 - 3) A PA announcement will be made five to 10 minutes, where possible, prior to entering turbulence areas. The announcement should point out that the flight will enter an area of turbulence for an expected duration of time or while between geographical fixes.
- B. While operating in areas of moderate or greater turbulence the Flight Attendant shall be required to be seated with seatbelt on. A PA announcement shall be made advising the passengers that the Flight Attendant is required to be seated with his/her seatbelt on until further advised.
- C. If a service cart is in the cabin at the time of the Captain's announcement of anticipated moderate or greater turbulence, it must be moved to the appropriate area and latched down. Services may resume as scheduled after the flight crew has notified the Flight Attendant that it is safe to do so.
- D. In the event of encountering unanticipated moderate or greater turbulence, a PA announcement shall be made to the Flight Attendant and passengers to immediately be seated.
- E. After it has been determined that the flight is clear of turbulence, the Flight Attendant should be notified by turning the Fasten Seatbelt Sign OFF. If the Captain determines that the Seatbelt Sign should stay ON, communicate with the Flight Attendant accordingly via interphone.

7.10 Prior to Landing

At no later than six minutes prior to landing, the flight crew will make a PA announcement for the Flight Attendant, as applicable, to prepare for landing. The script for this PA is described in Table 11 - 1.

7.11 Cockpit/Cabin Communications/Passenger Briefing Scripts

- A. The following material defines the proper standards and scripts for use of the Public Address (PA) System and the interphone for cockpit/cabin communication. These general procedures are to be complied with for all revenue flight operations. Aircraft specific procedures are contained in the AOM.
- B. Statements in double quotes (" ") are to be quoted verbatim as given in this document. Those in single quotes (' ') provide the general intent of the PA, and crew judgment will dictate the actual verbiage used.
- C. Caution must be exercised to ensure "sterile" cockpit, when applicable, is not violated.

Event	Signal
Routine Conditions	
Prior to Taxi or Pushback	Before leaving the gate and the cabin is ready for taxi: The Flight Attendant will advise "Cabin ready to taxi" after closing the PAX Entry Door and ensuring the cellular function on all electronic devices are turned OFF.
Taxi	The Flight Attendant will occupy her jumpseat with the seatbelt and shoulder harness fastened immediately after completing all safety related duties. The Flight Attendant will wait for the First Officer to make the following PA at least one minute prior to takeoff: "Ladies and Gentlemen, we will be departing in just a few moments; will the Flight Attendant(s) please prepare for takeoff." - After hearing this PA, the Flight Attendant will then depress the <i>CALL</i> button once and when the Flight Crew answers the Flight Attendant will confirm "Cabin ready for takeoff".
Takeoff	Taking the active runway for takeoff or position-and-hold: - The Flight Crew will cycle the <i>FASTEN SEATBELT</i> sign, OFF then ON, quickly. - However, if the <i>FASTEN SEATBELT</i> sign switch is inoperative, the Flight Crew will cycle the <i>NO SMOKING</i> sign, OFF then ON, quickly.
Flight Attendant may begin duties	Climbing through 10,000 ft. or cruising altitude: - CRJ and ERJ-175 - Flight Crew will turn off the Sterile Cockpit light. - EMB 140/145 -The Flight Crew will turn off the Sterile Cockpit light and cycle the <i>FASTEN SEATBELT</i> sign, OFF then ON, quickly. - If the <i>FASTEN SEATBELT</i> sign is inoperative, the Flight Crew will cycle the <i>NO SMOKING</i> sign, OFF then ON, quickly.
Sterile Cockpit	Entering and leaving "sterile" conditions: - The Flight Crew will turn OFF the Sterile Cockpit light upon leaving "sterile" conditions and turn ON the Sterile Cockpit light upon entering "sterile" conditions. - If the Sterile Cockpit light is not operative, the Flight Crew will cycle the <i>FASTEN SEATBELT</i> sign, OFF then ON, quickly.

Event	Signal
FASTEN SEATBELT sign	- The Flight Crew will make the following PA just before or after they have turned OFF the <i>FASTEN SEATBELT</i> sign: ‘Ladies and Gentlemen, this is Captain (F/O) _____ speaking. Now that we have leveled off at our cruising altitude, and are forecast to have a smooth flight, I am going to turn OFF the FASTEN SEATBELT sign. However, you should keep your seatbelt fastened at all times while seated. Even though the FASTEN SEATBELT sign is OFF, I must caution you that turbulent air can occur at any time. When out of your seat, please be aware that our advance notice of any turbulence may be very limited. So, if I turn the FASTEN SEATBELT sign back ON, please return to your seats immediately and fasten your seatbelt. Your safety and comfort are of the utmost importance to all of us at American Eagle. Thank you for your cooperation.’ - If a PA is not made by the cockpit, the Flight Attendant is responsible for making the <i>FASTEN SEATBELT</i> sign OFF PA. - The Flight Attendant will make the <i>FASTEN SEATBELT</i> ON PA just after the Flight Crew turns ON the <i>FASTEN SEATBELT</i> sign.
In Range	Prior to accomplishing the descent checklist and not in “sterile” conditions: - The Flight Crew will call the Flight Attendant by pressing the <i>CALL</i> button once. The Flight Attendant will answer by pressing the <i>CALL</i> button. The Flight Crew will then advise that the aircraft is “In Range” and if a jetbridge will not be available for deplaning. The crew will also advise during the remainder of the flight if there is possible turbulence. - The Flight Attendant will also request of the Flight Crew any additional services required from the station upon landing.
Prior to Landing	Approximately six minutes prior to landing: The Flight Crew will make the following PA: “Ladies and Gentlemen, we will be landing in just a few minutes. Will the Flight Attendant(s) please prepare for landing.”

Event	Signal
Cockpit to Flight Attendant	The Flight Crew will depress the <i>CALL</i> button once. The Flight Attendant will answer when able.
Flight Attendant to Cockpit	The Flight Attendant will depress the <i>CALL</i> button once and the Flight Crew will answer when able.
Special Conditions	
Light turbulence (anticipated or unanticipated)	The Flight Crew should turn the <i>FASTEN SEAT BELT</i> sign ON when encountering or anticipating light turbulence.
Moderate or greater turbulence expected (anticipated)	The Flight Crew will make the following PA before entering moderate or greater turbulence, “Ladies and Gentlemen, this is Captain (F/O)_____. I have instructed the Flight Attendant(s) to take their seat(s) and fasten their seatbelt due to reports of turbulence ahead. Please ensure that your seatbelts are properly fastened. We will make every attempt to minimize the bumpy air we encounter. Thank you for your cooperation”.
Moderate or greater turbulence encounter (unanticipated)	- The Captain will turn on seatbelt sign and make the following PA, “Flight Attendant(s) and passengers please be immediately seated until this area of turbulence has passed and I have cleared you to move about the cabin”. - After it has been determined that the flight is clear of turbulence, Captain will make a PA advising the cabin crew that they may resume their duties and whether or not passengers may move about the cabin. It is recommended that the Captain confer with cabin crew to confirm that conditions in the cabin warrant resumption of duties.
Use of portable electronic devices during ground delays	If the Flight Crew anticipates a ground delay to be in excess of 15 minutes and the aircraft is parked, either ON or OFF the gate, but not near the <i>ILS</i> critical area of an active runway: - The Flight Crew can make the following PA: “Ladies & Gentlemen, this is Captain _____. We are anticipating our ground delay to last at least 15 minutes, so I am going to authorize the use of portable electronic devices with the cellular function turned ON. Once we are ready to resume our (taxi or departure), I will instruct you to turn OFF the cellular function on all devices. Thank you for your patience”. Prior to resuming taxi: - The Flight Crew will make the following PA: “Ladies & Gentlemen, this is Captain _____. We are preparing to resume our (taxi or departure). Please turn the cellular function OFF on all portable electronic devices. The aircraft cannot be moved until the cellular function on all items are turned OFF. Thank you”.

Event	Signal
START/Kickoff Flight Delay PA	The Captain will make the following PA: “Good morning ladies and gentlemen, this is your Captain speaking. First, I'd like to welcome you aboard flight ____ with service from ____ to _____. I wanted to advise you personally that our flight is running later this morning than expected due to crew flight-time and rest legalities. Our flight last night arrived into _____, later than planned. FAA Regulations require us to have a minimum time for rest and this, ladies and gentlemen, is for your safety. We do apologize for this delay and appreciate your understanding. Thank you for flying American Eagle, where getting you to your final destination safely is our number one goal”.
Emergency Conditions	
Flight Crew needs to speak with Flight Attendant immediately	- If the aircraft is equipped with an <i>EMER</i> call button, this will be used by the Flight Crew. This will be indicated in the cabin as a Red Flashing light. - If an <i>EMERG</i> call button is not available, the Flight Crew will depress the <i>CALL</i> button twice. This will be indicated in the cabin as a White light.
Flight Attendant needs to speak with Flight Crew immediately	If the aircraft is equipped with an <i>EMER</i> call button, the Flight Attendant will call the cockpit by pressing the <i>EMER</i> call button. If Interphone System is inoperative, immediately proceed to the cockpit.
Flight Crew needs the Flight Attendant to come to the cockpit immediately	- The Flight Crew will use the PA and announce: “Will the Flight Attendant please come forward.” - If the PA is inoperative, the Flight Crew will cycle the <i>FASTEN SEATBELT</i> sign six times.
Non-Routine Operations – in-flight or on ground This PA is to be used whenever an emergency is declared by the crew and the ‘brace, brace’ procedure is NOT required as directed by the <i>AOM Volume 1</i> i.e., engine shutdown, zero flap landing, fire/smoke warning, etc. If time is available, brief Flight Attendant #1 prior to making PA to passengers.	“Ladies and Gentlemen, this is Captain _____ (or First Officer if so delegated) speaking. We have developed a mechanical problem with our aircraft and will be returning to _____ for landing (or to the gate). In the unlikely event we encounter any complications and for your safety, I have requested the Flight Attendant(s) to brief you on the procedures required should an emergency situation develop. Please give your attention and cooperation to our Flight Attendant(s). We will be landing in _____ minutes.”
Brace for impact	The Flight Crew will use the PA and announce: “BRACE, BRACE.”
Evacuate the aircraft	- The Flight Crew will use the PA and announce: “EASY VICTOR, EASY VICTOR, EASY VICTOR.” - If the PA is inoperative, the Flight Crew will turn the <i>EMERGENCY EXIT</i> lights ON, turn the <i>FASTEN SEATBELT</i> sign OFF, and depress the <i>EMERG</i> call button (Red Flashing light in cabin) or if not available depress the <i>CALL</i> button once (White light in the cabin).

Table 11 - 1
Cockpit/Cabin Communications

Weather

1. SURFACE WEATHER

1.1 Automated Weather Observing System/Automated Surface Observing System (AWOS/ASOS)

- A. Automated Weather Reporting Systems (AWOS/ASOS) are increasingly being installed at airports. These systems consist of various sensors, a processor, a computer-generated voice subsystem and a transmitter to broadcast local, minute-by-minute weather data to the pilot.
- B. The information is transmitted over a discrete radio frequency or the voice portion of local NAVAID. AWOS/ASOS transmissions are receivable within 25 NM of the AWOS/ASOS site, at or above 3,000 ft. AGL. In many cases, AWOS/ASOS signals may be received on the surface of the airport. The system transmits a 20 to 30 second weather message updated each minute. Most AWOS/ASOS sites also have a dial-up capability so that the minute-by-minute weather messages can be accessed via telephone.
- C. AWOS/ASOS information (system level, frequency, phone number, etc.) concerning specific locations is published, as the system become operational, in the Airport/Facility Directory, and where applicable, on published Instrument Approach Procedures. Selected individual systems may be incorporated into nationwide data collection and dissemination networks in the future.
- D. Computer-generated voice is used in (AWOS/ASOS) to automate the broadcast of the minute-by-minute weather observations. In addition, some systems are configured to permit the addition of an operator-generated voice message (i.e., weather remark) following the automated parameters. The phraseology used generally follows that used for other weather broadcasts.
- E. Flight crews should be aware that an AWOS/ASOS site may actually begin transmitting weather information before it is fully certificated. In such cases, the site will transmit a message indicating its test or provisional status. Approaches shall not be conducted if such an AWOS/ASOS site is the only available weather source.
- F. No pilot may operate an IFR flight into an airport where the only approved weather information available is from an AWOS/ASOS site unless that airport is specifically authorized in the "Authorized Airports" contained in the Envoy pages.
- G. AWOS/ASOS cannot be used as an automated weather source if the visibility is missing from the AWOS/ASOS Report and IFR approaches will not be initiated when this visibility is missing.
- H. An AWOS/ASOS is out-of-service for all IFR approaches if the altimeter setting is reported as missing.

1.2 Company System for Obtaining, Storing and Disseminating Weather (14 CFR 121.101)

- A. In determining that airport weather conditions are above or below minimum specified, personnel shall refer to weather reports as follows:
 - 1) For operations within the 48 contiguous states and the District of Columbia, reports prepared by the U.S. National Weather Service (NWS) or a source approved by the U.S. National Weather Service.
 - 2) The weather obtained from approved sources in 1) above is entered directly into the SABRE System from the NWS switching center at Kansas City and updated whenever new information becomes available. The SABRE System is available at all regular airports listed in the Operations Specifications. For airports other than those listed in the Operations Specifications, and for off route operations, the weather will be included in the flight release provided by Dispatch, or obtained by the Captain and discussed with Dispatch prior to departure.
- B. Weather forecasts for company operations are provided by the Weather Company. Any time the Weather Company forecast is available, it shall be controlling for company revenue operations. Should the Weather Company forecast not be available, use of NWS forecasts is authorized.

1.3 Pilot Reports – General (14 CFR 121.561)

- A. Whenever a pilot encounters a potentially hazardous meteorological condition or an irregularity in a ground communications or navigational facility in-flight, the knowledge of which the pilot considers essential to the safety of other flights, the pilot shall notify ATC and Dispatch (as appropriate).
- B. Pilots shall provide in-flight weather information requested by ATC or Dispatchers.
- C. Pilots in-flight shall immediately advise flight Dispatch by the most expeditious method available whenever weather conditions are encountered which might materially affect the safety or conduct of other flights.

1.4 Use of Weather Forecasts

- A. The Captain and Dispatcher shall be in agreement that at the estimated time of arrival at a destination to which the flight is to be dispatched, weather conditions are expected to be equal to or greater than those specified in the company's Operations Specifications. In arriving at an agreement, the Captain and Dispatcher shall consider, and must have, current weather information for the departure, arrival and alternate airports, as well as those along the intended route of flight.
- B. The responsibility for the evaluation of the validity of the current available forecasts, insofar as their application to operational decisions, is held jointly by the Captain and the Dispatcher and cannot be delegated.

1.5 Terminal Forecasts

- A. Attachments to the Dispatch Release shall include copies of current terminal forecast(s) applicable to the cities listed on the flight plan as well as copies of available terminal forecasts valid for the time of arrival at landing points and alternate(s) specified in the release.
- B. Whenever an approved weather service terminal forecast is not available, valid for time of arrival at landing point(s) or alternate(s) specified in the release, the Captain shall be informed of such deficiency by the Dispatcher. The Captain must be provided a current forecast(s) to proceed. A forecast or report received verbally by radio or telephone suffices for this requirement, in which case the Captain and Dispatcher should record the information used on the release with remarks indicating the decision reached.

1.6 METAR

A. The following is a typical METAR report:

- 1) METAR (or SPECI for Special Report) KPIT 201955Z (AUTO for automated observation) (COR for correction to observation) 22015G25KT 3/4SM R28R/2600FT TSRA OVC010CB 18/16 A2992 RMK SLP013 T01760158

NOTE

When METAR data is missing from the body of the report, it is simply omitted and the user must know the sequence to recognize this. Some exceptions apply in remarks such as RVRNO, or SLPNO when RVR or SLP are normally reported but not currently available.

- 2) To help remember the sequence, think of 3Ws at the beginning - **Where**, **When** and **Wind**. This works for METAR as well as TAF.

METAR KPIT 201955Z 22015G25KT

a) Where

KPIT is the ICAO station identifier. The usual three letter identifiers we are familiar with are now preceded by a "K" for the contiguous United States. Alaska and Hawaii will use four letter identifiers beginning with "PA" and "PH" respectively. Changes are planned to incorporate alphabetic identifiers for those **weather reporting** stations where numbers and letters are now used.

b) When

201955Z is the **20th** day of the month at **1955Z** time.

c) Wind

- (1) **22015G25KT** next is the two or three digit speed.
- (2) **22015G25KT** a "G" comes next if the wind is gusting.
- (3) **22015G25KT** followed by the two or three digit maximum speed and units (**KT**).
- (4) **00000KT** for calm winds.
- (5) **22015KT 180V260** When wind direction varies 60 degrees or more and wind is greater than 6 kts.
- (6) **VRB** Used when wind direction is variable and speed is less than or equal to 6 kts.
- (7) **RMK** Peak wind is one element reported in the remarks section whenever the maximum instantaneous speed is greater than 25kts. **22030/15** means a maximum instantaneous wind of 30kts. occurred 15 minutes past the hour from 220 degrees.
PK WND 22030/15

NOTE

22015G25KT is reported as the three digit true direction to the nearest 10 degrees. ATC towers, ATIS and airport advisory service report wind as magnetic.

3) Visibility

- a) **3/4SM** meaning **3/4** statute mile visibility. Miles and fractions are also reported (i.e., **2 3/4SM** for 2 and 3/4 statute miles visibility).
- b) **R28R/2600FT** Means Runway Visual Range (RVR). Signifies that the runway visual range for runway **28 Right** is **2,600** feet. The format is **R(XXX)** Runway Designator including (L)eft, (C)enter or (R)ight/(XXX) 4 digit visibility in feet.

4) Some coding pilots may also see for RVR include:

- a) **M** Indicates the RVR is less than lowest reportable sensor value (i.e. **M0600FT**).

- b) **P** Indicates RVR greater than highest reportable sensor value (i.e. **P600FT**).
 - c) **V** Variable. If the RVR is variable between 2,000 and 4,000 ft. for runway 6L: (**R06L/2000V4000FT**). May contain up to four RVR Reports.
- B. Significant Present Weather
- 1) TSRA: Thunderstorm/Moderate Rain Format is a two character descriptor (i.e., TS, SH, DR) sometimes followed by a two character weather phenomenon (i.e., RA, SN, FG). (See Abbreviations Section)
 - 2) Intensity or proximity of weather phenomenon:
 - a) “-” **Light**
 - b) “+” **Heavy**
 - c) “no sign” **Moderate**
 - d) “VC” **In the vicinity**
- C. Clouds
- 1) **OVC010CB**: Specifies cloud amount, height and type. **Overcast** clouds are present at 1,000 ft. consisting of **cumulonimbus** clouds.
 - 2) Cloud height is reported in hundreds of feet. When clouds are composed of towering cumulus or cumulonimbus **TCU** or **CB** will follow cloud height.
 - 3) The clouds are categorized based on eighths (octas) of the sky:
 - a) **SKC** Sky Clear
 - b) **FEW** >0-2 octas
 - c) **SCT** 3-4 octas
 - d) **BKN** 5-7 octas
 - e) **OVC** 8 octas
 - 4) **VV** may be listed here for **indefinite ceiling** such as “**VV004**” for **Vertical Visibility 400 ft.**
 - 5) **18/16 Temperature/Dew Point** listed in degrees Celsius. When temperatures are below 0 degrees Celsius, they are preceded by “**M**” for “**Minus**” (i.e., **10/M06** for temperature **10 degrees C**, dew point **Minus 6 degrees C**).
 - 6) **A2992 Altimeter Setting “A”** indicates setting in **inches** of mercury for United States. Consists of four digits: inches and hundredths.
 - 7) **RMK SLP013 T01760158**
- D. **RMK SLP013 T01760158. Remarks** come last.
- 1) **RMK SLP013 T01760158**. Selected stations will contain **SLP** for **Sea Level Pressure** reported as the last three digits in hectopascals (millibars) to the nearest tenth (i.e., 1001.3 is reported **SLP013**).
 - 2) **RMK SLP013 T01760158**. Also, at selected stations, the nine character code (**T01760158**) breaks down the temperature and dewpoint to the nearest 1/10th of degree Celsius. The “**T**” stands for temperature and the “**0**” means positive temperature. A “**1**” in place of the “**0**” stands for negative temperature. At selected stations, other temperature codes, such as **10142**, **20012**, or **401120084**, may appear to document temperatures not related to aviation.

1.7 TAF

- A. TAF contains a definitive forecast for specific time periods and will replace the terminal forecast.
- B. TAF (TAF AMD is Amended Forecast when included)
 - 1) KPIT 091730Z 0918/1024 22020KT 3SM - SHRA BKN020

- 2) FM092030 30015G25KT 3SM SHRA OV015 TEMPO 0920/0922 1/2SM TSRA OVC008CB
 - 3) FM100100 27008KT 5SM -SHRA BKN020 OVC040 PROB40 1004/1007 0000KT 1SM -RA BR
 - 4) FM101000 22010KT 5SM -SHRA OVC020 BECMG 1013/1015 20010KT P6SM NSW SKC
 - 5) Once you know how to pick out the TAF forecast time periods, the same logical sequence that we saw in METAR will follow. Below, a TAF is broken down to highlight its individual segments. Key words, and their definitions, indicating a new time period has started are highlighted.
- C. TAF
KPIT 091730Z 0918/1024 22020KT 3SM - SHRA BKN020
- 1) **FM092030** 30015G25KT 3SM SHRA OVC015 WS015/30045KT **TEMPO 0920/0922** 1/2SM TSRA OVC008CB
 - 2) **FM100100** 27008KT 5SM -SHRA BKN020 OVC040 **PROB40 1004/1007** 0000KT 1SM -RA BR
 - 3) **FM 101000** 22010KT 5SM -SHRA OVC020 **BECMG 1013/1015** 20010KT P6SM NSW SKC
 - 4) The **Where**, **When**, and **Wind** trick works with TAF, too. There's a little twist with the "when", however.
- D. TAF
KPIT 091730Z 0918/1024 22020KT
- E. Where
KPIT is the ICAO station identifier. The usual three letter identifiers we are all familiar with preceded by a "K" for the contiguous United States. Alaska and Hawaii will use four letter identifiers beginning with "PA" and "PH" respectively. Changes are planned to incorporate three letter identifiers for those weather reporting stations where numbers and letters are now used (i.e., W10 to KHEF).
- F. When
- 1) 091730Z This is the forecast for the 9th day of the month with an issuance time of 1730Z or UTC. This is a two digit date and four digit time.
 - 2) **0918/1024** is the valid period (either 24 hours or 30 hours) with the first two digits of EACH four digit number indicate the date of the valid period. (**09XX/10XX**).
 - 3) **0918/1024** the final two digits of EACH four digit number indicate the time (valid from 18Z on the 9th to 24Z on the 10th).
- G. Wind
- 1) 22020KT
 - 2) See description under METAR
 - 3) **WS015/30045KT** means at 1,500 ft. we expect wind to be **300** degrees at **45KT**. This indicates low level windshear, not associated with convective activity.
- H. Time Periods, Etc.
- 1) **FM092030** From 2030Z or UTC time. Indicates day, hours and minutes.
 - 2) **TEMPO 0920/0922** Temporary changes expected on the 9th, between 2000Z and 2200Z.
 - 3) **FM100100** On the 10th from **0100Z**
 - 4) **PROB40 1004/1007** There is a **40 percent probability** of these conditions occurring on the 10th between **0400Z and 0700Z**.
 - 5) **FM101000** On the 10th from 1000Z

- 6) **BECMG 1013/1015** Conditions **Becoming** on the 10th between **1300Z** and **1500Z**.
- 7) Once the specific time periods can be discerned, the sequence of **wind**, **visibility**, **significant weather**, **cloud cover** and **cloud height** follows and is repeated for each time block. The only exception is after qualifiers such as **PROB40**, **TEMPO** and **BECMG**, some of the components may be omitted if these are not expected to change. Notice after **TEMPO 0920/0922**, there is no wind given and after **PROB40 1004/1007**, there is no cloud cover listed.

NOTE

When No Significant Weather (**NSW**) appears it only indicates obstruction to visibility or precipitation previously noted has ended. (See Abbreviations Section)

1.8 METAR/TAF International Differences

Pilots and operators who fly to international destinations are cautioned to be alert to differences between U.S. METAR/TAF and international METAR/TAF. Some key differences follow.

A. Altimeter Setting

The United States reports the altimeter setting in inches of mercury (i.e., **A2992**) and Internationally it will be reported in hectopascals (millibars) (i.e., **Q1016**).

B. Wind

Internationally wind may be reported in knots (KT), kilometers per hour (KMH) or meters per second (MPS). Appropriate units are indicated on both METAR and TAF.

C. Windshear

Low level windshear, not associated with convective activity (i.e., **WS015/30045KT**, see **TAF**) will appear in TAFs in the United States, Canada and Mexico only.

D. Visibility

- 1) Internationally, visibility is reported in four digits using meters with the direction of the lowest visibility sector (i.e., 6000SW - meaning visibility is lowest at 6,000 meters to the southwest). In the United States, we use prevailing visibility, in statute miles, not the lowest visibility, so the same conditions would be reported differently.
- 2) International visibility reports also contain a trend such as:
 - a) **DDown**
 - b) **UUp**
 - c) **NNo change**
 - d) **VVariable**

E. Remarks (**RMK**) included in U.S. METAR are transmitted to only Canada and Mexico and no other international stations.

F. Pilots may also see the notation on International METAR/TAF: **CAVOK**. This means ceiling and visibility OK and is used to replace weather and clouds. If visibility is 10 kilometers or more, there are no clouds below 1,500 meters (5,000 ft.) or below the highest minimum air traffic control sector altitude, whichever is greater. Also, there must be no other significant weather.

G. **NSC** means no significant clouds.

H. International TAFs may include temperature, turbulence and icing forecasts.

1.10 Minimums – Controlling Visibility (14 CFR 121.655)

- A. The visibility values in the main body of the latest weather report control for takeoffs and landings and for instrument approach procedures on all runways of an airport. Visibility information contained in the remarks section of the report, such as "TWR VSBY" or "SFC VSBY" is for information only and does not modify visibility contained in the main body of the report for purposes of determining weather minimums.
- B. If the latest weather report, including an oral report from the control tower, contains a visibility value specified as runway visual range (RVR) for a particular runway of an airport, that specified value controls for landings and takeoffs and straight-in instrument approaches for that runway.

Example:

"R14/2600FT" indicates that visibility on Runway 14 is 2,600 ft. Visibility in the main body of the report applies to all other runways.

1.11 Continuing Flight in Unsafe Conditions (14 CFR 121.627)

- A. No Pilot-in-Command may allow a flight to continue toward any airport to which it has been released if, in the opinion of the Pilot-in-Command or Dispatcher, the flight cannot be completed safely, unless, in the opinion of the Pilot-in-Command, there is no safer procedure. In that event, continuation shall be considered an emergency procedure and shall require a written report to the Domicile Chief Pilot as soon as possible.
- B. In the event of a deviation from the rules or procedures in this manual or in the CFRs, the Captain shall submit a complete report of the deviation and the reasons for it. The report must be filed within 10 working days and shall be submitted to the Domicile Chief Pilot for forwarding to the VP of Flight Operations and to the FAA FSDO charged with inspection of the company.

2. WEATHER INFORMATION SOURCES

2.1 AIRMET (Airman's Meteorological Information)

- A. In-flight weather advisories issued only to amend the area forecast concerning weather phenomena which are of operational interest to all aircraft and potentially hazardous to aircraft having limited capability because of lack of equipment, instrumentation, or pilot qualifications.
- B. AIRMETs cover moderate icing and moderate turbulence, sustained winds of 30kts. or more at the surface, widespread areas of ceiling of less than 1,000 ft. and/or visibility less than three miles, and extensive mountain obscurement.
- C. Crewmembers should contact SOC for the most current AIRMET information.

2.2 SIGMET (Significant Meteorological Information)

- A. A SIGMET is defined as a weather advisory issued by the National Weather Services concerning weather significant to the safety of all aircraft. SIGMET advisories cover tornadoes, lines of thunderstorms, embedded thunderstorms, large hail, severe and extreme turbulence, severe icing and widespread dust or sandstorms that reduce visibility to less than three miles.
- B. SIGMET advisories are attached to the Dispatch Release.

2.3 SIGMEC (Significant Meteorological Condition)

- A. SIGMECs are issued by Weather Service International. These reports cover such information as clear air turbulence, thunderstorm activity, low level windshear activity and icing conditions. The SIGMEC is the Weather Company enhancement of the SIGMET with emphasis on significant weather phenomenon of interest to Envoy operations. At present, only Terminal SIGMECs are available for Envoy operations.

- B. SIGMEC advisories are attached to the Dispatch Release.

2.4 Precipitation Reports from ATC

ATC work stations normally use a weather processing system, permitting a controller to see, and report to pilots, four levels of precipitation as a function of reflectivity expressed in decibels (dBZ), as follows:

"LIGHT"	< 30 dBZ*	Rainfall rate of .01 – .10 inches per hour
"MODERATE"	30 to 40 dBZ	Rainfall rate of .175 – .50 inches per hour
"HEAVY"	> 40 to 50 dBZ	Rainfall rate of .5 – 2.0 inches per hour
"EXTREME"	> 50 dBZ	Rainfall rate of 2.0 – 16+ inches per hour

*Air Route Traffic Control Center (ARTCC, also known as "center radar") controllers will not use the term "LIGHT" because their systems do not display "LIGHT" precipitation. (This information will be included in August 2007 update to the Aeronautical Information Manual.)

None of the Air Traffic Control Weather Processing Systems distinguish between types of precipitation such as snow, rain, hail or ice pellets (sleet). Hence all observations reported to pilots are expressed as "precipitation". Pilots should understand that precipitation data may be up to six minutes old when actually displayed to a controller.

2.5 Surface and Enroute Weather Information

Pilots in-flight may obtain weather information from:

- A. Transcribed weather broadcast (TWEB) frequencies as shown on High Altitude Chart US (HI).
- B. ATIS in selected high activity terminal areas.
- C. AWOS/ASOS (Automated Weather Observing System/Automated Surface Observing System) in selected terminal areas.
- D. Unscheduled voice broadcasts of potentially hazardous conditions to all aircraft (SIGMETs) made by Flight Service Stations (FSS) at random times when these flight advisories are issued. Those conditions include warnings of actual and/or potential tornadoes, thunderstorms and thunderstorm lines, hail 3/4" diameter or more, greater than moderate turbulence, heavy icing, widespread dust/sand storms, etc.
- E. ARINC Stations on request by radio communications.
- F. Envoy Operations - Generally, the weather report available from Envoy operations is read from DECS, which is in the same database as ACARS. An exception would be when no control tower, FSS, or AWOS is in operation and manual observations are accomplished either by "Approved Envoy or other personnel."
- G. Dispatchers using direct Pilot-to-Dispatcher radio-telephone patch communications.
- H. Radar weather advisory service communications procedures.
- I. All Flight Service Stations (FSS) having voice facilities on VORs or NDBs. FSS provide hourly weather reports and PIREPS upon request only.

2.6 Airborne Radar Usage

- A. In recognition of the present day limitations of ATC and airborne radar, it is our policy not to enter or depart terminal areas when such areas are blanketed by thunderstorms, except where known thunderstorm free areas exist and are followed. Airborne weather radar equipment and all available weather reports shall be utilized to make this determination.

- B. Airborne weather radar equipment shall be used on all flights as a means of detecting and circumnavigating turbulence and avoiding hail associated with storm areas. It is primarily an avoidance rather than a penetration tool.
- C. When thunderstorm activity is anticipated the Captain shall, after a thorough review of the weather reports and forecasts, plan his flight so as to avoid the storm areas or permit their circumnavigation with airborne and ground radar.
- D. Aircraft shall not be dispatched or flown when current or forecast weather reports indicate thunderstorms in the area or along the route to be flown unless the airborne weather radar equipment is in satisfactory operating condition, or the storms in the area are widely scattered and reports indicate that the tops may be circumnavigated visually or by direction of ground radar facilities.
- E. No approach will be continued, or departure initiated, when thunderstorms are located on the approach course or takeoff path of the aircraft, or over the airport of intended landing or takeoff.
- F. In the event of radar failure, the Captain shall notify Dispatch and ensure areas of thunderstorm activity can be navigated with safety and reasonable comfort to passengers.
- G. The airborne radar is not to be used as a terrain avoidance tool. However, it may be used in terrain mapping capacity to establish the relative position of the aircraft to high terrain, large bodies of water and other easily distinguishable ground features.

2.7 Radar Procedure

- A. The primary purpose of our airborne radar equipment is fixing the position of thunderstorm cells so that these areas of turbulence, and possible hail, may be avoided. In avoiding thunderstorm cells the following cell clearance rules shall be observed.
- B. When operating below 20,000 feet aircraft may be flown through an area where radar echoes indicate a weak rainfall gradient, if such action dictates that this is the best course to follow. Above 20,000 feet weak rainfall gradient areas should be avoided by 20 miles.
- C. Areas where echoes indicate a steep rainfall gradient should be avoided by 20 miles at all altitudes.
- D. Echoes that are rapidly changing in size, shape or intensity, and those having prominent scallops, hooks, fingers or other protrusions should be treated with concern and the above distance should be increased accordingly.
- E. Hail damage and turbulence can be expected anytime an aircraft is flown too close to thunderstorms. Observe the clearance criteria set forth in the previous paragraphs. The most characteristic hail "patterns" are hooks or scallops protruding from the main thunderstorm echo.
- F. Tornado identification is much less reliable but it is known that certain major tornadoes produce an echo. Other tornadoes will leave no characteristic echo for identification.
- G. When flying above echoes that are rapidly changing or those having prominent protrusions, maintain a minimum of 5,000 feet vertical separation.

G. **Mixed Ice**

Simultaneous appearance or a combination of rime and glaze/clear ice characteristics. Since the clarity, color and shape of the ice will be a mixture of rime and glaze characteristics, accurate identification of mixed ice from the cockpit may be difficult.

H. **Known or Observed or Detected Ice Accretion**

Actual ice observed visually to be on the aircraft by the flight crew or identified by on board sensors.

I. **Runback Ice**

Ice which forms from the freezing or refreezing of water leaving protected surfaces and running back to unprotected surfaces.

J. **Ice Crystals**

Ice crystals, often found in high concentrations near convective weather systems, can accrete within turbine engines and cause power loss. Ice crystals are not typically detected by either conventional ice detectors or airborne radar, and typically do not accrete on external airframe surfaces. Ice crystals found in stratus and cirrus clouds are usually in relatively low concentrations, and do not represent a threat to turbine engines.

K. **Freezing Drizzle**

Drizzle is precipitation at ground level or aloft in the form of liquid water drops that have diameters less than 0.5 mm and greater than 0.05 mm. Freezing drizzle is drizzle that exists at air temperatures less than 0 °C (supercooled), remains in liquid form, and freezes upon contact with objects on the surface or airborne.

L. **Freezing Rain**

Rain is precipitation at ground level or aloft in the form of liquid water drops which have diameters greater than 0.5 mm. Freezing rain is rain that exists at air temperatures less than 0 °C (supercooled), remains in liquid form, and freezes upon contact with objects on the ground or in the air.

| 6. **TURBULENCE**

6.1 **General**

- A. It is the policy of the company to suspend operations over a route or throughout an area, when necessary, to avoid subjecting passengers and equipment to unacceptable turbulence. The severity at which turbulence becomes unacceptable is difficult to define but, in general, it is turbulence sufficient to frighten passengers or to which exposure for more than a few minutes would make passengers uncomfortable or air sick. Safety and passenger comfort are our first two considerations; on time performance, third. Irrespective of the above listed guideline, flight operations shall not be conducted in areas of known turbulence of severe or extreme intensity.
- B. If, after the FASTEN SEATBELT sign has been turned OFF enroute, the crew becomes aware of turbulence reports along the planned route of flight, identifies suspicious radar indications or visually identifies atmospheric conditions along the planned route of flight which indicate the possibility of turbulence, the Captain should ensure the seatbelt sign is turned ON.

- C. Whenever turbulence of moderate or greater intensity is suspected, the Flight Attendant(s) will be instructed to be seated with their seatbelt fastened. This is especially true if the chime-signal has been previously given to the Flight Attendant(s), allowing them to leave their seats to begin their cabin service. In this event, the Captain should make a PA informing the passengers that the Flight Attendant(s) has been instructed to be seated due to anticipated turbulence. The format is described in Section 11.

6.2 Low Level Turbulence Causes

- A. Surface wind flow over an uneven surface (buildings, trees, terrain, etc.).
- B. Strong surface heating.
- C. Outflows from thunderstorms or heavy rain showers in the vicinity.
- D. Abrupt windshifts due to frontal systems or a temperature inversion.
- E. Wake turbulence behind other aircraft (see Wake Turbulence).

6.3 High Altitude Clear Air Turbulence Causes

- A. Windshear in the vicinity of upper level wind shifts.
- B. Abrupt temperature changes through upper level fronts.
- C. Waves formed in a strong wind flow downwind of high terrain or strong thunderstorms.
- D. The abrupt wind and/or temperature change near the Tropopause.

6.4 Turbulence Terms

A. Smooth

A condition of the atmosphere in which no bumpiness is experienced.

B. Light Chop

A condition of the atmosphere in which there occurs some slight, rapid, rhythmic bumpiness without appreciable changes in altitude or attitude.

C. Light Turbulence

A condition of the atmosphere in which there occurs bumpiness accompanied by slight erratic changes in altitude and/or attitude (pitch, roll, yaw). In a condition of light chop or light turbulence, occupants may feel a slight strain against seatbelts or shoulder straps. Unsecured objects may move slightly. Food service may be conducted. Little to no difficulty is encountered in walking.

D. Moderate Chop

A condition of the atmosphere similar to light chop but of greater intensity. There are rapid bumps and jolts without appreciable changes in altitude or attitude.

E. Moderate Turbulence

A condition of the atmosphere similar to light turbulence but of greater intensity. Altitude and attitude changes occur. Indicated air speed fluctuates. Positive control of the aircraft is maintainable at all time. In a condition of moderate chop or moderate turbulence, occupants feel a definite strain against seatbelts or shoulder straps. Unsecured objects move. Food service and walking is difficult.

F. Severe Turbulence

A condition of the atmosphere in which large and abrupt changes in altitude and attitude occur. Indicated airspeed fluctuates over a large range. Momentary loss of control may be experienced. Occupants are violently forced against seatbelts and shoulder straps. Unsecured objects are tossed about. Food service and walking are not possible. A PIREP and a radio call to MOC are required. In accordance with the aircraft maintenance recommendations, an AML entry should only be made if all of the above conditions are actually encountered.

G. **Extreme Turbulence**

A condition of the atmosphere in which the aircraft is tossed about violently and is practically impossible to control. Structural damage may occur. A Pirep and a radio report to MOC are required plus an AML entry to ensure completion of required maintenance inspection.

6.5 Duration of Turbulence Terms

A. **Occasional Chop or Turbulence**

Occurs less than 1/3 of the reported segment time.

B. **Intermittent Chop or Turbulence**

Occurs from 1/3 to 2/3 of the reported segment time.

C. **Continuous Chop or Turbulence**

Occurs more than 2/3 of the reported segment time.

6.6 Distinction – Chop and Turbulence

A. **Chop**

Used for those conditions where very little to no change in altitude and/or attitude occurs. Chop is restricted to use in reference to light or moderate intensity.

B. **Turbulence**

Used for conditions where appreciable amounts of pitch, roll or yaw are present.

6.7 Turbulent Air Penetration

- A. Flight through known severe turbulence should be avoided. When unavoidable, observe the recommended target airspeed for turbulence penetration. These speeds allow greater latitude of speed reduction while providing the required maneuvering and structural limit margins.

CAUTION

When turbulence is encountered: if light, intermittent or continuous, turn on FASTEN SEATBELT sign and make a PA advising passengers of light turbulence and requesting they fasten their seatbelts.

If other than light, advise Flight Attendants, if applicable, to check seatbelts and then be seated themselves. Turn on FASTEN SEATBELT and NO SMOKING signs. Make a PA advising passengers of rough air and requesting they fasten their seatbelts snugly.

- B. The recommended technique for flight in turbulence is as follows:

- 1) When entering an area of known turbulence, secure all loose equipment. Shoulder harnesses will be worn.
- 2) The autopilot, if so equipped, should be used in light or moderate turbulence.
- 3) Once power is set to maintain desired airspeed, avoid further power changes.
- 4) Select continuous ignition during turbulence or heavy precipitation, if specified in the aircraft specific AOM Volume 1. This will reduce the possibility of flame out due to engine instability.
- 5) Hold the wings level and the desired pitch attitude. In extreme drafts, large attitude changes may occur. Do not use sudden or large control inputs; instead, use moderate inputs to resist changes in attitude. Maintain pitch attitude with elevator. After establishing the trim setting for penetration speed, do not change stabilizer trim.
- 6) Severe gusts or drafts will cause large and often rapid variations in IAS. Do not “chase” airspeed in an attempt to hold recommended speed.
- 7) Large altitude variations are possible in severe gusts or drafts, but do not “chase” altitude.

- 8) Whenever possible, advise the Flight Attendant (First Flight Attendant on the CRJ-700 and ERJ-175) before or shortly after takeoff of anticipated enroute turbulence for planning their activities accordingly.

6.8 PIREPS Relating to Turbulence

When encountering turbulence, pilots are urgently requested to report such conditions to ATC and SOC as soon as practical. PIREPS relating to turbulence should state the aircraft type, location, altitude/flight level, duration of turbulence, whether occurring in or out of clouds, and the descriptive terms found in this Section, as to intensity of the turbulence.

6.9 Flight Attendant Terminology and Action Chart

Condition	Action	Further Action
Smooth		
A condition of the atmosphere in which no bumpiness is experienced.	All Flight Attendant duties may be conducted.	Captain may choose to turn off the Fasten Seatbelt sign, allowing customers to move about the cabin.
Light Turbulence		
Bumpiness accompanied by slight erratic changes in altitude. Occupants may feel a slight strain against seatbelts and/or shoulder straps. Unsecured objects may move about slightly. Little or no difficulty is encountered in walking.	Flight crew will turn on the Fasten Seatbelt sign. Flight Attendant will make Fasten Seatbelt PA and conduct compliance and cabin safety checks. Ensure lap children are being held by their guardian or secured in a child restraint.	Flight Attendant duties may be conducted. Ensure carts and galley equipment not in use are properly secured. Fasten Seatbelt sign will remain illuminated until the area of turbulence has passed.
Moderate Turbulence		
Greater intensity than light turbulence. Altitude and attitude changes occur. Occupants feel a definite strain against seatbelts and/or shoulder straps. Unsecured objects move. Food service and walking is difficult.	Flight crew will turn on Fasten Seatbelt sign and make PA instructing Flight Attendant(s) and customers to be seated and fasten seatbelts. If turbulence is <i>anticipated</i> , discontinue food service and stow carts in galley cart compartments. Time and conditions permitting, conduct compliance and cabin safety checks. If <i>unanticipated</i> , time and conditions permitting, wedge cart at an angle against the seatbacks and armrests then strap into your jumpseat or nearest customer seat.	Flight Attendant(s) must remain seated until advised by the flight crew that duties may be resumed. Visually monitor cabin from seated position to ensure customers remain seated with seatbelt fastened. If necessary, repeat PA instructing customers to remain seated. Once released to continue duties, verify there are no injuries. Assist customers as needed, i.e., illness or spills.
Severe Turbulence		
Large and abrupt change in altitude and attitude occur. Occupants are forced violently against seatbelts and shoulder straps. Unsecured objects are tossed about. Food service and walking are not possible.	Flight crew will make a PA instructing Flight Attendant(s) and customers to be seated immediately and fasten seatbelts. If turbulence is <i>anticipated</i> , discontinue food service, stowing carts in galley cart compartments. Conditions and time permitting, conduct compliance and cabin safety checks. If <i>unanticipated</i> and conditions permit, wedge cart at an angle against the seatbacks and armrests. Immediately strap into your jumpseat or nearest customer seat.	Flight Attendant(s) must remain seated until advised by the flight crew that duties may be resumed. Once released to continue duties, verify there are no injuries. Reassure and assist customers as needed, i.e., illness or spills. Immediately inform the flight crew of any injuries or damage to the aircraft.

7. THUNDERSTORMS

7.1 General

- A. Do not enter or depart terminal areas when such areas are blanketed by thunderstorms except where known thunderstorm-free routes exist and are followed. Airborne radar and all available weather reports will be used to make this determination.
- B. When thunderstorm activity is anticipated, the Dispatcher and Captain will, after a thorough review of the weather reports and forecasts, plan a flight so as to avoid broken or solid thunderstorm areas or permit their circumnavigation with airborne and ground radar.
- C. Aircraft will not be dispatched or flown when current or forecast weather reports indicate thunderstorms in the area or along the route unless the airborne weather radar equipment is in satisfactory operating condition, or the storms in the area are widely scattered and reports indicate that the tops may be circumnavigated visually.
- D. In the event of radar failure, the responsibility and authority rests with the Captain to determine that a thunderstorm area can be navigated with safety and reasonable comfort to passengers.
- E. The airborne radar is not to be used as a terrain avoidance tool.
- F. Hail competes with turbulence as the greatest thunderstorm hazard to aircraft. Hail has been observed in clear air several miles from the parent thunderstorm. Hail should be anticipated with any thunderstorm. Therefore, avoid any thunderstorm identified as severe or giving intense radar echos by at least 20 NM. This is especially true under the anvil of a large cumulonimbus cloud.

7.2 Tornado Identification

Tornado Identification is much less reliable but it is known that certain major tornadoes produce an echo. Other tornadoes will leave no characteristic echo for identification.

7.3 Reporting Bases and Tops

In reporting enroute weather, pilots shall report height of cloud bases and tops in altitude above sea level. In the immediate vicinity of airports, height of cloud bases should be reported in altitude above the airport.

8. WINDSHEAR

8.1 Windshear

- A. The following information is divided into two sections. The first deals with the background information regarding conditions and hazards associated with windshear. The second portion defines the specific company policy regarding certain type of windshear or potential windshear conditions. It must be understood that the policies outlined are conditions where the specified action is REQUIRED. Anytime a crew has concerns regarding the safety of a takeoff or landing, they must act on those concerns by going around, missing the approach, rejecting the takeoff, or delaying the takeoff.
- B. Flight crew actions regarding windshear are divided into four areas:
 - Avoidance
 - Prevention
 - Recognition
 - Escape

E. !ENA BGQ RWY 6/24 5 IN SIR WEF 0710131910

- 1) Big Lake's runway 6/24 is covered with 5 inches of packed or compacted snow and ice.

12. MOUNTAIN FLYING

12.1 General

CAUTION

When flying in areas of mountainous terrain, significant updrafts and downdrafts may occur under certain conditions as described below. These areas should be avoided if possible.

- A. The following information should be used while flying in areas of mountainous terrain. It is important to always remain vigilant of the surrounding conditions while flying in these areas. Weather can change very rapidly and without warning. Flight crews should always use caution when flying in mountainous areas when high winds are present. Mountains funnel the wind into passes and valleys thus increasing wind speed and intensifying turbulence.
- B. Turbulence can vary greatly, especially through mountain valleys. Wind at mountain top level in excess of 25 knots suggests some turbulence may exist. Winds in excess of 40 knots across a mountain barrier could indicate higher levels of turbulence and flight crews should exercise caution.
- C. Frequent wind shifts due to the terrain should also be expected.
- D. Mountain Wave Activity
 - 1) Mountain wave activity often occurs when a layer of stable air exists in between areas of low atmospheric stability. The following conditions are a good indication of the presence of a stable air mass:
 - a) Stratified clouds on the windward side of the mountain range
 - b) Inversion layers at or around 15,000 feet
 - 2) In these conditions, the atmosphere creates a cap which acts as a barrier to rising air. As wind flows across the barrier, it will tend to flow in layers. These layers may produce waves similar to how waves form on a disturbed water surface.
 - 3) The waves will remain stationary while the wind blows rapidly through them. When the air contains sufficient moisture, stratified clouds may form on the windward side of the mountain ridge and lens shaped standing lenticular clouds may form at the crests of the wave on the leeward side of the range.
 - 4) Lenticular clouds form in the updraft and dissipate in the downdraft. Therefore, these clouds do not move as the wind blows through them.
 - 5) Rotor clouds may also form due to the upward and downward circulation of the air below the wave crests.
 - 6) The presence of standing lenticular and rotor clouds are a strong indication of mountain wave activity. As a result, turbulence many miles on the leeward side of the mountain should be expected.
 - 7) Always anticipate possible mountain wave turbulence when strong winds of 40 knots or greater blow across a mountain ridge and the air is stable.
 - 8) Significant downdrafts in close proximity to the mountain may also occur as air spills down the leeward slope of the mountain.

disturbance caused by a person who appears to be intoxicated on board any of its aircraft.

- D. No air carrier shall serve any alcoholic beverage to any person on board an aircraft if such person appears to be intoxicated.

NOTE

Crewmembers may rely on the appearance of the passenger in determining whether or not to serve alcoholic beverage. This regulation does not require airline crewmembers to physically restrain a passenger who wishes to consume drinks that are not served on board the aircraft. Crewmembers will be required to take direct action only when it is necessary for the safety of the flight.

- E. The following shall not be served alcoholic beverages on board any aircraft:
 - 1) Law enforcement personnel having a person in custody.
 - 2) Any person in the custody of law enforcement personnel.
 - 3) Any person who is authorized to have a deadly or dangerous weapon accessible.

4. CARRY-ON BAGGAGE PROGRAM (Ops Spec A011)

4.1 Envoy Airlines Policy Statement

- A. Passengers traveling on the EMB-145 and the CRJ-700 will be limited to one carry-on bag, that must be valet checked, and two personal items. Passengers traveling on the ERJ-175 will be limited to one carry-on and one personal item. All items brought on board must be safely secured in an overhead bin, under seat stowage area, or approved stowage compartment.

4.2 Definition of Carry-On Baggage

- A. A carry-on bag is an item that may be brought on board based on the aircraft type. Passengers will be limited to one carry-on bag that cannot exceed 45 linear inches (length + width + height). There are two exceptions to the size limitations.
 - 1) Musical Instruments
 - a) May exceed the 45 inch limitation provided they can be safely secured in an approved location. Passengers may also purchase a seat for an oversized musical instrument, provided it meets all of the requirements of a "Seat Loaded Item" as defined in this chapter.
 - 2) Garment Bags
 - a) A soft sided garment bag may be taken on the aircraft in place of a carry-on bag, provided it can be safely secured in an approved stowage location.

4.3 Definition of a Personal Item

- A. Personal items must be smaller than the carry-on item. These items include but are not limited to:
 - 1) Handbag (pocketbook or purse)
 - 2) Briefcase
 - 3) Laptop computer and case
 - 4) Camera and case
 - 5) Small tote bag
 - 6) Shoulder bag
 - 7) Small backpack
 - 8) Book bag
 - 9) Pilot's navigational bag
 - 10) Pet carriers
 - 11) Musical Instrument that must be safely secured

- 12) Other personal item of similar size
- B. Proper Stowage of Personal Items in the Cabin
 - 1) The Flight Attendants are responsible for ensuring the proper stowage of all personal items in the cabin. Personal items that cannot be properly stowed will be processed as a checked or valet checked baggage based on aircraft type.
 - 2) Envoy will continue to use size as an indicator of weight and will adhere to placard weight limits, and Flight Attendants will observe the loading of compartments to identify particularly heavy items.
 - 3) Overhead compartments must have items stowed to permit easy closing of the compartment door. Removal of items to other areas or re-stowage within the compartment may be necessary, and must be completed prior to closure of the aircraft door.
 - 4) Personal items may not be stowed in a manner which interferes with crew access to emergency equipment. Flight Attendants will ensure that emergency equipment access is unrestricted prior to closing the aircraft passenger door and that nothing is placed in front of or directly on top of emergency equipment.
 - 5) Front row seats have no stowage in front of them. When needed, the Flight Attendant will assist passengers in finding suitable stowage when there is not forward underseat stowage. The Flight Attendant shall also ensure that caution is used upon opening of the compartments. This will be facilitated with PA announcements made by the Flight Attendant.
 - 6) No personal items or articles of clothing will be stowed in any emergency equipment storage space or lavatory. When necessary, the Flight Attendant will find an approved storage location in the cabin for these items.

C. Child Restraints

- 1) Child restraint devices used to seat a child during a flight cannot be used in an aisle seat, in a designated exit row, or in a row forward or aft of a designated exit row. The restraint device must be left behind during any emergency evacuation. The child restraint must be FAA approved. Booster seats are not included.
- 2) Passengers may bring non-FAA certified child restraints on board the aircraft, provided they hold the infant during takeoff, landing and during turbulence.
- 3) Parents are primarily responsible for ensuring the child restraint is of an approved type, the child is the right size and weight for the device, the child is properly restrained, and the child restraint is properly installed. The parent is additionally responsible for ensuring that the child restraint is free of any obvious defects and functions properly.
- 4) The Flight Attendant is limited to checking with the child's parent (guardian) to ensure that all conditions specified (above) have been met.

4.4 Crewmember Baggage

- A. Crewmembers assigned to the flight are excluded from the carry-on baggage limits, but must stow bags in approved locations. Other uniformed crewmembers may carry any equipment or articles normally required for the performance of their duties plus the standard passenger carry-on allowance. All bags must be stowed in approved stowage locations.

4.5 Law Enforcement Officers

- A. In accordance with 49 CFR 1544.223, Federal Air Marshals (FAMs) are excluded from the carry-on baggage limits. These individuals may carry equipment or articles normally required for the performance of their duties, plus the standard passenger carry-on allowance.

In addition, all Law Enforcement Officers (LEOs), including Federal Flight Deck Officers (FFDOs) and the United States Secret Service (USSS) are exempt from the carry-on baggage limits. This includes officers that are deadheading or traveling non-revenue. For procedures see F*PSM/ARMED and F*PSM/FFDO.

4.6 Approved Stowage Locations

- A. Carry-on baggage and all personal items (excluding hand-held Portable Electronic Devices) will be safely secured in either the overhead bin, under seat stowage area, or in an approved stowage compartment.

4.7 Carry-On Baggage Procedures

- A. Compliance with existing CFR
- 1) Envoy's Carry-On Baggage Program is in compliance with existing CFR.
- B. Assistive Devices
- 1) Crutches, walking sticks, canes and flexible travel canes carried by the visually impaired may be brought on board provided they are:
 - a) Under any series of connected passenger seats in the same row, if the cane does not protrude into an aisle and if the cane is flat on the floor.
 - b) On the floor between a non-emergency exit window seat adjacent to the fuselage.
 - c) Beneath any two non-emergency exist window seats. Storage of assistive devices should be as close to the passenger as possible for use in-flight.
 - 2) For assistive devices procedures see F*PSM/ASSISTIVE/DEVICES.

can be identified with an individual pilot. No record of a pilot's ASAP participation is kept in his or her personnel file. In all cases, the recommendations of the ERC will reflect a desire to solve problems rather than take a punitive approach to the reporting pilot. If a pilot's ASAP report is the sole source of information to Envoy regarding the event, no Company disciplinary action shall be taken.

- B. Envoy Pilots access the IFQASys website by directly typing in the URL www.aesafety.com.
- C. Employees will use their employee number as user name and the last four digits of their social security number as their initial password. Passwords can be changed after logging in. If an employee has a problem logging into the system they should contact the Flight Safety Department for corrective action.
- D. De-identified reports may be released by the ERC to facilitate corrective action and increase pilot safety awareness. If corrective action involves additional pilot training to proficiency, it may be necessary to contact an individual's Chief Pilot or Flight Training to coordinate training for pay and scheduling. Such notification is contingent upon the pilot's voluntary participation in complying with the ERT's recommendations. Otherwise, no disclosure outside of ASAP is made.

2.2 ASAP MOU

For a copy of the complete update ASAP MOU, visit the ASAP - Flight page on the Flight Safety Page of my.envoyair.com.

3. DISPATCH

3.1 Reports to Dispatch

- A. Whenever the Captain encounters a meteorological condition or an irregularity in a ground or navigational facility, in-flight, the knowledge of which he considers essential to the safety of other flights, the Captain shall notify an appropriate ground station as soon as practicable.
- B. The ground station that is notified under paragraph A shall report the information to the agency directly responsible for operating the facility.
- C. The following events should be reported as soon as possible, by radio, to Dispatch:
 - 1) Encounters of moderate or severe turbulence.
 - 2) Encounters of severe icing.
 - 3) Engine failure or shutdown.
 - 4) Overweight landing.
 - 5) Flight through volcanic ash.
 - 6) HAZMAT emergency.
- D. The following events should be reported as soon as practical to Dispatch:
 - 1) Exercise of emergency authority.
 - 2) Bird strike.
 - 3) Deviation from FAA or Envoy Procedures.
 - 4) Fuel dumping.
 - 5) Ill or injured passenger or crewmember.
 - 6) Passenger misconduct or smoking violation.
 - 7) Lightning Strike or Static Discharge.
 - 8) Near midair collision.