出國報告(出國類別：實習)

參加美國聯邦航空總署麥克蒙洛尼航空中心飛航服務品質保證課程出國報告

服務機關：民用航空局飛航服務總台

姓名職稱：余安生 / 近場臺長

李宜澄 / 班務督導

派赴國家：美國

出國期間：94 年 8 月 2 日至 8 月 12 日

報告日期：94 年 09 月 24 日

系統識別號 C09403530

公務出國報告提要

頁數：193　　含附件：□是☑否

報告名稱：參加美國聯邦航空總署麥克蒙洛尼航空中心「飛航服務品質保證」課程出國報告

主辦機關：交通部民用航空局

聯絡人/電話：陳碧雲/（02）2349-6197

出國人員：余安生/民用航空局飛航服務總臺/台中近場管制臺/臺長/04-2615-0702
李宜澄/民用航空局飛航服務總臺/台東近場管制塔臺/班務督導/089-362-577

出國類別：□1 考察□2 進修□3 研究☑4 實習□5 其他

出國地區：美國-奧克拉荷馬市

出國期間：94 年 8 月 2 日至 94 年 8 月 12 日

報告日期：94 年 09 月 24 日

分類號/目：H2/航空

關鍵詞：飛航服務（ATS）、品質保證（QA）、50052（課程編號）

內容摘要：這是一個以ICAO-CAR/SAM Regional Guidance Material On Air Traffic Services Quality Assurance Programes和FAA-7610.56c爲法源依據所開發出來的課程。內容是：如何去建立飛航服務單位的品質計劃和保持飛航服務單位的服務品質以及如何去執行飛航事故/飛航事件的通報和執行調查、及如何對飛航服務單位執行各種評估等。但不同於編號50314同名爲「飛航服務品質保證」課程的是，本課程已將原來飛航事故/飛航事件資料備製的細節部分獨立出去另外成立爲一專門課程，再將品質保證部份包括教學方向和內容等全面加以檢討、重編過。

本文電子檔已上傳至出國報告資訊網

目　　錄

壹、目的

此行的目的在於藉由吸收各種研發資源都充分的國家所開發出來的完整知識與結構,學習如何本著 ICAO 和 FAA 法規內容下,去評估一個飛航管制單位、製作飛航事故/飛航事件的資料表格、以及去執行所謂的操作失誤/違規之調查、報告等工作或計劃之知識，以謀求改善國內應可如何本著 ICAO 和 CAA 法規基礎下對飛航服務單位執行有效品質保證之辦法。

貳、過程

九十四年八月一日：

本地時間下午16:40自中正機場啓程，搭乘中華航空公司006班機開始赴美行程，於北美時間下午14:05抵達洛杉磯機場，並調整時區時間調後十三個小時；北美時間下午16:50自洛杉磯搭乘Delta航空公司8135班機轉附鹽湖城，並調整時區時間提前一個小時；北美時間下午20:25再自鹽湖城轉搭Delta航空公司4769班機前往奧克拉荷馬市，再調整時區時間提前一個小時;於北美時間下午23:40時抵達奧克拉荷馬市，再轉往旅館。

2005年08月02日；

本日蓄意留空以調整時差和備便所需用品，僅至附近WAL-Mart轉了一圈，並無課程。

2005年08月03日：

上午07:29自旅館出發至MMAC，於0745到達校園入口，開始驗證身份和集合；於08:10到達教室收聽簡報並開始校園重點環境認識和拍攝通行證件；於10:00開始正式受課。

課程是由相互認識之自我介紹開始，然後是第一章的品質保證簡介，介紹品質保證工作目前的概況和本次課程的課目綱要。下午的課目則是第二章的名詞定義，介紹在品質保證工作領域中各種用語的內定涵義。於下午16:30放學， 16:47返抵旅館繼續調整時差。

2005年08月04日：

一樣是07:29自旅館出發。今日上午的課目是第三章的建立自己的品質計劃，簡單說明建立一個品質計劃所應該要包括的項目和內容。下午的課目是第四章的飛航服務改進計劃之品質，對實作面主要的幾個項目作進一步的說明。一樣是16:45返回旅館，然後出去吃晚飯。

2005年08月05日：

今日的課目是第五章的飛航事件防範計劃;主要是對飛航服務爲預防飛航事件發生所可以採取的預防性作爲作系統性和重點單項的說明，包括防範跑道入侵在內。上、下午都是同一個課目。

2005年08月06日~07日：

這兩日是週末假日並無課程,唯一與學校有關的是校方通知該校 Friedly family program 成員之一的 Mr. & Mrs. Crooks 來接待我們這一組來自台灣的學員，所以去了一趟 Cowboy Musium 然後到 Break Town 逛了一下。而之所以是到 Break Town 而不是到 Down Town 的原因，是因爲Mr. Crooks 說 Down Town 實際上是辦公金融區，假日裏空蕩蕩的沒幾個人，Break Town 才是真正的西門町，所以就去了。

2005年08月08日：

今日的課目是第六章的飛航事件的通報、調查和編組。對一旦發生飛航事件時，在實作面上的通報作業流程、調查過程和負責調查人員的編組和構成作系統性的講解和試作。由於課目較冗長，上、下午都是同一個課目。

2005年08月09日：

今日的課目是第七章的評鑑，介紹ICAO-CAR/SAM內容並舉FAA現有的評鑑系統和作業方式爲例，解說如何去評鑑一個單位或個人。由於課目冗長，今日只講了三分之二剩下的明天再繼續。

2005年08月10日：

承昨天第七章沒講完的部份今天繼續講到完，並於北美時間下午16:30結束整個課程。

2005年08月11日：

開始按原路線進行反方向的歸國行程；於北美時間上午08:53搭乘Delta航空公司4762班機前往鹽湖城，並調整時區時間；再於11:15搭乘Delta航空公司1513班機前往洛杉磯機場，再調一次時區時間；於北美時間下午15:55搭乘華航005班機開始返臺。並於民國九十四年八月十二日本地時間 下午20:10返抵國門，再調一次時區時間。

除開旅途和休假日所消耗時間，本次受訓實際上課時間總計爲六天共四十八小時。

參、課程內容

(接下頁)

第 一 章 品質保證簡介(QA Introduction）：

1. 致歡迎詞(Welcome to the International Training Division)

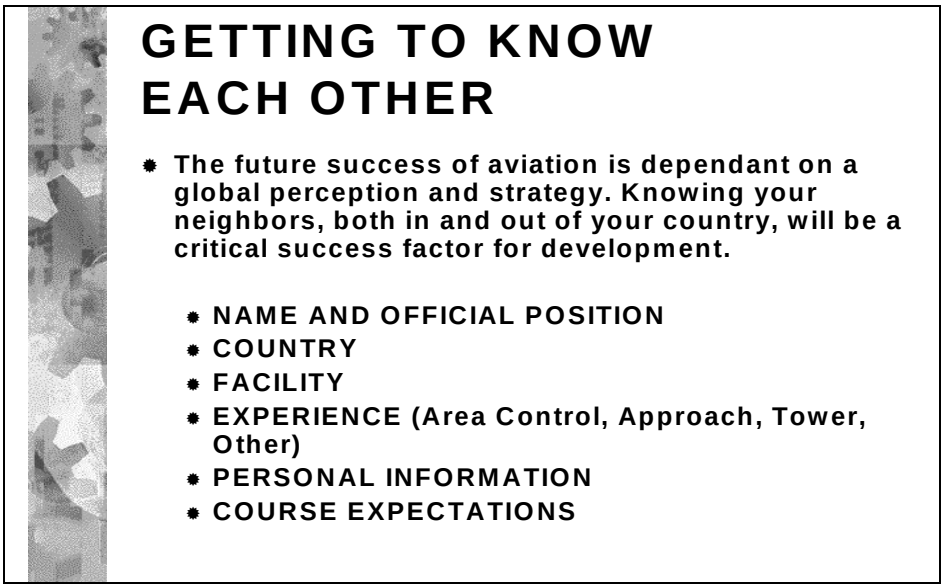
Introduction

Welcome to the International Training Division presentation of Air Traffic Quality Assurance Specialist for International Participants.

⊙開課之初由主任教官Doug. Adresen.致歡迎詞，歡迎所有與課學員能滿載而歸並有一個美好的旅美經驗。

2. 認互相識(Getting to know eachother)

Personal Intro



⊙之後由代理教官Patric. Mayo.和助理教官Anita. R. Englemann.開始依序作自我介紹。與課的同學共有七位：

-Azure. Li.

來自台灣。服務於台東近場管制塔臺，職務爲班務督導。

-Ansen. Yu

來自台灣。服務於台中近場管制臺，職務爲臺長。

-Efrain. Castro. M.

來自宏都拉斯。服務於COCESNA管制中心，職務爲班務督導。自由愛好者，人很性格，理著一個大光頭。

-Cesar. Turcios. Valiente.

來自宏都拉斯。服務於COCESNA管制中心，職務爲班務督導。英語講的很好，顯然聰明又有效率。

-Jesus. Rodriguez.

來自宏都拉斯。服務於COCESNA管制中心，職務爲班務督導。與耶穌同名，虔誠的天主教徒，不抽煙、不喝酒，愛說笑。

- Myriam. E. Rodriguez.

來自宏都拉斯。服務於COCESNA管制中心，職務爲班務督導。班上唯一的女生，性情中庸，較少發言。

- Englebert. Zoa. Etundi.

來自喀麥隆。服務於該國民用航空局，職務爲高級專員和查核員。受過無數訓練，包括SMS在內。通法語，所用的電腦就是法文版的。名字裏的〝Zoa〞是喀麥隆語大象的意思。

3. 品質保證主旨(Purpose)

Purpose

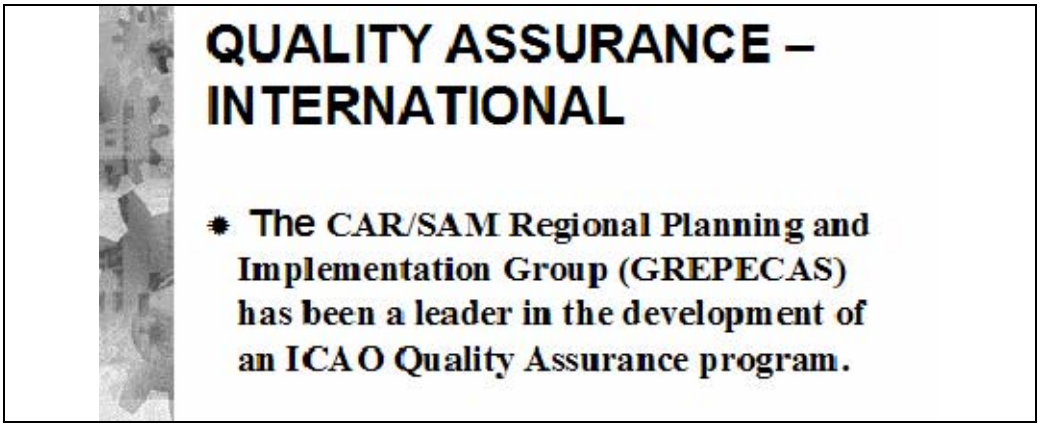
⊙QA(Quality Assurance)是一種用來持續改善飛航服務系統的機制，而不是用來懲罰過失的機制。

⊙雖然服務的品質會持續的以諸如：ATS事故數目、航情延誤、從業人員和服務對象的反應等歷史數據的比對來加以衡量。但是仍存在有無法以數據化來加以衡量的因素，也應該加以承認。

⊙以團隊方式作業的意願、訓練、支援飛航服務零事故目標的具體行動等，都是QA的因素。

4.品質保證工作概況(Overview)

Overview



⊙ QA系統的組建業已完成。而一些非正式群組，像：GREPECAS、CAR/SAM、RAN的議會以及一些國際性組織、航空公司們，也都把注意力集中到飛航服務事件問題方面來。這也證實了導入飛航服務品質保證計劃的迫切性。

⊙飛航服務品質保證計劃能同時把〝安全〞推到當遂行迅速、有序航流作業時的最前緣。

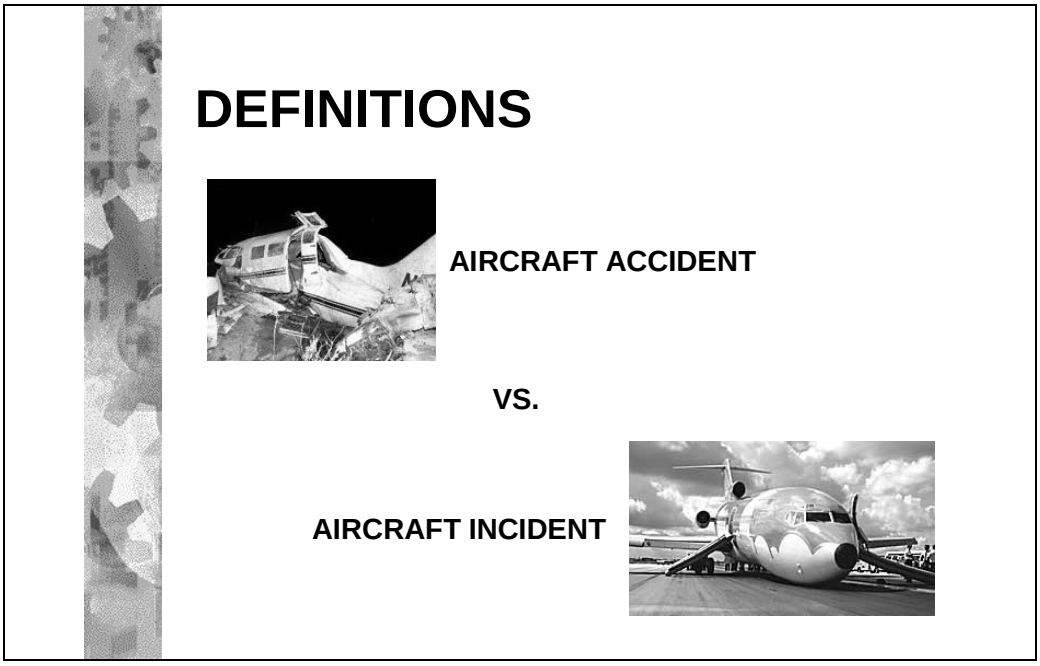
4. 課目綱要(Course objectives)

Course Objectives

⊙ 簡介
⊙ 名詞定義
⊙ 建立自己的品質保證計劃
⊙ 飛航服務改進計劃之品質
⊙ 飛航事件防範計劃
⊙ 飛航事故通報、調查和編組
⊙ 評鑑

第 二 章 名詞定義（Definitions）：

Gain Attention



⊙ 清楚的了解在QA流程中所使用的術語和其定義，有助於確保來源資料的準確性和可靠性。
⊙ 就一個QA專門人員而言，知道〝事故〞與〝事件〞技術性定義上的差別是件最重要的事。

1.事故(Accident)

Accident

⊙自任何人員因飛航目的登上航空器起至所有人員離開該航空器止，在航空器運作過程中所發生之下列狀況：
a.有人員因下列原因而導致重大傷害或死亡者：
- 因處於航空器內之故。

- 因直接接觸到航空器之任一部分，包括自航空器脫落的零組件之故。
- 因直接暴露於噴射氣流下之故。

除非：

-該傷害乃導致於自然因素、自我傷害或他人之傷害、偷渡性藏匿於通常乘客或機組員所不至之處。

b. 航空器有實質毀損或結構性失效，且：

- 相對的影響結構強度、航空器性能或飛航特性；且通常會需要重大修繕或更換相關零組件。

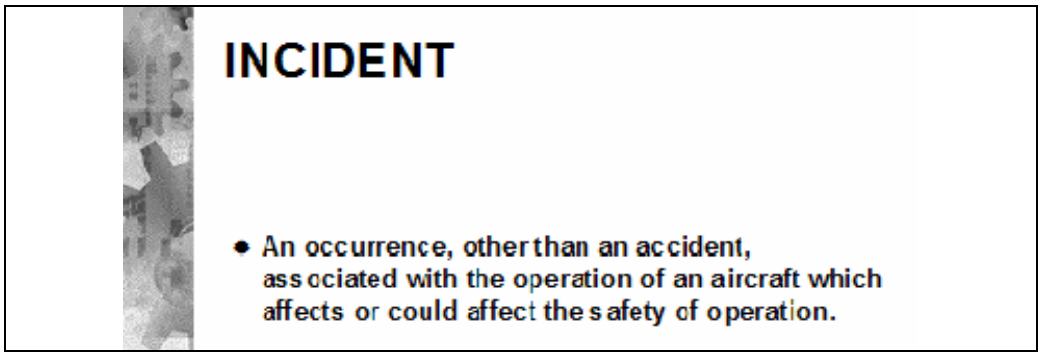
除非：

-僅止於引擎失效或僅止於引擎、引擎罩或附件之毀損；或僅爲螺旋槳、機翼、翼尖、天線、輪胎、剎車、Fairings、蒙皮輕微的凹陷或穿孔。

⊙ 航空器失蹤或完全無法觸及。

2.事件(Incident)

Incident



⊙在航空器運作過程中所發生已影響或會影響操作安全之非〝事故〞狀況。

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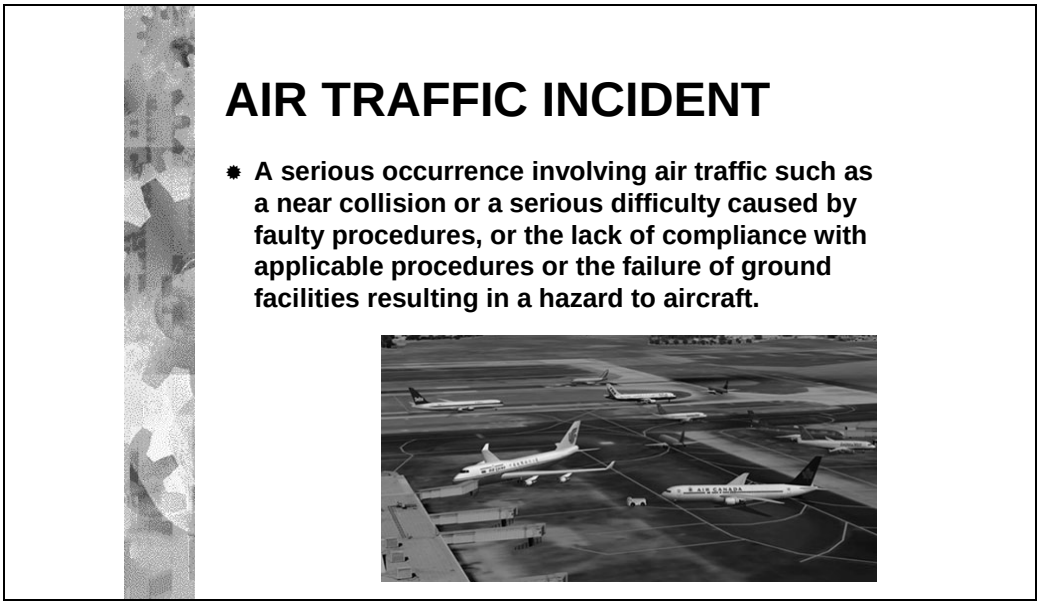
3.飛航事件(Air Traffic Incident)

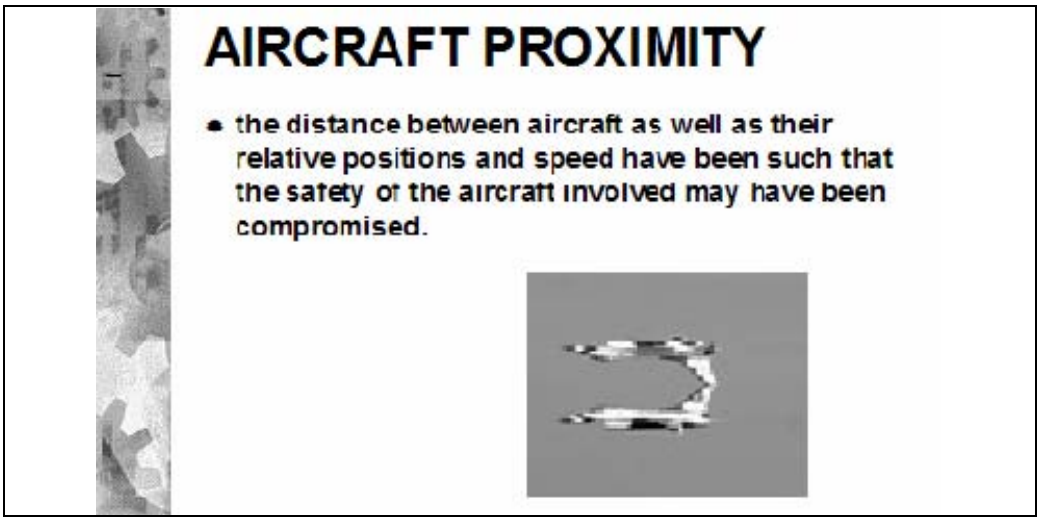
Air Traffic Incident



- ⊙ 在ICAO Doc.9156- Appendex7中載明之〝事件〞種類。
- ⊙ 各會員國並無對〝事件〞加以調查之義務。
- ⊙ 若會員國發生具有加以調查之重要性之〝事件〞，則應作成事件報告。
- ⊙ ICAO Annex13第6~9節建議，對超過5,700公斤級以上之航空器所作之〝事件〞調查，若發現有其它會員國會有興趣想知道的狀況，予以通報。

4.接近(Aircraft Proximity)

Aircraft Proximity



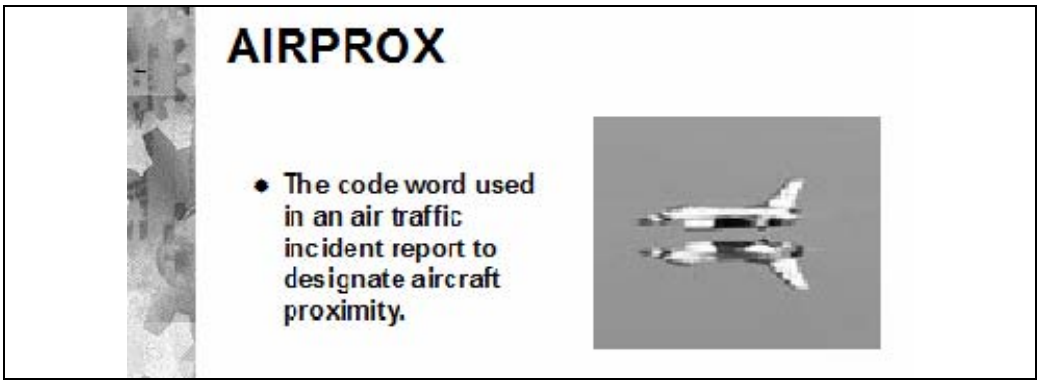
⊙在駕駛員或ATS從業人員眼中看去，兩架航機間的距離以及其相對的位置、速度，已然失去了所謂的〝安全〞之狀況。可分爲下列四類：

- *有撞機風險(Risk of collision)*：有嚴重之撞機風險存在。

- *未確保安全(Safety not assured)*：航機的安全可能被打折了。
- *無撞機風險(No risk of collision)*：無撞機之風險存在。
- *無法判定風險(Risk not determined)*：無足夠資訊以判定相關風險，或只剩結局性證據可考或各種證據自相牴觸以致無法判定。

5.空中接近(AIRPROX)-*(全部大寫)*

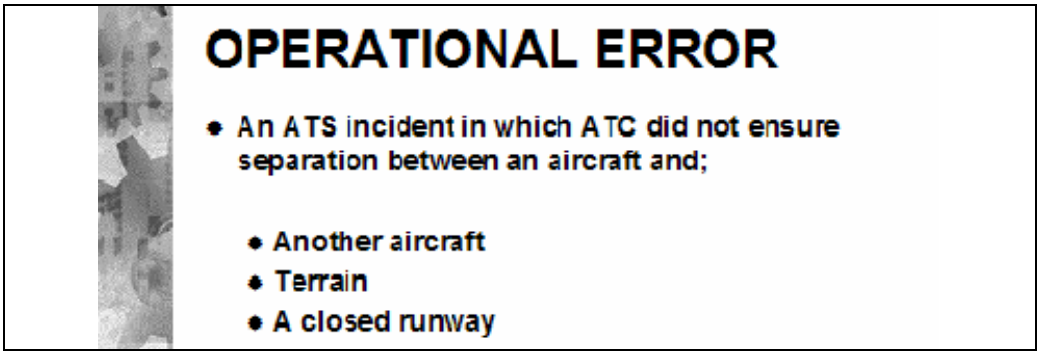
AIRPROX



⊙ 在飛航事件報告中用以指稱〝空中接近〞之專用字樣。

6.作業疏失(Operational Error)

Operational Error



⊙因ATC未確保隔離導致下列狀況發生之飛航服務事件：
-兩架或以上之航機間未達到最低標準隔離。
-航機與地障、障礙物間未達到最低標準隔離。
-許可航機在關閉的跑道上起、降。

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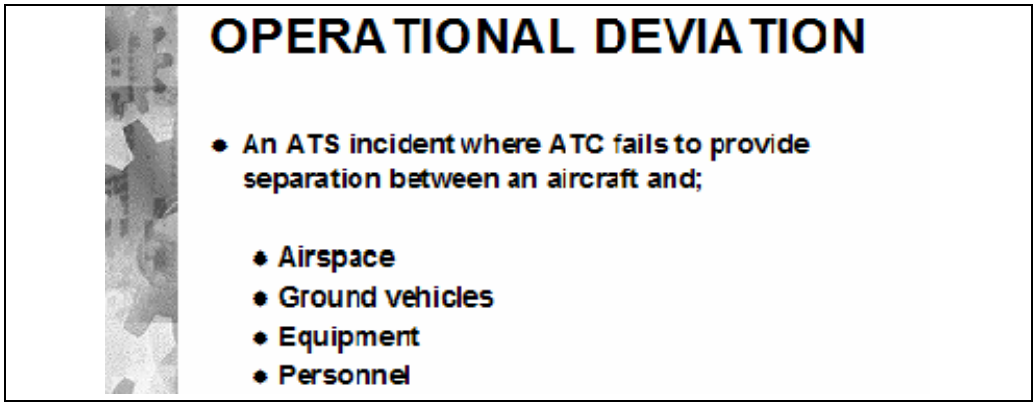
7.作業違規(Operational Deviation)

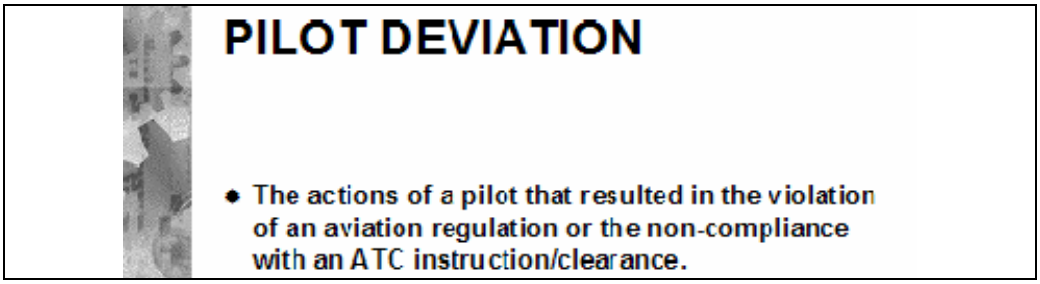
Operational Deviation



⊙因ATC未確保隔離導致下列狀況發生之飛航服務事件：
-未經同意而未與臨區空域間保持最低標準隔離。
-未經事先協調同意而令航機穿越它人管區空域。
-未經事先協調同意而許可人員、車輛或裝備進入它人管區之起降地帶。

8.駕駛員違規(Pilot Deviation)

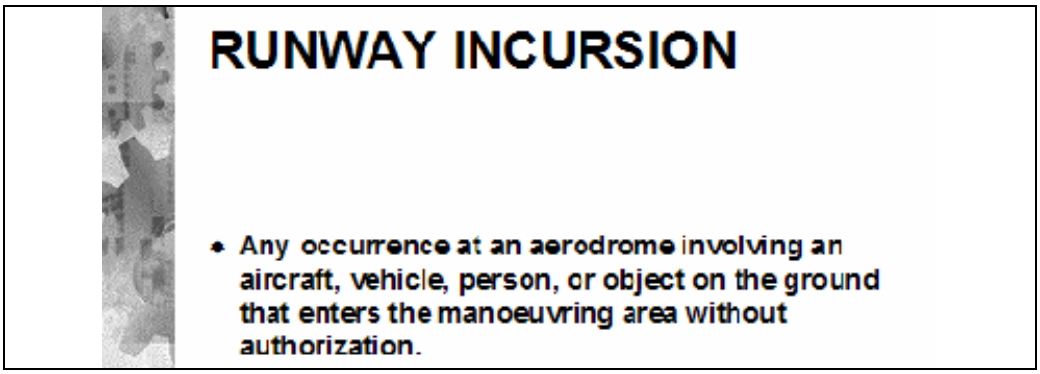
Pilot Deviation



⊙駕駛員違反規定或未遵照航管指示/許可之行爲。

9.跑道入侵(Runway Incursion)

Runway Incursion

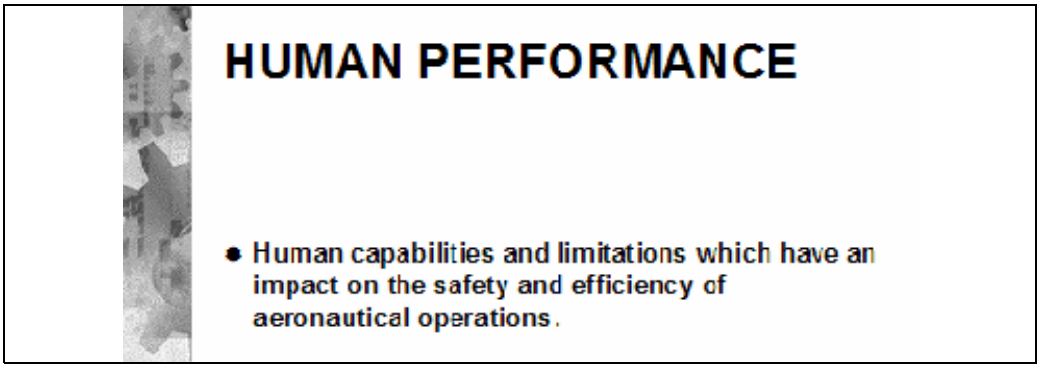


⊙任何未經授權許可之地面航空器、車輛、人員或障礙物擅自進入操作區之場面狀況。

⊙跑道入侵可以是肇因於下列四種原因之一的機場場面狀況：
-駕駛員違規。
-作業疏失。
-車輛駕駛員/導引員違規。以及
-車輛駕駛員/導引員判斷性疏失。
Note: 操作區意指機場內供航機起降、滑行之區域，不包括機坪在內。

10.人員效能(Human Performance)

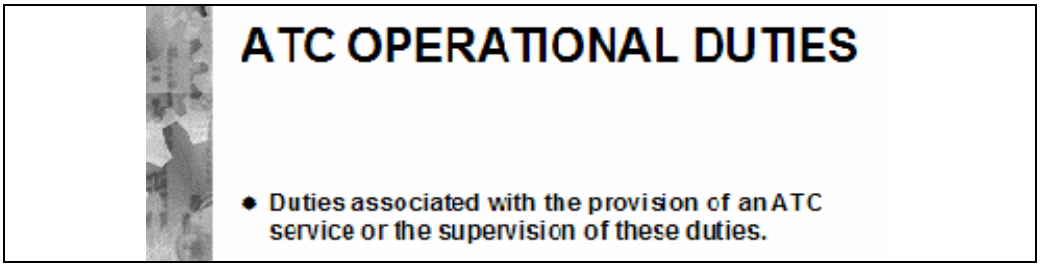
Human Performance



⊙對飛航安全與效率會產生影響之人員能力與極限。

11.飛航管制職掌(ATC Operational Duties)

ATC Operational Duties

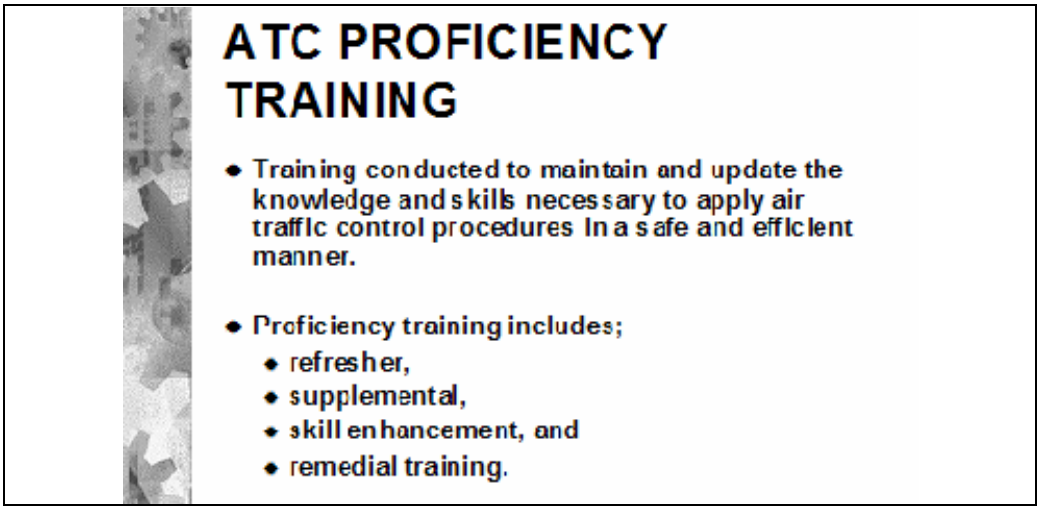


⊙劃歸飛航管制服務之工作或督導這些工作之職掌。

(接下頁)

12.飛航管制專業化訓練(ATC Proficiency Training)

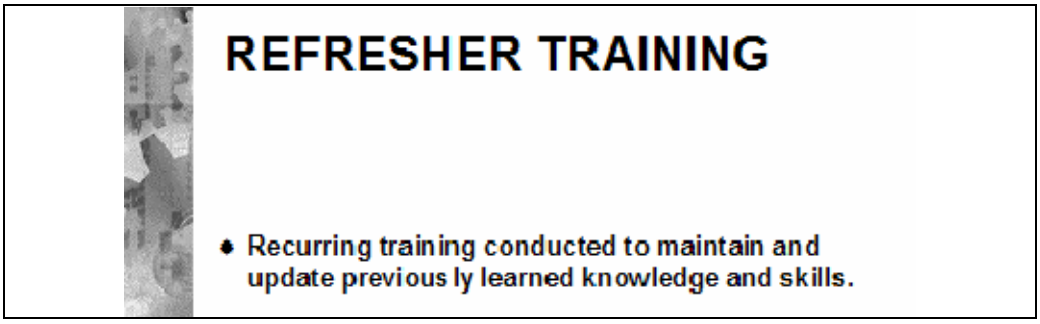
ATC Proficiency Training



⊙爲提供安全、有效的飛航管制而舉行的保持和更新知識與技巧之訓練。
⊙專精訓練包括：
-復甦訓練。
-補充訓練。
-技巧強化訓練。
-矯正訓練。

13.復甦訓練(Refresher Training)

Refresher Training

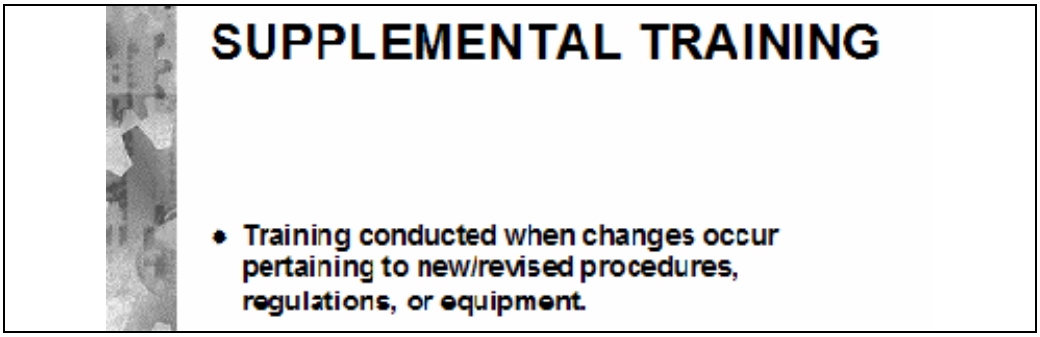


⊙爲保持或更新之前已學習過之知識所舉行之恢復性訓練。

(接下頁)

14.補充訓練(Supplemental Training)

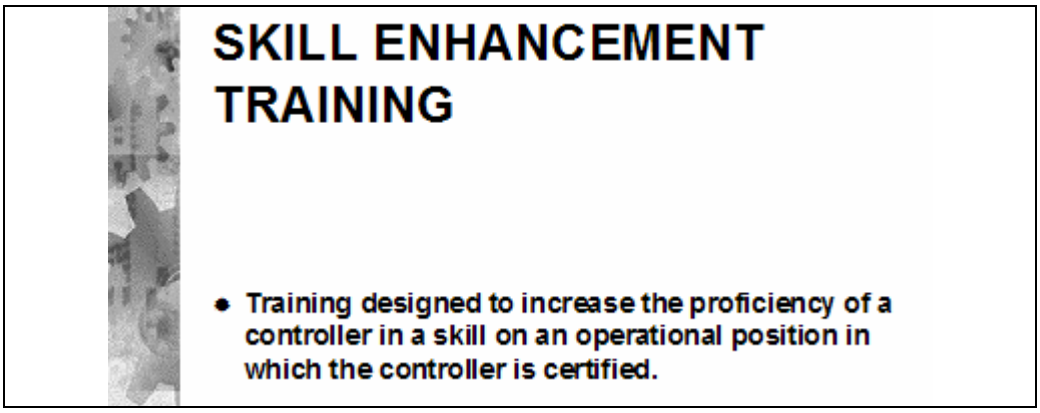
Supplemental Training



⊙爲配合程序、規則、裝備之新增或更動而舉行之補充性訓練。

15.技巧強化訓練(Skill Enhancement Training)

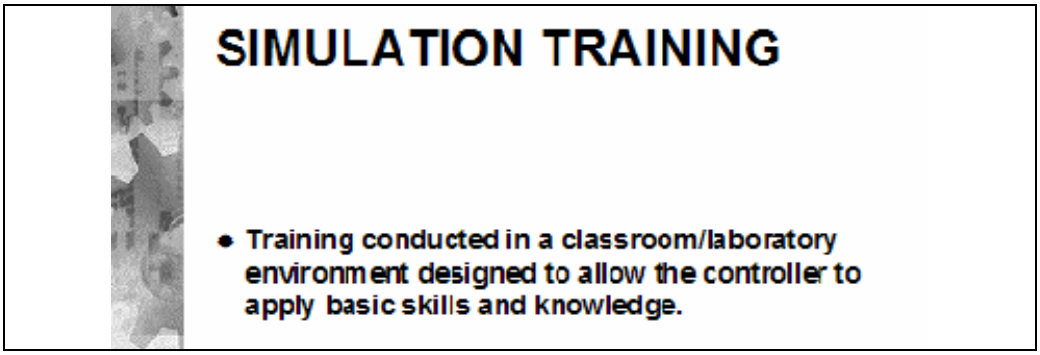
Skill Enhancement Training



⊙爲增進管制員對領照之操作性席位所需之技巧而設計之專精性訓練。

16.模擬訓練(Simulation Training)

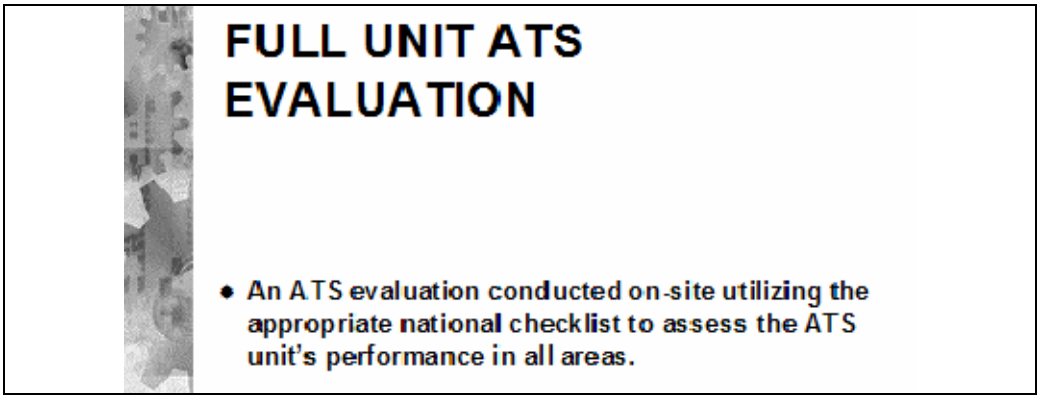
Simulation Training



⊙在課堂或模擬教室所設讓管制員能派用其基本技巧和知識之訓練。

17.單位總評鑑(Full-Unit ATS Evaluation)

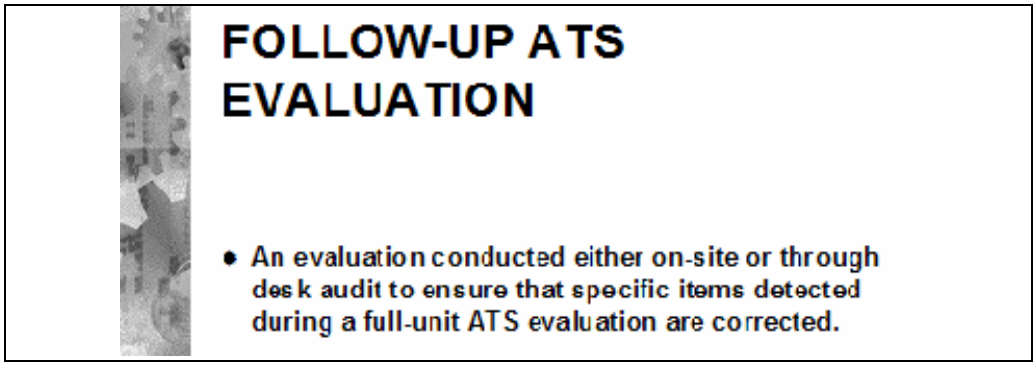
Full-Unit ATS Evaluation



⊙實地舉行之利用國家級檢核表對飛航服務單位效能加以檢核之總評鑑。

18.後續評鑑(Follow-Up ATS Evaluation)

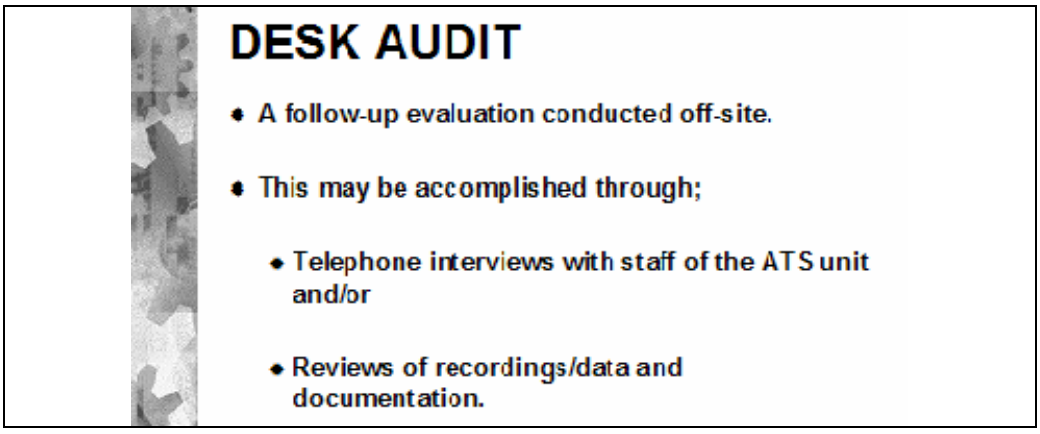
Follow-up ATS Evaluation



⊙實地或非實地舉行用以確保在單位總評鑑時所發現項目皆已改正之評鑑。

19.非實地查核(Desk Audit)

Desk Audit

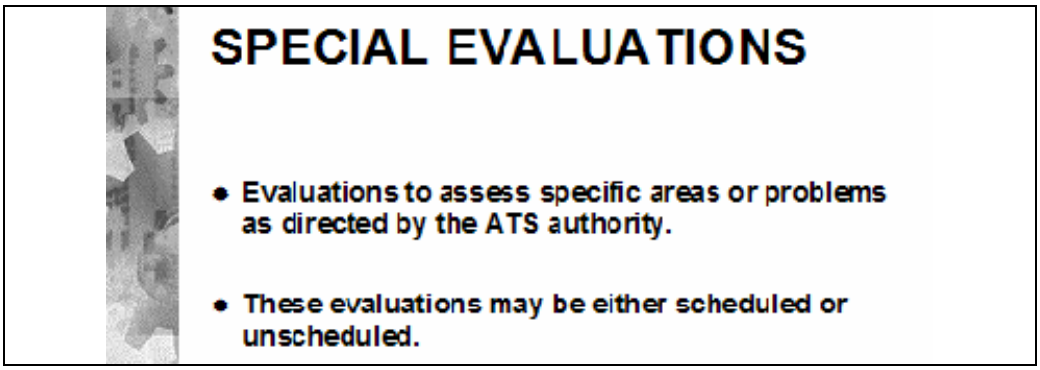


⊙爲追蹤性非實地評鑑。

⊙可經由下列方式達成作爲：
-電話約談相關 ATS 單位人員，及/或
-檢閱錄音/資料和相關文件。

20. 特殊評鑑(Special Evaluations)

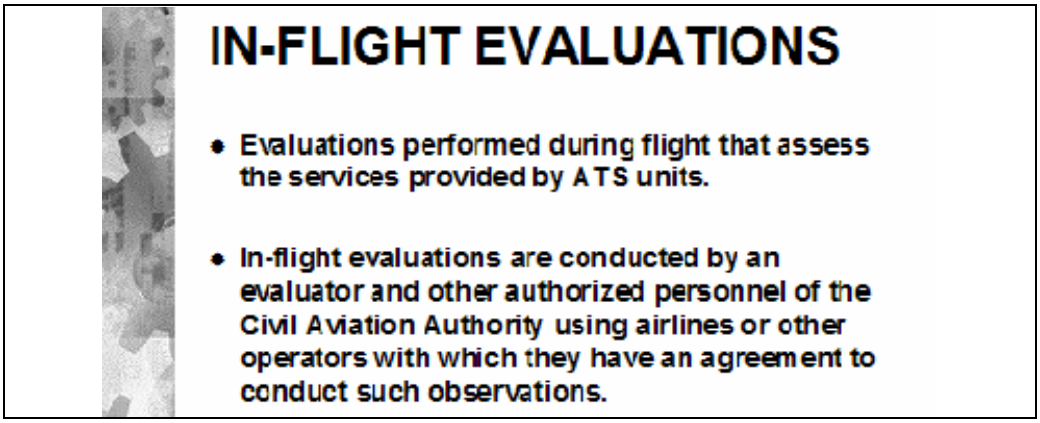
Special Evaluations



⊙在相關 ATS 權責單位指派下，對特定地區或特定問題所舉行之定期或不定期評鑑。

21.在空評鑑(In-Flight Evaluations)

In-Flight Evaluations

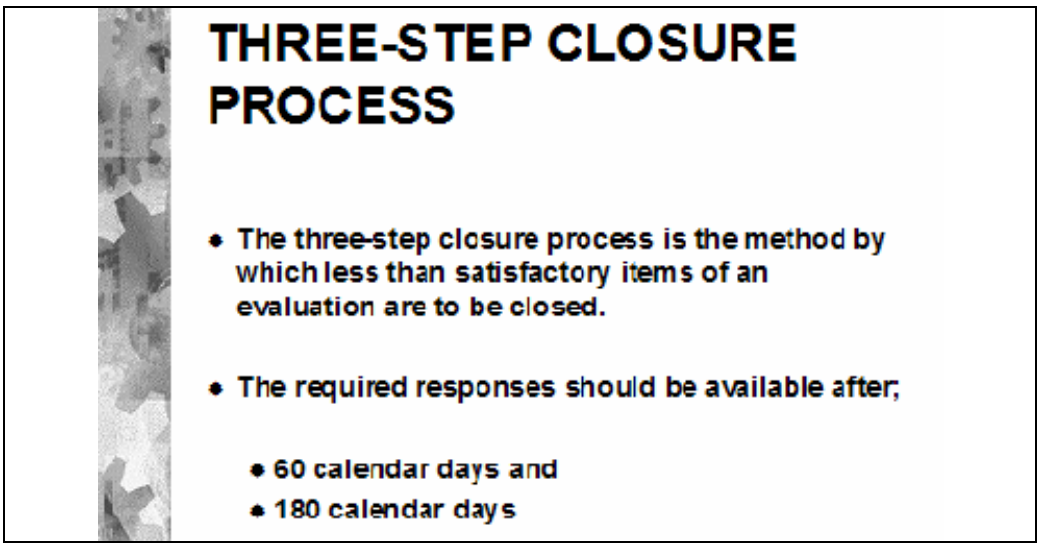


⊙在飛航途中對 ATS 單位所提供之服務所作之查核。
⊙在空評鑑是由評鑑員和經民航權責單位授權之人士協同有協議之航空公司或單位舉行之觀察。

(接下頁)

22.結案三步驟(Three-Step Closure Process)

Three-Step Closure Process



⊙以單位之回應面爲敘述，結案三步驟爲：

-改正行動(Corrective action)：ATS 單位對缺失所採取的初步改正作爲。

-後續行動(Follow-up action)：一定時段之內，爲令初步改正行動具體完成改正缺失之作爲。若目標已達成，則應包括日期及其結果。

-經營控管(Management control)：由 ATS 權責單位或 ATS 單位負責之確保相同缺失不會再現之作爲。此等作爲應包括判明那些 ATS 單位有定期檢視該等已改正缺失之責任及完成該等檢視之時程。

(接下頁)

練習題：判定適當類別(EXERCISE: DETERMINE PROPER CLASSIFICATION)

利用本章所述之定義，判定下列狀況之適當類別

Aircraft: BOEING 727-295

AN 84 YEAR OLD MALE PASSENGER GOT UP FROM HIS SEAT SHORTLY AFTER TAKEOFF AND HEADED TOWARD THE AFT BATHROOM. THE SEAT BELT AND NO SMOKING SIGNS WERE STILL ILLUMINATED. THE AIRCRAFT WAS AT ABOUT 1000 FT AGL AND IN A STEEP CLIMB ATTITUDE. THE PASSENGER FELL FACE FORWARD TOWARD THE REAR OF THE PLANE AND BROKE HER HIP.

Aircraft: BOEING 747-200B

THE AIRCRAFT TAXIED INTO THE GATE AND A BOARDING STEP WAS PUSHED UP AGAINST THE PLANE. A FLIGHT ATTENDANT (F/A) FELL FROM THE AIRCRAFT WHILE OPENING OF THE AIRCRAFT DOOR. THE F/A WAS HELPING A COMPANY GROUND PERSON, WHO WAS OUTSIDE ON THE BOARDING STEP. THE BOARDING STEP WAS NOT AGAINST THE AIRCRAFT BUT ABOUT 1 FT AWAY FROM IT. WHEN THE DOOR WAS OPENED, THE F/A FELL THRU THE OPEN DOORWAY AND TO THE GROUND ABOUT 20 FT BELOW. THE F/A WAS KILLED WHEN SHE HIT THE GROUND.

Aircraft: BOEING 737-297

FLT 243 EXPERIENCED AN EXPLOSIVE DECOMPRESSION AND STRUCTURAL FAILURE AT FL240 WHILE ENROUTE FROM HILO, HI, TO HONOLULU, HI. APRX 18 FT OF CABIN SKIN AND STRUCTURE AFT OF THE CABIN ENTRANCE DOOR AND ABOVE THE PASSENGER FLOORLINE SEPARATED FROM THE ACFT. ONE FLT ATTENDANT WHO WAS STANDING IN THE AISLE WAS SWEPT OVERBOARD. THE FLT DIVERTED TO MAUI AND A LANDING WAS ACCOMPLISHED. EXAMINATION OF THE ACFT REVEALED DISBONDING AND FATIGUE DAMAGE WHICH LED TO THE FAILURE OF THE LAP JOINT AT S-10L AND THE SEPARATION OF THE FUSELAGE UPPER SKIN BETWEEN STATIONS 360 AND 540.

Aircraft: BOEING 757-222

THE CAPTAIN HAD POSITIONED THE AIRPLANE AT THE TAXIWAY HOLD LINE, SET THE BRAKES, AND WAS WAITING TAKEOFF CLEARANCE WHEN THE FIRST OFFICER NOTICED HE WAS SLUMPED OVER AND MAKING A 'GURGLING NOISE.' A PHYSICIAN ON BOARD, ASSISTED BY A FLIGHT ATTENDANT, ADMINISTERED CARDIOPULMONARY RESUSCITATION. THE CAPTAIN WAS PRONOUNCED DEAD ON ARRIVAL AT A LOCAL HOSPITAL.

Aircraft: Boeing 727-232

After normal pushback and taxi to the runway, the airplane began a takeoff. During the takeoff roll, the aft cargo door light illuminated on the second officer's panel. The takeoff was continued. After climbing about 900 feet, there was a 'pop' and pressurization was lost. The pilot returned to the departure airport. Subsequent examination revealed that the door latch should have functioned properly, and the cargo light should have been illuminated, if the door was not closed. None of the ground crew remembered latching the cargo door.

Aircraft: BOEING 747-300

THE AIRPLANE, A FOUR ENGINED HEAVY JET, WAS DIRECTED TO TAXI TO AN ACTIVE RUNWAY. THE TAXI ROUTE WOULD EVENTUALLY CROSS AN ACTIVE RUNWAY. GROUND CONTROL DIRECTED THE AIRPLANE NOT TO CROSS THAT RUNWAY. THIS COMMAND WAS ACKNOWLEDGED BY THE AIRCREW. THE AIRPLANE STOPPED AND HELD ITS SOUTHERLY ORIENTED POSITION ON THE NORTH-SOUTH ORIENTED TAXIWAY WHICH INTERSECTED THE ACTIVE RUNWAY. WHILE THE AIRPLANE WAS STOPPED, A MAINTENANCE UTILITY TRUCK OPERATED BY ANOTHER AIRLINE CAME TO A STOP ON THE EAST SIDE OF THE SERVICE ROAD WHICH CROSSED PERPENDICULAR TO THE TAXIWAY THE AIRPLANE WAS POSITIONED ON. GROUND CONTROL DIRECTED THE AIRPLANE TO CONTINUE TAXIING. AS THE AIRPLANE BEGAN TO POWERUP, THE SERVICE TRUCK DROVE BEHIND IT. THE TRUCK WAS STRUCK BY THE AIRPLANE'S JETBLAST AND ROLLED OVER TWO OR THREE TIMES. A REVIEW OF THE AIRPORT'S MOTOR VEHICLE OPERATING REGULATIONS HANDBOOK AND THE AIRLINE'S DRIVER TRAINING PROGRAM REVEALED THE DANGERS OF JETBLAST TO MOTOR VEHICLES WERE NOT COVERED.

(接下頁)

隨堂測驗 (END OF LESSON TEST)

DIRECTIONS: ITEMS 1 - 8 ARE MULTIPLE CHOICE. INDICATE YOUR SELECTION BY CIRCLING THE APPROPRIATE LETTER FOR EACH ITEM.

1. Any occurrence at an aerodrome involving an aircraft, vehicle, person, or object on the ground that enters the manoeuvring area without authorization is a/an

   A. Operational Error

   B. AIRPROX

   C. Runway Incursion

2. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation is a/an

   A. Incident

   B. Operational Error

   C. Operational Deviation

3. Which of the following is ***NOT*** a classification of Aircraft Proximity?

   A. Fatal or serious injury

   B. Risk of collision

   C. Safety not assured

4. A Desk Audit is a/an

   A. Follow-up evaluation conducted on-site.

   B. Follow-up evaluation conducted off-site.

   C. Evaluation performed during flight.

5. "The applicable separation minimum was not maintained between two or more aircraft is an example of a/an

   A. Operational Deviation

   B. Operational Error

C. Pilot Deviation

6. Which of the following are the correct 3 steps for the Three-Step Closure Process?

A. Simulation Training – Refresher Training – Skill Enhancement Training

B. Special Evaluation – Full Unit ATS Evaluation – Follow-Up ATS Evaluation

C. Corrective Action – Follow-Up Action – Management Control

7. The risk classification of an aircraft proximity in which the safety of the aircraft may have compromised is

A. Risk of Collision

B. Risk Not Determined

C. Safety Not Assured

8. Training designed to increase the proficiency of a controller in a skill on an operational position in which the controller is certified is

A. Skill Enhancement Training

B. Refresher Training

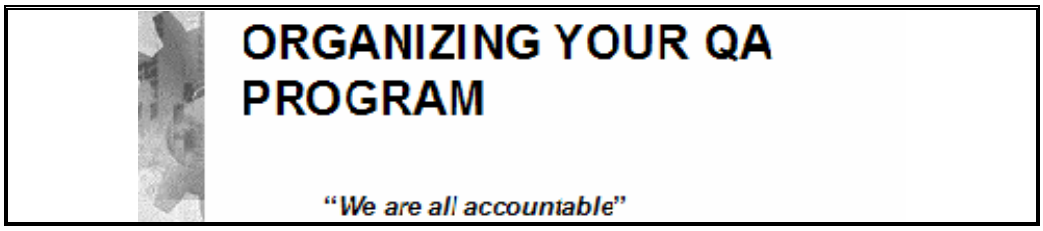
C. Supplemental Training

第 三 章 建立自己的品質保證計劃（Organizing your QA program）：

1.簡介(Introduction)

Gain Attention

Ref. CAR/SAM 3.5.5

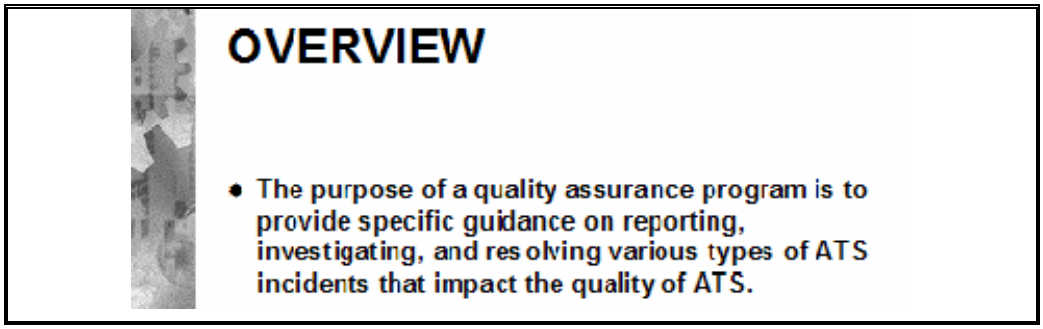


⊙品質保證是一個不斷尋求改善飛航系統的動態過程。
⊙品質保證的成功有賴於全體飛航工作大軍之共同認知。不論是個人的或是集團的，我們都應該爲提供最好的服務努力奮鬥。
⊙所有的從業人員都該爲維持品質效能在最佳水準上負責。
⊙本第三章提示了一個良好QA結構在行政面上和操作面上的範本。

2.總論(Overview)

Overview

Ref. CAR/SAM 3.2.1
FAA Order 7210.56 para. 2-1-1



⊙QA計劃之設計必須符合ICAO標準和建議以及本國法規、標準。
⊙防治問題是有效QA計劃的一個關鍵成份。
⊙QA計劃之第一要務就是防範飛航服務事件的發生。
⊙計劃的第二要務就是不斷的改進所提供之飛航服務的整體品質。

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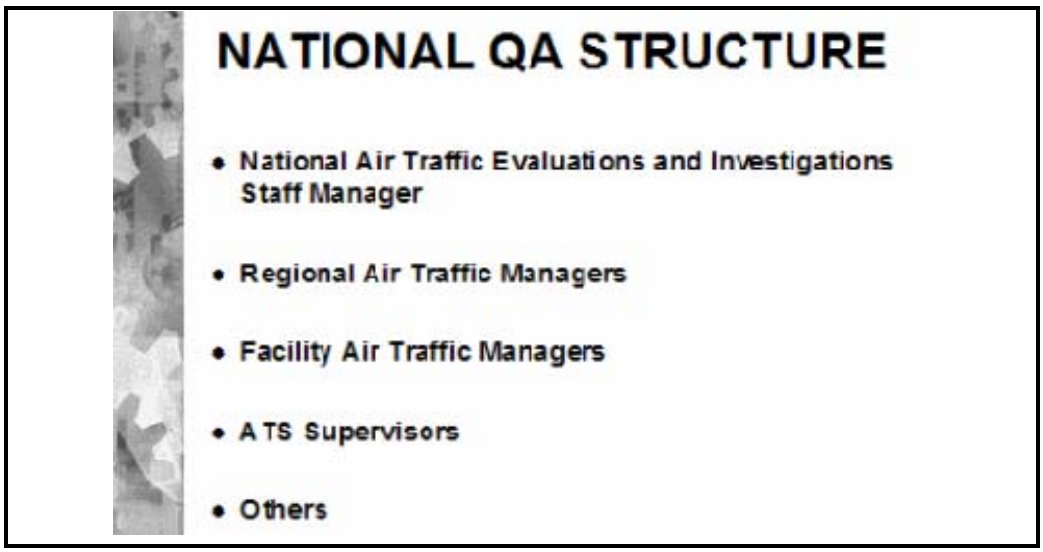
3.職位架構與職務內容(Job title and descriptions)

National QA structure



⊙國家ATS評鑑及案件調查小組經理人(The manager of the National Air Traffic Service Evaluations and Investigations staff)應：

-提供區域(Regional)或執行單位(Facility)之ATS部門發展QA計劃之指導綱要和所需協助。

-確保所有ATS QA計劃皆經國家評鑑程序評鑑過。

-建檔並保持所有QA計劃，並提供ATS執行長(Director of Air Traffic Services)年度驗證資料。

-對作業過失或飛航事件數字偏高或數字攀升之單位執行調查性檢視(Investigative review)。

-在區域(Regional)或執行單位(Facility)之QA人員協助下，指證並確認達到下列目標之飛航管制單位：

* 1,000,000次操作未有過失。

*有效降低OE/OD率。

⊙區域ATS經理人(Regional Air Traffic Service Managers)應：

-發展區域QA計劃。

-確認本區域內有那些單位應該發展QA計劃。

-提供一份本區域及各執行單位之QA規則和OD/OE防治計劃給國家ATS評鑑及案件調查小組經理人。

-年度性檢視本區域之QA規則和計劃。必要時，發展新QA規則或修訂現有OD/OE防治規則。

-確認每個OD/OE防治計劃都有〝回歸基本面〞(Back to basics)的努力。

-確認執行執行單位之OD/OE防治計劃內容皆符合該單位之需求。

-確認區域/單位之OD/OE防治計劃有包含有：

*指認出未遵照國家、區域、單位之指導綱要、標準之機制。

*指認出未遵照之原因之機制。

*立即矯正並避免再犯之機制。

-提供趨勢分析、、統計資料、建議事項及其它有用資訊，以幫助執行單位在防治工作上的努力。

-確保未建立獨立跑道入侵防治計劃的機場管制塔臺擁有共識性的地面事件防治計劃。

-建立單位作業趨勢先期指認辦法以敦促單位產生作業警覺性。

-使用支持性文件(Supporting document)，落實ATS QA計劃。

⊙飛航管制單位經理人(Air Traffic Facility Managers)應：

-對單位之各種作業與計劃維持一定之警覺性與參予感，以確保其於最佳品質與效率。

-依上級單位之指示建立QA計劃。

⊙ATS督導(ATS supervisor)應：

-與管制員溝通，令其明瞭所被期待的效能水準。並強調席位紀律、警覺性、團隊操作的重要性，以及使用標準術語、標準協調程序、席位交接簡報(Position relief briefings)、使用交接簡報核對表等之重要性。

-當管制員未符合所被期待的效能時，立即採取諸如現場糾正、咨商、訓練、使用效能改進量表、提高效能監測次數或就縮短監測距離、或其它適當之糾正措施等後繼行動(Follow-up actions)。

-定位個人以及小組的責任，與萬一未符合期望值時的後果。

-提供有效和一致的ATS單位作業監察，並利用有效的資源管理以確保適當與及時的人事任命，以促進安全、有序、迅速的飛航管制。

-確保ATS作業單位內的噪音與會令人分神的因素降至最低位準。

-要求ATS作業單位內的所有人員，時時刻刻都維持在高度的專業性、團隊性、警覺性和遵守管制席位紀律狀況。

-與ATS所有人員維持倡通的溝通管道，令其得以對QA計劃提供建言或意見。

-主導ATS小組會議之召開。

-在小組會議中強調Hear back/read back過失。

-知會ATS經理人及其幕僚相關作業焦點，並提供改善相關作業之資訊與建議。

⊙QA執事/專員應：

-隨機抽檢錄音帶以幫助指認出會導致脫離零ATS事件狀態之個人或單位效能問題和焦點。

-對ATS單位成員作關於作業評鑑、隨機抽檢、ATS事件趨勢和誘因之簡報。

-保持對ATS單位作業環境之警覺性，並提供成員專業知識與支援。

-參與並提供有助於ATS單位達成QA目標和主訴之意見。

-確保相關Hear back/read back過失案例有被列入訓練教案中。

-在發生ATS事件之後儘快送交所有ATS事件總摘要給ATS作業單位人員。

-確保ATS單位保有一份ATS事件及趨勢、誘因總摘要，並確保該摘要被列入課堂和年度專精訓練課目中。

⊙ATC人員應：

-有航情問題(Traffic problems)或裝備限制(Equipment limitations)情況時，報告ATS督導知情。

-對改進ATS單位及/或品質保證計劃內容方面提出建議。

-保持對事態之警覺性。

-對較繁忙之管制席位予以額外之協助。

-經常檢視自己的操作技能和單位作業程序，以維持本身之最佳品質效能。

-立即向作業督導(Operational supervisor)或其它權責單位報告所有的ATS事件，以便有適當的後續調查作業(Follow up investigation)。

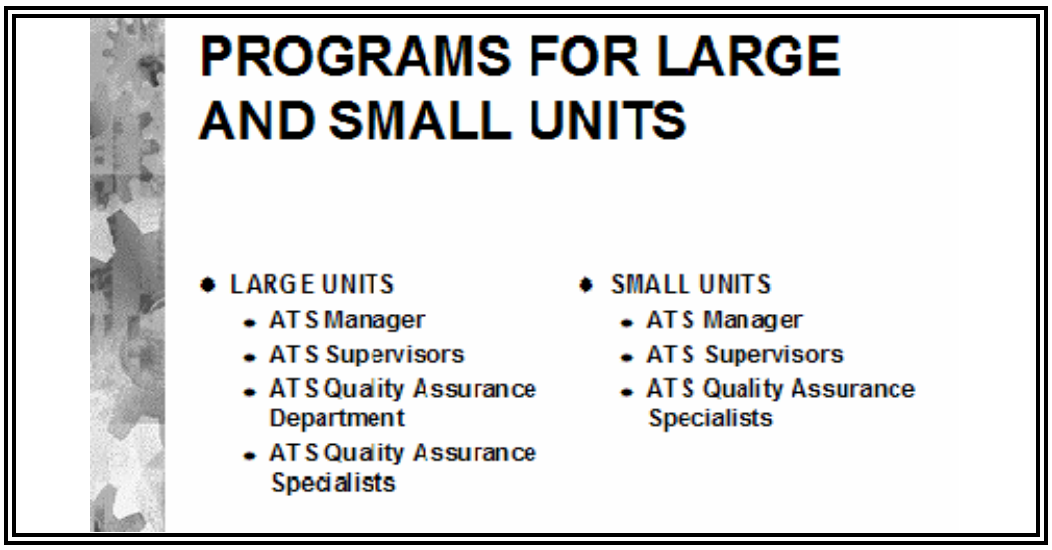
-使用備忘工具。

(接下頁)

4.大、小單位之計劃(Programes for large and small unit)

Programs

Ref. CAR/SAM
3.3.1
S-ORG-QA-5



⊙QA 計劃依單位需求可有大小之不同。大單位可能會有足夠人力以成立一個 QA 部門，而小單位可能必需仰賴 QA 專員負責所有計劃。

(接下頁)

練習一：職位架構與職務內容(Job title and descriptions)

Job titles are listed on the left and job descriptions are listed on the right. Match the letter of the job title with the number(s) of the job description (include all job descriptions that apply). Refer to the student guide to complete this exercise.

JOB TITLE	Answers
A. Manager, National Air Traffic Services Evaluations and Investigations Staff	
B. Manager, Regional Air Traffic Division	
C. Manager, Facility Air Traffic Services	
D. Air Traffic Services Supervisor	
E. Air Traffic Services QA Specialist	

JOB DESCRIPTION

1. Develop a regional QA program

2. Maintain an awareness of the ATS operational environment and provide staff expertise and support

3. Address individual and team accountability, and the consequences for not meeting expectations

4. Conduct random reviews of voice recordings to help identify individual and facility performance problems

5. Ensure all Air Traffic Services QA programs are evaluated through the national evaluation process

6. Ensure that distractions and noise levels in the ATS unit are kept at a minimum

7. Maintain a level of awareness and involvement in their facility's operations/programs so as to ensure their maximum quality and efficiency

8. Ensure that facility OE/OD prevention plans include items pertinent to a particular facility

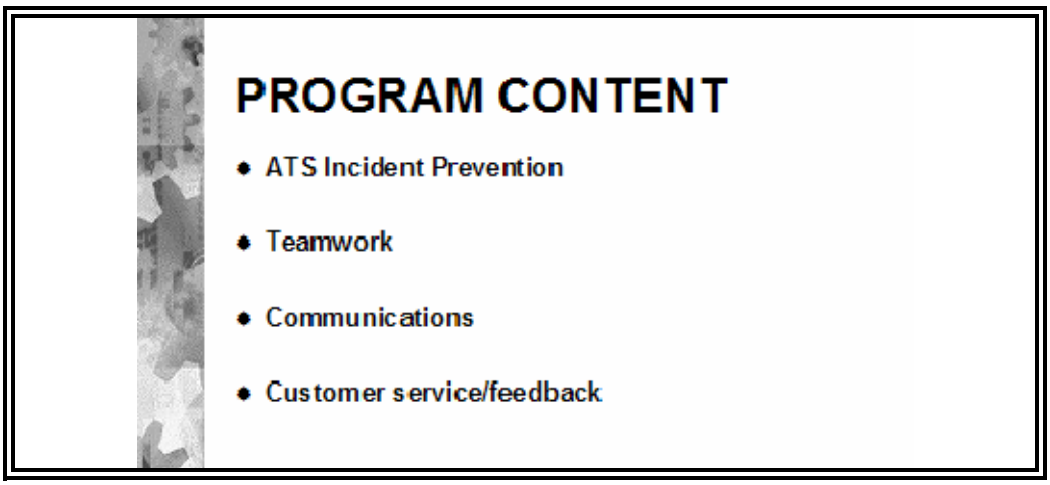
9. Place emphasis on hear-back/read-back errors during team meetings

10. Brief ATS unit personnel on trends and causal factors related to operational evaluations, random reviews, and ATS incidents

5.品質保證計劃內容(QA program content)

Program Content

Ref. CAR/SAM 3.6.1



⊙品質保證計劃內容包括下列四項：
-ATS事件防治。
-團隊工作。
-交流。
-顧客服務與回應。
⊙ATS事件防治計劃應包括下列項目：
-ATS復甦訓練(Refresher Training)。
-航空術語之改善。
-英語專精訓練。
-顧客服務與回應。
-Hear back/Read back。
-ATS地面事件。
-激勵與褒揚。
-優良作業模範列表。
-錄音帶監聽評鑑。
-模擬訓練。
-個人受訓記錄專戶。
-定期性ATS單位QA簡報，包括趨勢、顧客回應、評鑑等。
-已指認問題之積極性解決方案。
-將過去發生之ATS事件案例編入訓練教案。
-內部、區域、全國性評鑑。
⊙下列項目應包括在促進團隊性工作項內：
-ATS團隊性工作訓練。
-團隊性工作之激勵/褒揚措施。
-不同席位/職務所扮演的角色。
-ATS班務督導之訓練課程。
-小組會議/簡報。
-清楚傳達所有人員他的被期望值。
⊙QA計劃應包括下列交流性項目：

-電子佈告欄系統。
-網際/網內資料存取。
-包含全國性與地區性ATS QA資料之國家級資料庫。
-新聞性信件(New letters)。
-ATS QA研討會、議會、和工作坊。
-諸如IATA、IFALPA、IFATCA、PAAST等國際性組織之報告以及其它工安報告。

⊙你可以以完成下列項目來增進顧客服務與回應：

-駕駛員授課計劃。
-內、外部顧客問卷調查。
-與其它航空機構交流。
-管制員/督導之班務效能性席位查核。
-幹部會議。
-隨機見學。
-與客戶機構接觸(飛行學校、航空公司、飛航機構等)。
-駕駛員飛安研討會和機場管理工作群。

⊙你應致力於將上述四大項目納入品質保證計劃內。

(接下頁)

練習二：計劃內容(program content)

Select any one of the following areas and discuss how your facility could use it to improve quality.

Incident Prevention	Teamwork	Communications	Customer service/feedback
ATS refresher training	Air traffic service teamwork training	Electronic bulletin board system	Pilot education programs
Aeronautical phraseology improvement	Teamwork incentive/recognition programs	Internet/intranet access to data	Surveys of internal and external customers
English language proficiency	Roles of different positions/jobs	National database containing national and local ATS QA data	Interaction with other aviation organizations
Hear-back/read-back	ATS operational supervisor training course	Newsletters	Air traffic controller/operational supervisor evaluation of shift performance
ATS surface incidents	Team meetings/briefings	ATS QA seminars, conferences and workshops	All staff meetings
Incentive/recognition	Expectations of all employees clearly communicated	All staff meetings	Familiarization flights
List of good operating practices		Reports from international organizations, i.e. IATA, IFALPA, IFATCA, PAAST, etc., and other industry safety reports	Contacts with customer organizations (i.e. local flying schools, airlines, aviation organizations, etc)
Recordings monitor evaluation			Pilot safety seminars and airport management workgroups
Simulation training			
Personal accounts of lesson learned			
Periodic QA briefings in ATS units covering trends, customer input, evaluation, etc.			
Aggressive resolution of problems identified			
Incorporation of past ATS incidents scenarios into training			
Internal, national, and regional ATS evaluation			

隨堂測驗 (END OF LESSON TEST)

This test is multiple-choice. Select the most correct answer. Refer to the student guide to determine answers.

1. Who is responsible for maintaining the highest level of quality performance?
a. Air Traffic Services Manager
b. Air Traffic Services Supervisor
c. Air Traffic Services Quality Assurance Specialist
d. All Air Traffic Services employees

2. What is a critical component and one of the objectives of an effective quality assurance program?

a. ATS incident prevention
b. Individual accomplishments over teamwork
c. Equipment utilization
d. Traffic count

3. Which of the following job responsibilities is not associated with the Air Traffic Quality Assurance Specialist?
a. Maintain an awareness of the ATS operational environment and provide staff expertise and support
b. Brief ATS unit personnel on trends and causal factors related to operational evaluations, random reviews, and ATS incidents
c. Address individual and team accountability, and the consequences for not meeting expectations
d. Participate and provide input that assists the ATS unit in ensuring that quality assurance goals and objectives are being consistently met

4. Which of the following job responsibilities is associated with the Air Traffic Facility Manager?
a. Establish methods for early identification of facility operational trends in order to raise facility operational awareness
b. Maintain a level of awareness and involvement in their facility's operations/programs so as to ensure their maximum quality and efficiency
c. Provide trend analysis, statistical data, recommendations and other pertinent information to assist field facilities with their prevention efforts
d. Conduct Investigative Reviews of Air Traffic Services for facilities with high or increasing numbers of operational errors or incidents

5. ATS supervisors should:
a. Provide efficient and consistent oversight of the ATS unit operation, and use effective

resource management to ensure proper and timely assignment of personnel to promote the safe, orderly, and expeditious handling of air traffic
b. Ensure that distractions and noise levels in the ATS unit are kept at a minimum
c. Require all personnel to maintain a high degree of professionalism, teamwork, control position discipline, and awareness at all times in the ATS unit environment
d. All of the above

6. Which of the following lists names the four major content areas of a QA program?
a. Risk Management, Workload Management, Communications, and Situational Awareness
b. ATS Incident Prevention, Teamwork, Communications, and Customer service/feedback

c. Teamwork, Communications, Stress Management, and Situational Awareness
d. ATS Incident Prevention, Teamwork, Situational Awareness, and Communications

7. Which of the following areas is part of the Incident Prevention content area?
a. ATS surface incidents
b. Simulation training
c. Recordings monitor evaluation
d. All of the above

8. Teamwork content area consists of team meetings, familiarization flights, air traffic service team training and _____.
a. Discipline
b. Teamwork incentive/recognition programs
c. Oversees flights
d. Team social gatherings

9. Which of the following areas is part of the Communications content area?
a. Newsletters
b. All staff meetings
c. Internet/intranet access to data
d. A, B, and C

10. Which of the following areas is not part of the Customer service/feedback content area?
a. Electronic bulletin board system
b. Pilot education programs
c. All staff meetings
d. Interaction with other aviation organizations

第 四 章 飛航服務改進計劃之品質（Quality of Service Improvement programs）：

1.簡介(Introduction)

Ref. CAR/SAM 8.1

⊙ATS權責單位應追求能全面改進所提供服務品質的發起權。
⊙本章節包含有幾個ATS權責單位所應納入於改善所提供服務品質的發起權。
⊙本章節包含的這幾個計劃可能不是各單位所要發展的計劃的全部，但肯定的是這些必然都是重點計劃。
⊙溝通，是衡量ATS服務品質的主要指標之一。錄音帶檢視、術語改善計劃、顧客服務與回應則是眾多可以衡量管制員溝通良窳的選擇之一。

2.飛航服務錄音隨機檢視(Random voice recording reviews)

Random voice recording reviews
Ref. CAR/SAM 8.2

⊙ QA執事/專員應以〝月〞爲基準，完成數次隨機錄音抽檢。以確定所提供之ATS服務整體品質維持在滿意的狀態。

3.ICAO 術語改善計劃(ICAO phraseology improvement program)

Ref. Doc 4444;
CAR/SAM 8.3

⊙ATS權責單位/ATS作業單位應建立術語改善計劃。可經由下列方式達到目的：
-英語專精課程。
-每周一術語 (Phraseology of the week)。
-直接觀察。

⊙在這個計劃背後，對有優良術語表現或有ICAO術語重大改進的人員，予以某種方式的表揚是件很重要的事情。

4.顧客服務與回應(Customer service/feed back)

Ref. CAR/SAM
8.4

⊙建立ATS權責單位/ATS作業單位與ATS系統使用者間溝通的管道是件很重要的事。

-所有ATS系統使用者都能提供寶貴的回應，不論是航空公司、一般航空業者還是普通規則飛航(General aviation)者。從其它飛航部門，諸如航空站和其它ATS單位以及國際ATS人士等，獲得回應也是一樣重要的事。

-這些回應可經由問卷調查方式取得。這也可以做爲衡量一個單位所提供的服務品質好壞的一種方法。

⊙ATS單位應以〝年〞爲基準，實施對內和對外的ATS QA問卷調查，以取得對所提供服務的回應。

⊙所蒐集來的資料應加以分析和驗證，所得的結果也應與所有ATS人員分享。

-從所蒐集來的資料加以檢視中，所有對服務品質有影響的發現都應該加以指出並排出優先順序，然後應建立對相對問題的解決方案並加以執行。

(接下頁)

練習一：

Instructions
Divide the class into teams. Have each team:
A. List other ideas concerning QA Improvement Programs not listed in this lesson.

5.互參計劃(Awareness programs)

Ref. CAR/SAM 8.5~8.9

⊙ATS權責單位應每年最少一次，舉辦駕駛員/管制員座談。這些座談可以營造良好的ATS權責單位與駕駛員、管制員間的關係與建立溝通管道。

⊙ATS權責單位應參與駕駛員飛安研討會，以呈現有關ATS系統的資訊。

⊙應鼓勵駕駛員參訪ATS單位(塔臺、近場臺、區管中心等)，並令其熟悉ATC系統。

⊙在罕有的情況下，ATS單位有可能因爲航情繁忙或其它原因而無法接受參訪。此時駕駛員應該事先與ATS單位接洽，並說明此行主要目的和時間、人數等資料。

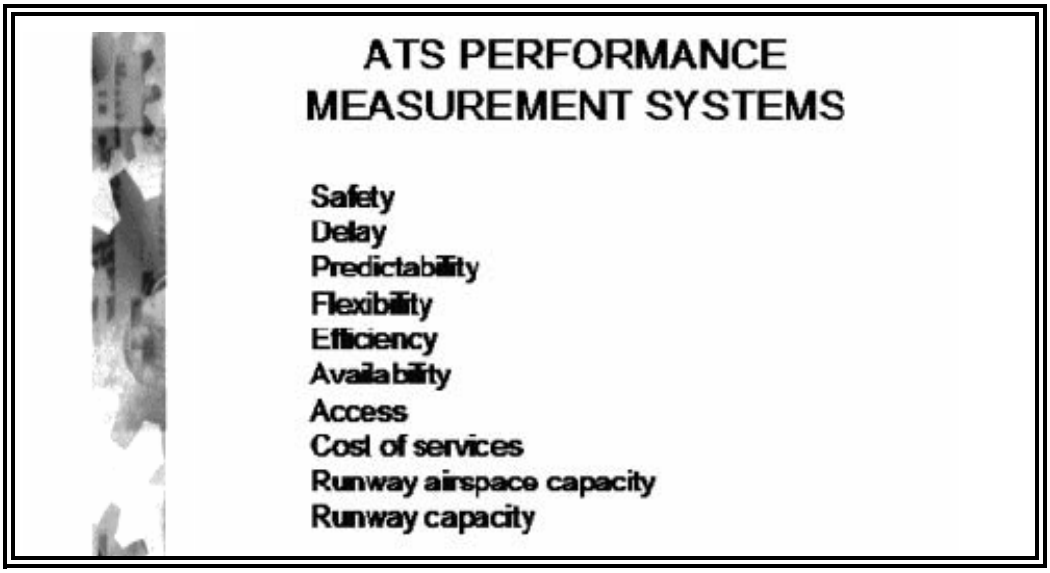
⊙建議ATS權責單開發一套爲駕駛員而設計的關於飛航服務系統的功能、職掌、服務項目以及如何有效利用該系統等的授課計劃。

⊙ATS權責單位應與航空公司建立供ATS人員參與的駕駛艙隨機見學辦法。並應鼓勵ATS督導及管制員參加見學。

(接下頁)

6.飛航服務效能檢測系統(ATS performance measurement systems)

Ref. CAR/SAM 8.11.3~ 8.11.12



⊙尋求持續改善飛航管制系統的飛安和效率以增進總體效能之道對ATS提供者而言是件重要的事。

⊙當檢測所提供的飛航服務的品質與效能時，應將下列項目納入考量：

-安全。
-延誤。
-可預期性。
-伸縮性。
-效率。
-服務可獲性。
-路由可獲性。
-服務成本。
-跑道空域運量。
-跑道運量。

⊙由於安全是第一要務，因而事故和ATS事件並不是維一的檢測項目，檢測時還應包括實際存在的風險位準在內。

⊙延誤已經是傳統上檢測飛航效能的項目。唯應以實際航行架次之延誤量與最適當基準航行架次之延誤量來作比對。

⊙可預期性是測定服務效能不確定性的檢測項目。比如說滑出時間(Taxi-Out time)的不確定性越大，航空公司班機時刻表所受到的衝擊也的越大，航班的銜接也越受影響。

⊙相對於ATS服務使用者調整本身作業以配合服務狀況變動之能力。伸縮性指的是測定飛航服務系統所能忍受使用者對於天氣或作業狀況等原因作動態決策的限度。包括起飛前的和起飛後的。

⊙〝效率〞可以由航空器被迫脫離最佳飛航路徑的指數加以測定。效率檢測應以預計或實際飛行軌跡與最佳基準線作比對。

⊙服務可獲性是所提供服務之品質與可靠性的指標。服務可獲性的測定應包括飛航服務系統無法維持現階段操作容量或類似狀況的頻率。

⊙路由可獲性應包括讓飛航服務系統使用者穿越限航區、獲得所希望路徑的品質與可能性，以

及飛航服務提供者、飛航服務系統和機場符合容易需求的狀況。

⊙所有飛航服務之生產力與成本方面的問題，終究還會是使用者用以判定〝品質〞好壞的一環，或是成爲使用者與提供者雙方共同的成本。飛航服務提供者在提出任何改進效能指數的方案時，加諸使用者本身之成本都應予納入考量。

⊙飛航服務提供者應測定每個機場跑道空域和提供服務的ATS單位的運量。

⊙並非所有的延誤都是飛航服務提供者造成的，延誤也可能是航空公司、航空站等所造成的。在計算跑道運量時，應將下列項目納入考慮：

-離、到場混合情形(Mix of arrival and departures)
-機種(Aircraft types)
-機尾亂流標準(Wake vortex separation minima)
-離場路徑(Departure routes)
-到場路徑(Arrival routes)
-跑道被佔用時間(Runway occupancy time)
-飛航管制程序(ATC procedures)
-跑道規格(Runway configuration)
-場面格局(Airport layout)
-天候狀況(Weather conditions)
-噪音管制程序(Noise abatement procedures)

(接下頁)

練習二：飛航服務效能檢測系統(ATS PERFORMANCE MEASUREMENTS SYSTEM)

Instructions:
Divide the groups into teams. Use the same teams as were used in previous exercises. Use the following list of measurement elements to devise a performance measurement system.

Safety	Delay
Predictability	Flexibility
Efficiency	Availability
Access	Cost of service
Runway airspace capacity	Runway capacity

APPENDIX A:外部問卷調查表(ATS QUALITY ASSURANCE SURVEY)

1. Please provide us with the following information (Optional):

Name:

Company:

Mailing address:

Phone number:

Fax number:

Email:

Note. This information may be used in the future to notify you of future events planned by the
ATS unit and/or ATS authority.

2. How often do you use our services?
   Daily
   Several times a week
   Weekly
   Every other week
   Monthly

3. Please indicate type of pilot and aircraft you normally fly:
   Commercial pilot
   Instructor pilot
   Private pilot
   Student pilot
   Other

4. How do you rate the overall quality of air traffic services provided?
   Excellent
   Good
   Average
   Fair
   Poor

5. How do you rate the quality of the ATIS broadcast?
   Excellent
   Good
   Average
   Fair
   Poor

6. How do you rate the clarity of ATC instructions?
   Excellent
   Good
   Average
   Fair
   Poor

7. How do you rate the responsiveness to pilot request?
   Excellent
   Good
   Average
   Fair
   Poor

8. How do you rate the attitude of ATS personnel as it pertains to professionalism and friendliness?
   Excellent
   Good
   Average
   Fair
   Poor

9. How do you rate the use of proper aeronautical phraseology?
   Excellent
   Good
   Average
   Fair
   Poor

10. How do you rate the clearance delivery?
   Excellent
   Good
   Average
   Fair
   Poor

11. How do you rate the ground control?
   Excellent
   Good
   Average
   Fair
   Poor

12. How do you rate the tower control?
   Excellent

Good
Average
Fair
Poor

13. How do you rate the approach control?
Excellent
Good
Average
Fair
Poor

14. How do you rate the area control center?
Excellent
Good
Average
Fair
Poor

15. Please share with us any comments and/or suggestions pertaining to the ATS operational areas you believe that may need improvement.

Comments/Suggestions:

APPENDIX B: 內部問卷調查表
(ATS QUALITY ASSURANCE SURVEY FORM FOR ATS PERSONNEL)

1. Please provide us with the following information (Optional):

Name:

Position:

2. How do you rate the overall quality of air traffic services provided by your ATS unit?
   Excellent
   Good
   Average
   Fair
   Poor

3. How do you rate the quality of equipment that you work with?
   Excellent
   Good
   Average
   Fair
   Poor

4. How do you rate the type of training (includes proficiency training, refresher training, initial training, etc.) you received?
   Excellent
   Good
   Average
   Fair
   Poor

5. How do you rate the working environment?
   Excellent
   Good
   Average
   Fair
   Poor

6. How do you rate the attitude of ATS personnel as it pertains to professionalism and friendliness?
   Excellent
   Good
   Average
   Fair
   Poor

7. How do you rate the use of proper aeronautical phraseology in your ATS unit?
   Excellent
   Good
   Average
   Fair
   Poor

8. How do you rate the airspace and ATC procedures of your ATS unit?
   Excellent
   Good
   Average
   Fair
   Poor

9. How do you rate the availability and quality of local, national, and ICAO directives?
   Excellent
   Good
   Average
   Fair
   Poor

10. How do you rate the workload distribution (is the workload distributed evenly?)?
   Excellent
   Good
   Average
   Fair
   Poor

11. How do you rate the quality and timeliness of briefings (new procedures, changes to procedures, etc.)?
   Excellent
   Good
   Average
   Fair
   Poor

12. How do you rate the communications between ATS personnel (between controllers and controller, supervisors and controllers, management and controllers, etc.)?
   Excellent
   Good
   Average
   Fair
   Poor

13. How do you rate your job satisfaction in your current position?

Excellent
Good
Average
Fair
Poor

14. Please share with us any comments and/or suggestions pertaining to your ATS unit you believe that may need improvement.

Comments/Suggestions:

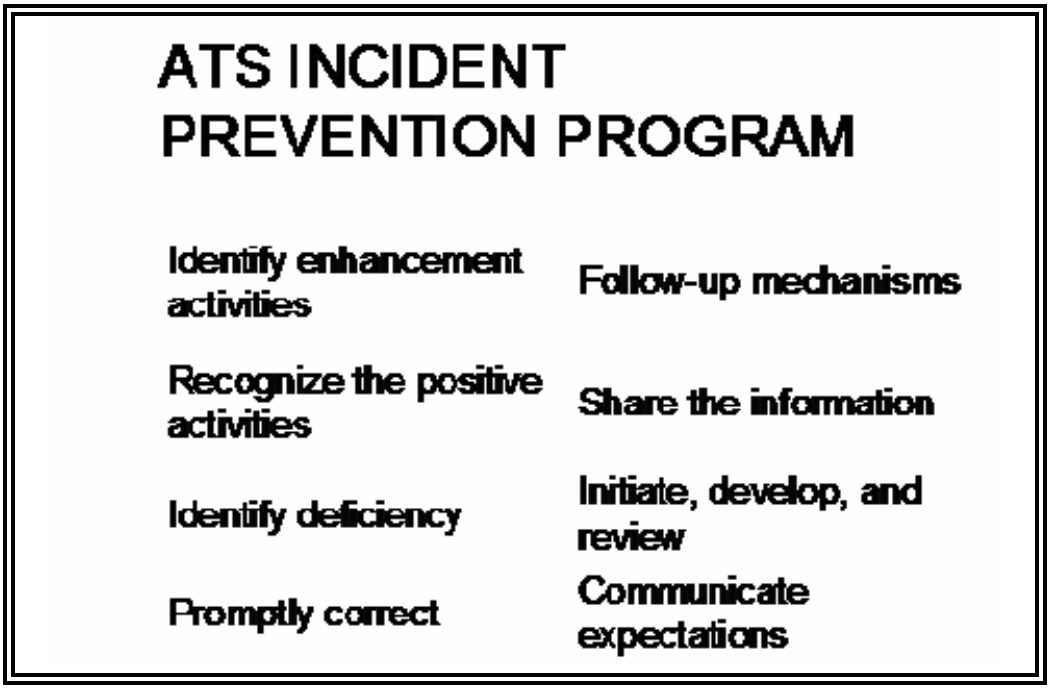
第 五 章 飛航事件防範計劃(Incident Prevention programs）：

1. 簡介(Introduction)

⊙ATS權責單位，應依據ICAO之標準、建議、程序以及CAA和飛航服務單位之作業手冊、程序等，建立起促進飛航零事件服務品質之政策與計劃。
⊙其目標在於保持一個能將安全、迅速、有序的飛航管制服務送交給系統中使用者的飛航零事件環境。
⊙防治飛航服務事件是每一個人的責任。
⊙本章節的目的是在讓你熟悉，正如ICAO發佈的資料所記載的，一個有效的防治計劃的各種要件。

2. 飛航事件防治計劃(ATS Incident Prevention program)

Ref. CAR/SAM 6.2

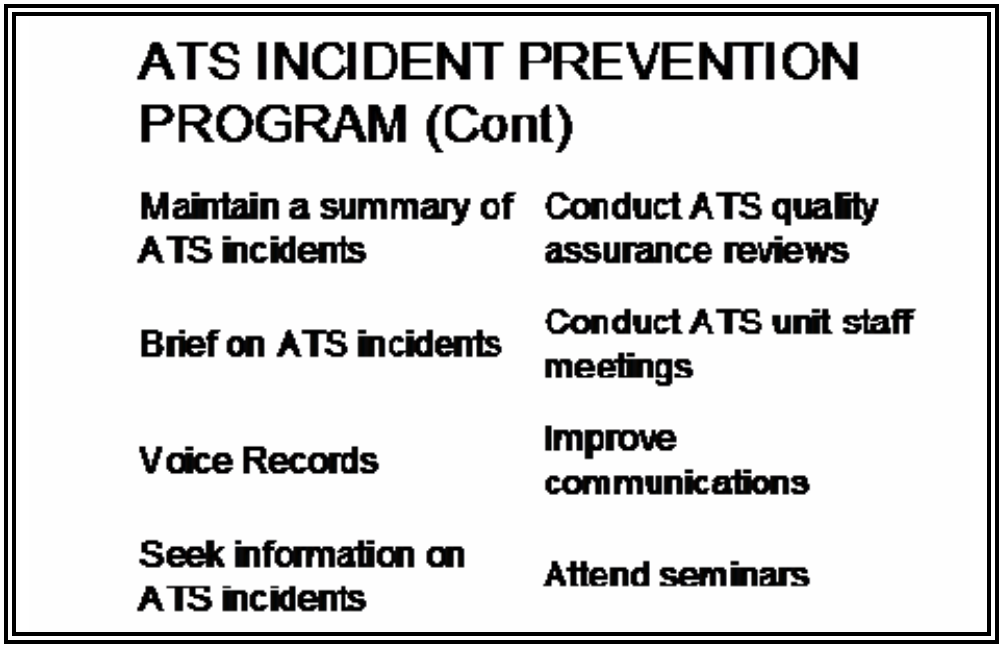


⊙有很多可以防範ATS事件發生的預防性措施可以去作，但是這裡有五個項目是直接跟防範ATS

事件有關的：溝通(Communications)、術語(Phraseology)、督導(Supervision)、團隊性作業(Teamwork)、飛航管制專精(ATC Proficiency)。爲達到防範ATS事件的目標，下列項目應該要被包含在飛航事件防治計劃之內：

-辨識出那些可以促進個人、單位和系統效能的措施和作爲。
-確保那些措施和作爲可以立即獲得肯定和褒獎。。
-辨識出那些會對飛航服務品質有不良影響之個人、程序和/或裝備上的缺陷。
-立即匡正那些會對飛航服務品質或嚴謹性有不良影響之個人、程序和/或裝備上的缺陷。視情況而定，這可以借由諮商、訓練、效能改進檢測、加強或就近作效能監視、修改程序、改裝或修正裝備等來達到目的。
-提供後繼機制(Follow-Up Mechanisms)以確定所採取的措施已匡正所辨識出的問題或缺陷。
-確保所辨識出的成功案例的經驗已在ATS權責單位內與有關人員分享。
-發起、發展和/或檢視那些可以提昇和確保有效溝通、團隊性作業、管制效能的計劃。
-與ATS督導和管制員溝通所期望的效能指標。

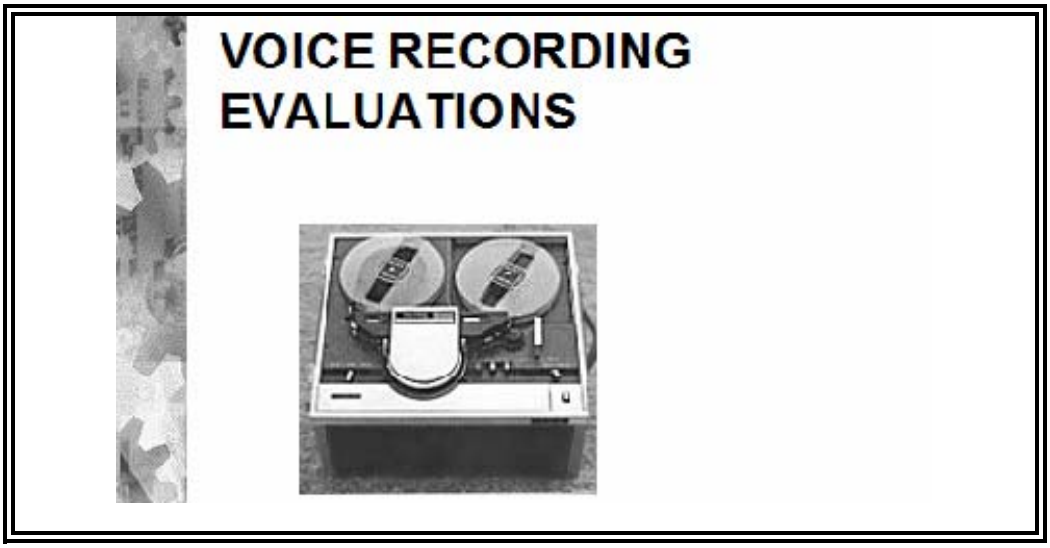
Ref. CAR/SAM 6.2



-確保ATS單位持有一份ATS事件、原因和趨勢摘要表，並且已編入訓練課目中。
-確保所有ATS人員都受到ATS事件簡報，包括事件原因、趨勢和單位所採取的匡正措施。
-監聽並評估所有ATS操作人員錄音。
-檢閱地方、區域和全國性的ATS事件、原因和趨勢。
-實施年度ATS品質保證檢視，以評估ATS品質保證計劃和其執行策略的有效性。
-舉行定期性全員會議。議題應包括地方性和全國性ATS事件趨勢、對內和對外問卷調查結果、以及其它QA相關議題。
- ATS權責單位/ATS執行單位應負責發起促進全體ATS人員溝通的事項，以營造有助於分享資訊的氣氛。
-ATS權責單位/ATS執行單位應保證盡全力以允許QA部門的人員參加地方性、區域性和全國性的QA研討會、會議，以及參加所有QA相關活動。

3.錄音評估(Voice recording evaluation)

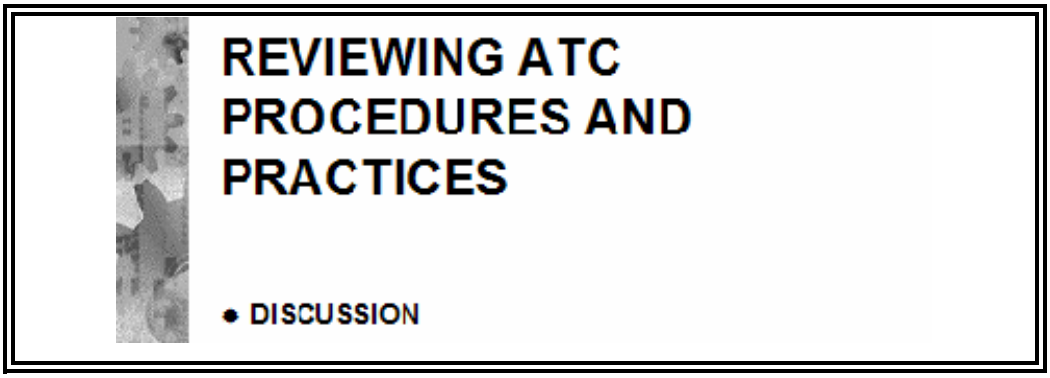
Ref. CAR/SAM 6.3



⊙ATS單位應確保每半年所有ATS人員的錄音檢視至少做過一次。
⊙ATS督導或QA專員應檢視錄音、書面評語，並建立效能缺陷文書制作辦法。
⊙ATS督導或QA專員應與管制員檢視並討論錄音。

4.飛航管制程序/作業辦法檢視(Review of ATC procedures/practices)

Ref. CAR/SAM 6.4

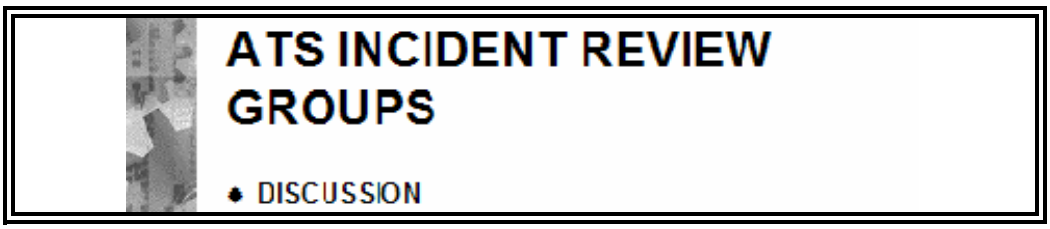


⊙飛航管制程序/作業辦法應經常加以檢視，並予以指認、呈報、建議和從事修訂，以確保飛航安全和防範ATS事件。

(接下頁)

5.飛航服務事件檢視小組(ATS Incidden review groups)

Ref. CAR/SAM 6.5



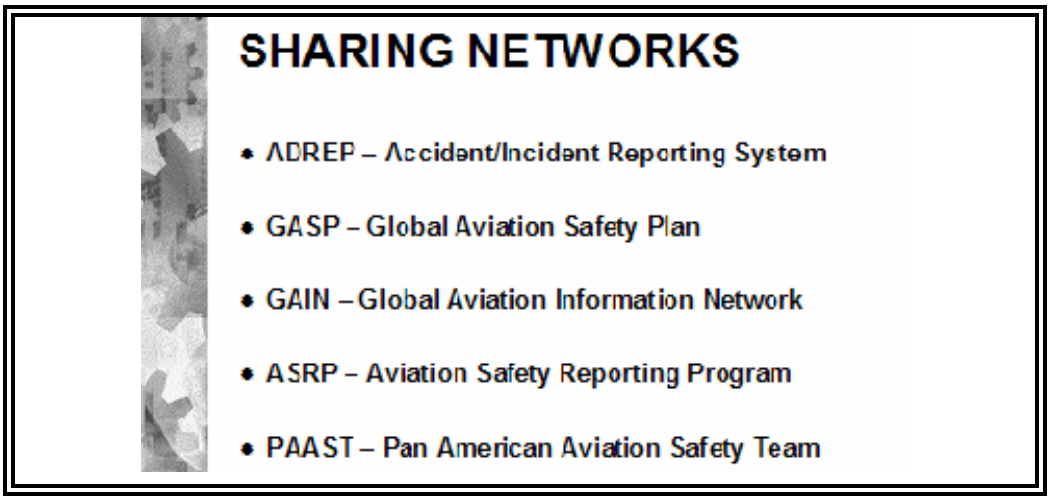
⊙ATS權責單位應建立國家級以及地方級飛航服務事件檢視小組(ATS Incidden review groups)以執行定期檢視ATS事件任務。

⊙檢視小組的成員應包括ATS單位經理人、管制員、其它ATS人員、QA專員，以及如果需要的話-駕駛員和航空公司人員。

⊙小組的主要任務是在ATS事件發生之前的檢視，以及確認有無其它潛在值得加以檢視的有問題領域，以防範將來ATS事件的發生。

6.共享網頁(Sharing networks)

Ref. CAR/SAM 6.6.1



⊙以下是現已構建完成以促進存在及潛在缺陷資訊自由交流的國家及國際網站：

-ADREP：由ICAO建立的事故/事件通報系統。詳參ICAO_ADREP、Doc9156。

-GASP：因應於1996年發生的大量飛航事故，以及預期將來飛航數量勢必增加；故空中航行委員會(Air Navigation Commission)認爲有必要降低事故發生率。於是於1997年提議創建ICAO全球飛航安全計劃(Globle Aviation Safty Plan)。GASP的主要目的是一方面授領導予權ICAO一方面取得其它會員國和航空業者的同意，共同致力於促進飛航安全。以便：

*顯著降低全球事故率。

*增進對航空領域內各種短缺或缺陷的辨認能力，並協助會員國獲得顯著進展。

*增加並改善ICAO編輯、調查和發佈安全相關資訊的能力。

-GAIN：全球飛航資訊網(The Globle Aviation Information Network)計劃，是由美國聯邦航空總署(FAA)於1996年所發起以鼓勵全球性共享飛航安全相關資料，以便進一步減

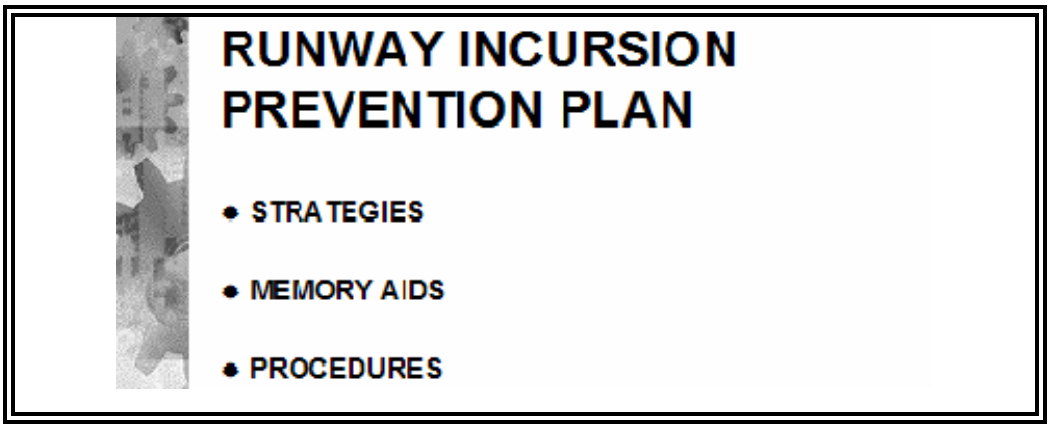
少事故的網站。該網站(www.gainweb.org)提供了一百個對其它含有飛航安全資料網站的連結。

-ASRP：飛航安全通報計劃(The Aviation Safety Reporting Program)是1975年FAA接受交通部(NTSB)建議所建立，用來指認出不安全的操作狀況的網站。現交由美國航太總署(NASA)維護。

-PAAST：汎美飛安小組(The PAN America Aviation Safety Team)是拉丁美洲和加勒比海地區一個複合性組織的小組，本身擁有巨大的重要資源 ，可以定位優先安全區域和送交產品給航空團體。

7.跑道入侵防治計劃(Runway incursion prevention plan)

Ref. CAR/SAM 6.7



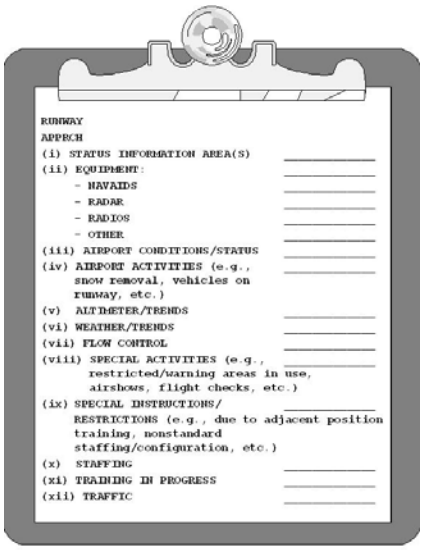
⊙最近幾年跑道入侵發生的頻率有上升的趨勢；雖然大多數的入侵並未造成意外，但是潛在的危機仍然是存在的。

⊙隨著全球性機場航行量的增加，潛在的跑道入侵事件或事故的機率也會跟著增加-假如沒有一套跑道入侵防治計劃的話。

(接下頁)

Ref. CAR/SAM 6.7.3

RUNWAY INCURSION PREVENTION PLAN



Briefing Briefing

⊙在發展跑道入侵防治計劃時，下列策略應加以納入考量：

-應實施席位交接之簡報(Position relief briefings)並加以錄音或記錄。

-席位交接核對表(Position relief checklist)應包含〝不可使用〞(Unavailable)、〝關閉〞(Closed)、〝佔用中〞(Occupied)欄位。不論席位，所有管制員在交接簡報時亦應口頭(Verbally)述明跑道爲〝不可使用〞或〝關閉〞或〝佔用中〞。

-跑道入侵防治計劃及相關肇事因素之專精訓練應每年舉行。

-應使用問卷調查表或意見反映單蒐集與跑道入侵防治計劃效力有關的ATS人員的意見。

⊙下列備忘輔助工具和作業規定應加以落實：

-地面管制席和機場管制席都應使用加上適當標註的管制條和管制盤。

-應使用〝跑道佔用中〞(Runway in use)號誌。

-ATS單位的備忘輔助工具之使用，應以半年爲基準的予以檢視。

⊙在檢視場面活動操作程序時應考慮下列項目：

-律定跑道穿越點(Runway crossing point/s)。

-ATS權責單位應特別關切跑道穿越安全(Safe runway crossing/s)。

-ATS督導和管制員應確保在穿越跑道時使用正確的程序，包括內線通話程序和使用〝跑道佔用中〞號誌。

-地面管制席和機場管制席都應對跑道使用的嚴謹性(Integrity)負責。當協調穿越跑道時，除非ICAO_SARPs和程序授可，否則其許可不得爲條件式(Conditional)且不得參照於其它航機。即使在ICAO條款授可範圍內，在使用這種許可時應極度小心，且應僅爲例外使用而非常態使用。

⊙巡視跑道程序應明訂於ATS單位與負責巡視跑道單位間之協議書中。

⊙機場活動區(Movement areas)內之車輛活動應界定於協議書中，車輛之活動應儘可能限制在周邊道路和非活動區內。

⊙關閉的跑道作業程序(Closed runway procedures)之敘述，包括局部關閉。

8.品質保證檢視(Quality assurance review QAR)

QAR
Ref. CAR/SAM 6.8
FAA Order 7210.56, para. 4-1-3

⊙凡有事件必經過調查、凡有缺陷必經過改正一事，對ATS系統和對防治ATS事件的有效性而言是件重要的事。但是可能有些管制人員效能上的嚴重缺失並不落在ATS事件定義之內，QAR便是在提供對此類事件提出辨識、調查和解決方案。爲了達到這個目標，ATS單位經理人凡是在飛航服務有被牽涉在內時，皆應對下列事項實施QAR：
-航空器發生事故。
-其它不在ATS事件定義內之ATS事件。
-TCAS RA 報告。
-其它未取得隔離之雜項事件報告。
-航空器重飛(Go around)(檢視當時爲何重飛之情況)。
-公眾查詢有關特定飛航服務作業事項；比方說飛航組員、乘客或媒體查詢。
⊙QRA亦得於無關管制人員缺失狀況下，依經理人員直接或間接觀察下之決定而實施。
⊙ATS單位經理人應指定督導或QA專員負責執行QAR。
⊙ QAR之執行應深入至能合理的正確查明相關管制員效能的程度。其深入程度可能簡單到只與相關管制員討論一下當時狀況就行，也可能複雜到需要聽錄音、看錄影才夠。
⊙完成管制員的所有效能缺失改正訓練。
⊙與ATS單位經理人報告QAR結論，包括未發現任何管制員效能缺失。
⊙在ATS單位工作日誌(Operations log)上記錄觸發QAR通知之事件及其後之檢視結論。

(接下頁)

隨堂測驗 (END OF LESSON TEST)

As assigned by the instructor, design an Incident Prevention Program for your country.

第 六 章 飛航事故通報、調查和編組（AT Iccident reporting,investigation,and investigation teams）：

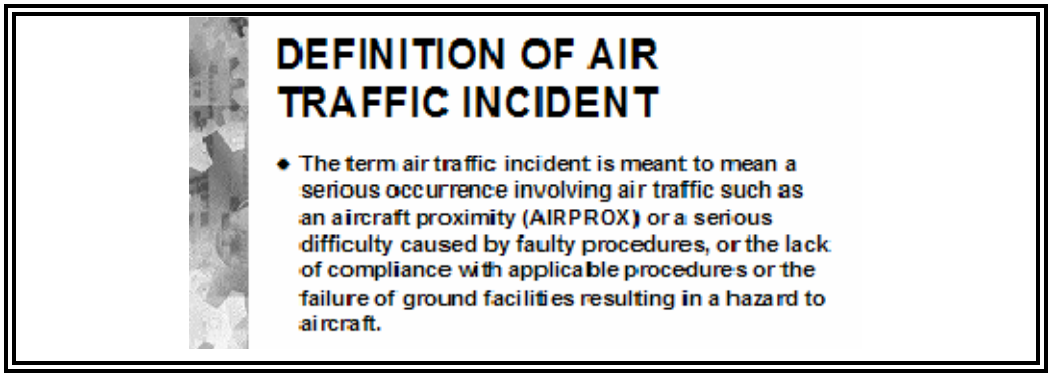
1.簡介(Introduction)

Ref. CAR/SAM 5.1

⊙每個人在管制生涯中，不免會直接或間接的被捲入飛航事件中。在這之前，你應該要花點時間讓自己了解一下飛航事件的通報和調查程序。

2.名詞定義(Definitions)

Ref. CAR/SAM 5.1.1



⊙飛航事件的的定義是，一種對航機造成危害之嚴重飛航狀況。諸如空中接近(AIRPROX)、因程序瑕疵所造成的嚴重困難、未按程序操作或地面設施失效等。

⊙一但嚴重事件或事故調查權責單位成立專案開始進行調查，則應遵照ICAO_Annex13和ICAO_Doc6920之規定。

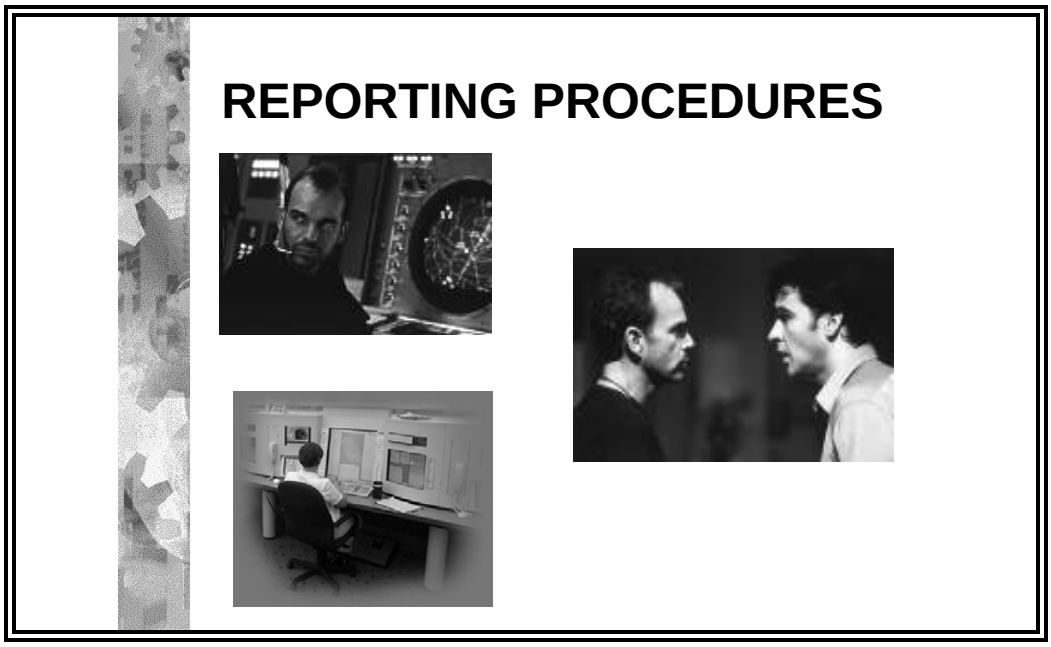
⊙在這種狀況下，飛航事件之調查應歸入調查權責單位執行調查的一部份。

⊙應建立ATS事件通報程序和ATS調查程序以維持安全和執行飛航管制時的高標準要求。

⊙爲了幫助會員國建立ATS事件/ATS事故調查程序和ATS事故防治計劃，ICAO建構了一個事件/事故通報系統，就是有名的ADREP(詳參ICAO_Doc9156)。

3.通報程序(Reporting procedures)

Ref. CAR/SAM 5.2.1.1-2 Appendex A



⊙在報告中飛航事件的分類和代碼如下：

事　件　種　類	事　件　代　碼
航空器接近	ARPROX
因程序瑕疵或未遵照程序所致之嚴重困難	Ptocediual
因地面設施或失效所致之嚴重困難	Facility
作業過失	OE
作業違規	OD

⊙飛航事件報告表(Air Traffic Incident Repot form)是爲下列用途設計的：
-駕駛員落地後填發或補實無線電報告之事件報告。
**ICAO Note:在空時若有本表格，亦得作爲註記初步報告之用。*
-ATS單位用以記錄從無線電、電話或電傳中所收到之事件報告。
**ICAO Note:本表亦得作爲AFTN傳訊格式使用。*
⊙與飛航事件有牽涉的駕駛員應：
-飛航中，使用陸空通訊波道報告重大事件以利事實能夠立即被確認，尤其是有其它航空器牽涉在內時。
-落地後儘速提出完整的飛航事件報告表，以補實無線電報告之事件報告或補實當時無法進行無線電報告之事件報告，或用以填發事發當時並無立即作宣告必要之報告。
⊙在無線電中所作之初步報告應包括下列資訊：

-航空器呼號。
-事件種類(AIRPROX、Procedure、Facility等)。
-事發日期、時間(UTC)、位置。
-航向、路徑、高度、真空速、高度播定、平飛或爬、下。
-所採取的避讓措施。
-相關航空器之呼號、機型；若不知道，則儘量描敘。
-相關航空器是平飛或爬、下。
-相關航空器所採取的避讓措施。
-兩機間的距離。
-第一落地機場和目的地機場。

⊙在無線電中所作之初步報告，其飛航事件報告表應由駕駛員在第一落地機場送交ATS通報辦公室。

(接下頁)

練習一：通報ATS事件 (Reporting an ATS Incident)

You are a Supervisor at the Ziggy Area Control Center, (ZMD) radar facility, and a controller has informed you that a pilot wishes to file an AIRPROX over the radio.

What is the minimum information you will request?

1. ICAO model air traffic incident report form

AIR TRAFFIC INCIDENT REPORT FORM

For use when submitting and receiving reports on air traffic incidents. In an initial report by radio, shaded items should be included.

A – AIRCRAFT IDENTIFICATION	**B – TYPE OF INCIDENT**
	AIRPROX / PROCEDURE / FACILITY [℘]

C – THE INCIDENT

1. General

a) Date / time of incident UTC

b) Position

2. Own aircraft

a) Heading and route _____

b) True airspeed _____ Measured in ( ) kt ___ ( ) km/h ___

c) Level and altimeter setting _____

d) Aircraft climbing or descending

( ) Level flight ( ) ( ) Descending

e) Aircraft bank angle

( ) Wings level ( ) Slight bank ( ) Moderate bank

( ) Steep bank ( ) Inverted ( ) Unknown

f) Aircraft direction of bank

( ) Left ( ) Right ( ) Unknown

g) Restrictions to visibility (select as many as required)

( ) Sunglare ( ) Windscreen pillar ( ) Dirty windscreen

( ) Other cockpit structure ( ) None

h) Use of aircraft lighting (select as many as required)

( ) Navigation lights ( ) Strobe lights ( ) Cabin lights

( ) Red anti-collision lights ( ) Landing / taxi lights ( ) Logo (tail fin) lights

( ) Other ( ) None

i) Traffic avoidance advice issued by ATS

( ) Yes, based on radar ( ) Yes, based on visual sighting ( ) Yes, based on other information

( ) No

j) Traffic information issued

( ) Yes, based on radar ( ) Yes, based on visual sighting ( ) Yes, based on other information

( ) No

k) Airborne collision avoidance system – ACAS

( ) Not carried ( ) Type ( ) Traffic advisory issued

( ) Resolution advisory issued ( ) Traffic advisory or resolution advisory not issued

[℘] Delete as appropriate

l)	**Radar identification**					
	( )	No radar available	( )	Radar identification	( )	No radar identification
m)	**Other aircraft sighted**					
	( )	Yes	( )	No	( )	Wrong aircraft sighted
n)	**Avoiding action taken**					
	( )	Yes	( )	No		
o)	**Type of flight plan**		**IFR / VFR / none**[℘]			

3.	**Other aircraft**					
a)	**Type and call sign / registration (if known)**					
b)	**If a) above not known, describe below**					
	( )	High wing	( )	Mid wing	( )	Low wing
	( )	Rotorcraft				
	( )	1 engine	( )	2 engines	( )	3 engines
	( )	4 engines	( )	More than 4 engines		
	Marking colour or other available details					
c)	**Aircraft climbing or descending**					
	( )	Level flight	( )	Climbing	( )	Descending
	( )	Unknown				
d)	**Aircraft bank angle**					
	( )	Wings level	( )	Slight bank	( )	Moderate bank
	( )	Steep bank	( )	Inverted	( )	Unknown
e)	**Aircraft direction of bank**					
	( )	Left	( )	Right	( )	Unknown
f)	**Lights displayed**					
	( )	Navigation lights	( )	Strobe lights	( )	Cabin lights
	( )	Red anti-collision lights	( )	Landing / taxi lights	( )	Logo (tail fin) lights
	( )	Other	( )	None	( )	Unknown
g)	**Traffic avoidance advice issued by ATS**					
	( )	Yes, based on radar	( )	Yes, based on visual sighting	( )	Yes, based on other information
	( )	No	( )	Unknown		
h)	**Traffic information issued**					
	( )	Yes, based on radar	( )	Yes, based on visual sighting	( )	Yes, based on other information
	( )	No	( )	Unknown	( )	
i)	**Avoiding action taken**					
	( )	Yes	( )	No	( )	Unknown

[℘] Delete as appropriate

4. Distance

a) Closest horizontal distance _____

b) Closest vertical distance _____

5. Flight weather conditions

a) IMC / VMC*

b) Above / below* clouds / fog / haze or between layers*

c) Distance vertically from cloud _____ m / ft* below _____ m / ft* above

d) In cloud / rain / snow / sleet / fog / haze*

e) Flying into / out of* sun

f) Flight visibility _____ m / km*

6. Any other information considered important by the pilot-in-command

_____

_____

_____

_____

_____

_____

D – MISCELLANEOUS

1. Information regarding reporting aircraft

a) Aircraft registration _____

b) Aircraft type _____

c) Operator _____

d) Aerodrome of departure _____

e) Aerodrome of first landing _____ destination _____

f) Reported by radio or other means to _____ (name of ATS unit) at time _____ UTC

g) Date / time / place of completion of form _____

2. Function, address and signature of person submitting report

a) Function

b) Address

c) Signature

d) Telephone number

3. Function and signature of person receiving report

a) Function _____ b) Signature _____

E – SUPPLEMENTARY INFORMATION BY ATS UNIT CONCERNED

1. Receipt of report

   a) Report received via AFTN / radio / telephone / other (specify)* _____

   b) Report received by _____ (name of ATS unit)

2. Details of ATS action

   Clearance, incident seen (radar/visually, warning given, result of local enquiry, etc.)

_____

_____

_____

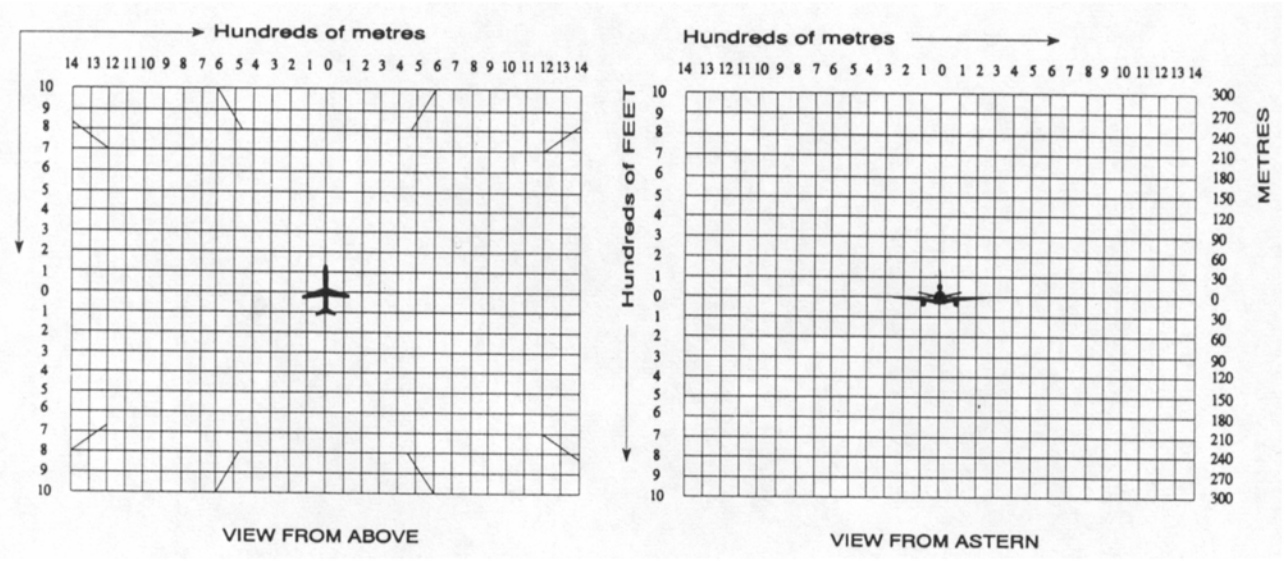
_____

_____

_____

DIAGRAMS OF AIRPROX

Mark passage of other aircraft relative to you, in plan on the left and in elevation on the right, assuming YOU are at the centre of each diagram. Include first sighting and passing distance.



4.調查程序(Investigation procedures)

Ref. CAR/SAM 5.6-5.8

INVESTIGATION PROCESS

- **Suspected ATS incident event**
- **Preliminary ATS incident investigation**

⊙有幾種類型的事件對提供安全、迅速、有序飛航服務之會員國的飛航服務系統的能力會產生不良影響。

⊙在這個章節裏，我們將提供逐步的調查程序供會員國參考。

⊙飛航服務系統內所有缺失之被指認與通報以便尋求適當的改正措施去解決相關問題，是件重要的事。ATS事件(作業疏失、作業違規等)也應該只是因爲這個原因而被通報，因而這些不論是系統性的或個人性的問題都可以被解決掉，以增進飛航服務系統的嚴謹性。

⊙我們鼓勵，任何人只要意識到可能是ATS事件的狀況發生，就應該立即向ATS督導或其它適當的ATS行政長官報告。

⊙ATS事件的初步調查是一個〝發掘真相〞的過程，定位在研判在飛航服務系統裏發生的是什麼樣的狀況，並將有重要性的狀況向上級經理或行政長官報告。

Preliminary ATS incident investigation (Cont'd)

INVESTIGATION PROCESS

- **Advise that ATS unit manager or supervisor**
- **Provide relief**
- **Gather flight progress strips**
- **If another ATS unit is involved**
- **Review voice recordings**
- **Review available computer data**
- **Conduct preliminary interviews**
- **Notify the appropriate ATS management**
- **Complete Preliminary ATS Incident Investigation Worksheet**
- **Returned to duty without further action**

⊙當疑似有ATS事件發生時，ATS督導或ATS經理人或其指定人應研判是否確定爲ATS事件，若確定爲ATS事件則應：

-當資訊顯示在其它單位管區內疑似發生ATS事件時，應立即報告ATS經理人或督導。
-視作業與人力狀況，儘速把涉案管制員解除所有ATS操作性工作任務。這動作可讓管制員在記憶猶新時有機會準備陳述內容。
-蒐集管制條、天氣資料和其它有重要性的資料。
-若牽涉到其它ATS單位，則該單位應提供及時完成初步報告所需的一切資料予請求單位之ATS經理人或督導。
-檢閱錄音；並儘速備製錄音副本爲後續操作使用。
-檢閱電腦和雷達資料。
-通知適當ATS經理人或行政長官ATS事件之發生。
-填具The Model Preliminary ATS Incident Investigation Worksheet(見CAR/SAM Regional Guidance第5章Appendix_B)。當製作摘要時，應盡可能簡明扼要的使用誰人、事、時、地、物方式描述事件。
-若有其它管制員知情，則應包括他們的觀感和建議。
-如初步調查結果顯示原先被認有牽涉的管制員實際上並無牽連時，就應無條件放他們回去工作。

5.事件記錄保存(Incident report record-keeping)

Ref. CAR/SAM 5.14-5.17

⊙ATS權責單位應每年(日曆年)執行一次ATS事件追考(ATS incidents tracking)程序。
⊙該行動將可幫助CAA執行後續調查和趨勢分析。
⊙下列格式可供會員國參考：

ATS 事件報告 #XXXX-A-00-001
ATS 事件報告 #XXXX-T-00-002
ATS 事件報告 #XXXX-F-00-003

說明:

- XXXX = ATS 單位代字
- A、T、F = ATS 單位類別
  - → A = 區域管制 (ACC);
  - → T = 近場臺(APP)和塔臺;
  - → F = FIC、 AFIS 等
- 00= 年份後兩碼
- 001= 單位ATS事件序列碼，以年度爲基準。

⊙建議將因 ATS 事件調查所指出之缺失所作的改正訓練，妥善的建立成文檔並加以保存。

⊙民航權責單位應決，所有 ATS 事件原始資料以及調查資料的保存期限。建議長度是兩年半，這樣才有足夠的時間作事件趨勢和原因的研究。

⊙這些資料也可以用來作成改進和持續保持全面飛航服務系統的建議案。

⊙國家飛航服務權責單位應在行政體系內建立和保持一個分析部門從事下列工作：

-維持一個ATS事件資料來源中心。

-檢視所有最終ATS事件報告以便辨識出全系統性缺陷；以及基於這種檢視，提出改正措施建議案以減少ATS事件數量。

-年度性發展並發佈一份ATS事件分析報告。

*這份報告至少應包括指出自ATS事件報告中所發現的缺陷趨勢。

*這資料應發佈至全國各ATS單位，以供編輯專精訓練教材之用。

-執行定期性各種計劃之評估，以確定該計劃之效率和有效性。

-與ATS單位經理人保持連繫,以提供持續(Continuity)和後繼(Follow-Up)改進措施之建議。

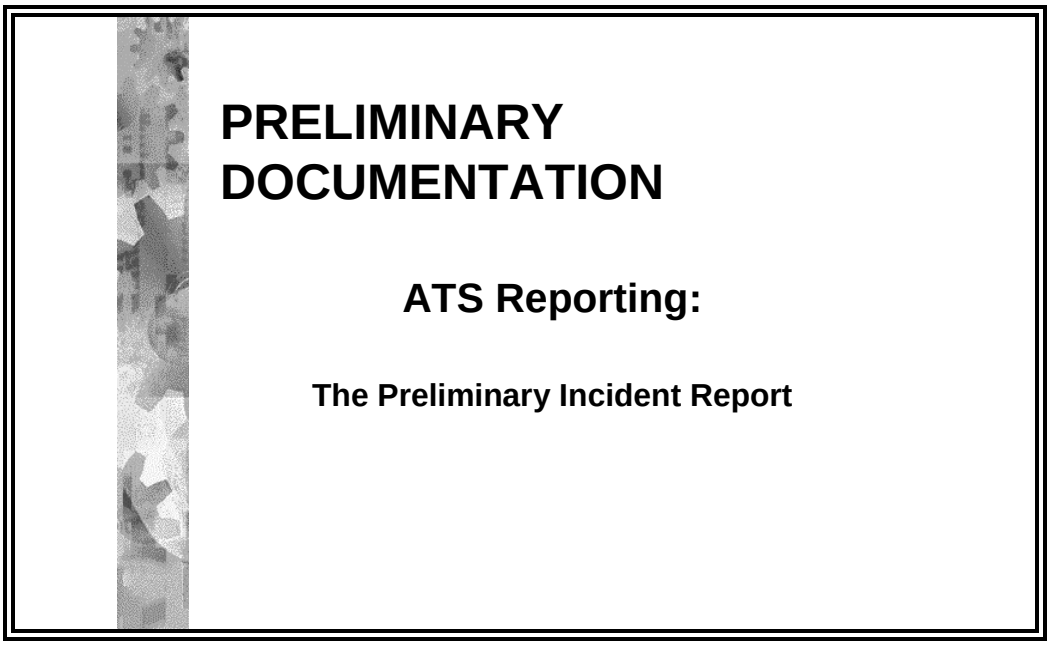
-檢視並保持全面性監督所有ATS事件調查報告。

-保存所有ATS事件最終調查報告。

(接下頁)

6.初報備文(Preliminary documentation)

Ref. CAR/SAM 5.2.3



⊙在ATS事件之後，相關ATS單位應進行下列事項：

-依CAR/SAM第5章第5.2.1節程序，確認ATS事件並歸類入代碼。

-若航機之目的地在發生事件單位之管區內時，應安排作業人員在落地後向駕駛員索取報告。

-若爲國內線之航機，應請目的地ATS單位在落地後向駕駛員索取報告。

-若爲國際線之航機，則應通知並提供全部事件詳細資料(用AFTN)給目的地機場之ATS權責單位，請其在落地後向駕駛員索取報告。

-應通知並提供全部事件詳細資料航空器註冊國民用航空權責單位和航空器使用國民用航空權責單位(用AFTN)。

-如事件還牽涉其它航空器，則亦應採取相同作爲。

-填具飛航事件報告表。

-確保事故/事件權責單位和國家ATS權責單位，收到所有可以報告事件的通知

(接下頁)

練習二：初報告備文(Preliminary Documentation)

Instructions
Fill out the appropriate form using information provided by the instructor.
Use Appendix B at the end of this chapter

Preliminary Incident Report Package

事件經過

You are a supervisor at International Ziggy Area Control Center (KZMD) your investigation into the AIRPROX revels the following data for incident involving N12345.

On Sunday, 12 Sep 2004 at 1400 UTC (0901 Local), there was supervisor signed on duty at the time that was responsible for sectors 1,2 and 3. The supervisor was at his duty station talking on the telephone to the training specialist of the facility. The incident occurred at the Ziggy Area Control Center, in class A airspace. The secondary radar was in service and there were no abnormalities noted on the facility log for the day. MSAW was operational and all NAVAIDS were operational. The investigation is to determine if there was deviation to rule 5.11 of the PANS-ATM Doc. 4444.

N12345, a LR35, departed the Atlanta Airport at 1343 GMT was worked out by Atlanta approach, radar contact being established at 1344, with normal service provided, handed off to KZMD at 1350 on a heading of 300 cleared to 15,000 ft.

GT at KZMD, sector 3 accepted the handoff and cleared the aircraft to flight level 230 and vectored the aircraft to a heading of 345 until receiving Kansas City then direct. GT signed on sector 3 at 1230 GMT and was last certified on the position 3/10/2004, GT was working 9 aircraft.

As the aircraft climbed through flight level 190 the pilot noticed traffic at his two o' clock position on a Southeast heading that appeared to close. The pilot was concerned with the traffic and informed the controller that he wanted to file an AIRPROX incident.

The other aircraft was N24222 a Cessna Citation model C-500 was southeast bound heading 120. The aircraft was proceeding direct to CAT, a VFR field. The aircraft was level at FL200 descending to FL100.

Preliminary extraction of radar data revealed the following data.

N12345 was 86 miles northwest of the Atlanta (ATL) VORTAC at FL 190 climbing to FL 240 on an assigned vector heading of 345; speed indicated 285 knots squawking code 3414.

N24222 was 89 miles northwest of the ATL VORTAC descending to 10,000, heading 120; speed indicated 325 knots, squawking code 2612.

At 1401 GMT the N24222 passed 2.8 miles in front of N12345 at an altitude of 19,600 feet

This is the third incident for the year

PRELIMINARY REPORT
OF ATS INCIDENT (WORKSHEET)

REPORT NUMBER

1.- CLASSIFICATION
☼ OPERATIONAL ERROR ☼ AIRPROX
☼ OPERATIONAL DEVIATION ☼ PILOT DEVIATION
☼ PROCEDURAL ☼ FACILITY

2.- DATE AND TIME OF THE INCIDENT
DATE ____ TIME ____ ____
DAY MONTH YEAR UTC LOCAL

3.- ATS UNIT ORIGINATING THE REPORT ____ IDENT.

4.- OTHER ATS UNITS INVOLVED
☼ YES
☼ NO
____ IDENT. ____ IDENT.

5.- REPORT OF CLOSE PROXIMITY (AIRPROX) ☼ YES ☼ NO ☼ UNKNOWN

6.- INCIDENT REPORTED BY:
☼ CONTROLLER ☼ SUPERVISOR ☼ PILOT

7.- METEOROLOGICAL INFORMATION ☼ AVAILABLE ☼ NOT AVAILABLE

8.- ALTITUDE OR FLIGHT LEVEL IN WHICH THE INCIDENT OCCURRED ____

9.- LOCATION OF THE INCIDENT

A. IN AIR			B. ON GROUND		
FIXED	DIRECTION	DISTANCE	INTERSECTION	RUNWAY	TAXIWAY

10.- CLOSEST PROXIMITY

☼ IN AIR
VERTICAL ____ FEET
HORIZONTAL
☼ ____ FEET
☼ ____ . ____ MILES

☼ ON GROUND (DESCRIPTION)

11.- AIRCRAFT INFORMATION	AIRCRAFT No. 1	AIRCRAFT No. 2
A. IDENTIFICATION		
B. TYPE OF AIRCRAFT		
C. LEVEL FLIGHT	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
CLIMBING	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
DESCENDING	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
F. EVASIVE ACTION	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
G. TAKEOFF ROLL	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
H. LANDING ROLL	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ INO ☼ UNKNOWN
I. UNDER RADAR CONTROL	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
J. RADAR VECTORED	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
K. TRANSPONDER FUNCTIONING	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
L. MODE C FUNCTIONING	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN
M. RECEIVED TCAS/ACAS RA	☼ YES ☼ NO ☼ UNKNOWN	☼ YES ☼ NO ☼ UNKNOWN

AIRCRAFT AND OBSTRUCTIONS/OBSTACLES
☼ TERRAIN ☼ VEHICLES ☼ PERSONNEL ☼ MANOEUVRE AREA ☼ OBSTRUCTION
☼ EQUIPMENT ☼ CONTROLLED AIRSPACE ☼ NOT APPLICABLE ☼ OTHER (EXPLAIN)

12. - CONTROLLER INFORMATION

AREA OF SPECIALIZATION. _____

SECTOR/POSITION. _____

TIME (HRS/MIN) ON POSITION WHEN INCIDENT OCCURRED. _____

TIME (YEARS/MONTHS) SINCE LAST CERTIFIED ON POSITION. _____

NUMBER OF AIRCRAFT CONTROLLER HAD CONTROL RESPONSIBILITY FOR AT TIME OF INCIDENT. _____

WAS THE CONTROLLER PREVIOUSLY FAMILIARIZED WITH THE POSITION. ☼ YES ☼ NO (EXPLAIN)

_____

WAS THE POSITION/SECTOR COMBINED. ☼ YES (EXPLAIN) ☼ NO _____

PRELIMINARY REPORT
OF ATS INCIDENT (WORKSHEET)

REPORT NUMBER

13.- SUPERVISION

A.- WAS A SUPERVISOR ASSIGNED TO THE AREA/CONTROL ROOM?

☐ YES

☐ NO (EXPLAIN)

B.- WHAT WAS THE SUPERVISOR DOING WHEN THE INCIDENT OCCURRED?

14.- WAS TRAINING IN PROGRESS

☐ YES (EXPLAIN) ☐ OTHER

☐ NO

15.- TYPE AND CLASS OF AIRSPACE

☐ TERMINAL AIRSPACE	☐ CLASS A	☐ CLASS E
☐ ENROUTE AIRSPACE	☐ CLASS B	☐ CLASS F
☐ AERODROME SURFACE	☐ CLASS C	☐ CLASS G
☐ OCEANIC	☐ CLASS D	☐ OTHER

16.- PROCEDURES

A.- TYPE OF CONTROL	B.- SPECIFY THE MINIMUM SEPARATION APPLICABLE	
☐ RADAR ☐ TOWER	DIRECTIVE	REQUIRED SEPARATION (SPECIFY)
☐ MANUAL ☐ OCEANIC	PARAGRAPH	_____.

16.- EQUIPMENT

A.- TYPE	GOOD	NORMAL	POOR	OUT OF SERVICE	
RADIO COMMUNICATION					
	REMARKS				
COMMUNICATION POINT-TO-POINT					
	REMARKS				
COMPUTER					
	REMARKS				
RADAR					
	REMARKS				

B.- SYSTEM(s) IN USE

☐ PRIMARY RADAR ☐ SECONDARY RADAR ☐ ALPHA NUMERIC ☐ MODE-S

☐ BRITE/DBRITE ☐ OTHER

C.- WAS THERE A TRANSITION FROM MANUAL TO RADAR ☐ YES (EXPLAIN) ☐ NO

PRELIMINARY REPORT
OF ATS INCIDENT (WORKSHEET)

REPORT NUMBER

17.- MSAW / EMSAW (Complete if applicable)	18.- CONFLICT ALERT (Complete if applicable)
A. AVAILABLE ☼ YES ☼ NO (EXPLAIN)	A.- AVAILABLE ☼ YES ☼ NO (EXPLAIN)
B.- ACTIVATED ☼ YES ☼ NO (EXPLAIN)	B.- ACTIVATED ☼ YES ☼ NO (EXPLAIN)
C.- DEACTIVATED ☼ YES (EXPLAIN) ☼ NO	C.- DEACTIVATED ☼ YES (EXPLAIN) ☼ NO

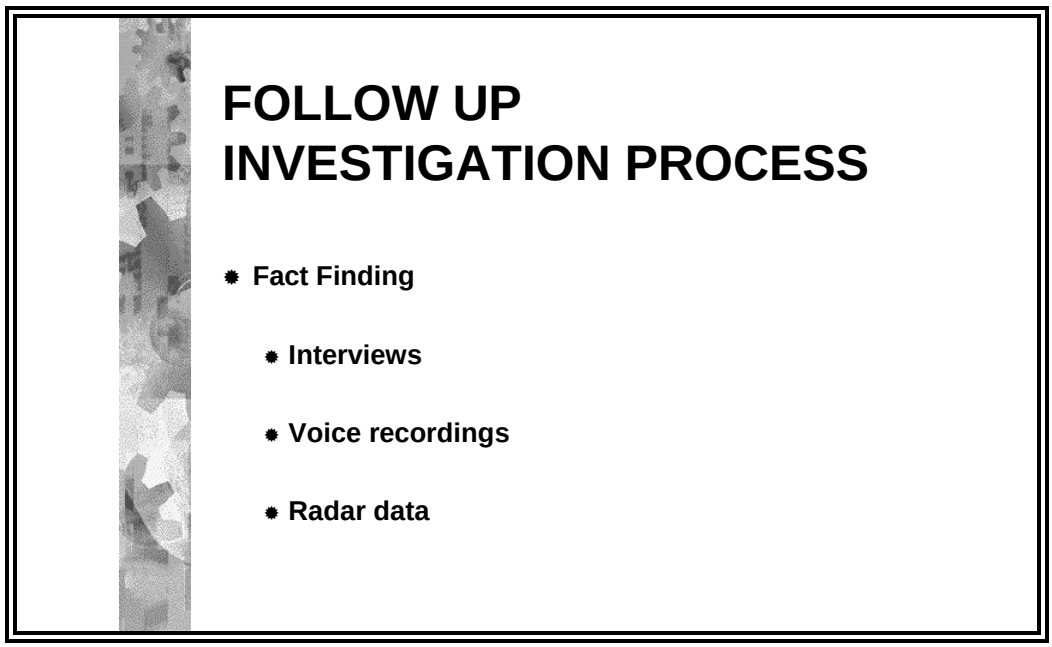
18.- WERE NAVAIDS A FACTOR
☼ YES (EXPLAIN)
☼ NO

19.- SUMMARY OF PERTINENT INFORMATION (DESCRIPTION OF EVENTS)

20.- PERSON MAKING NOTIFICATION	DATE	TIME	NAME AND POSITION
21.- PERSON RECEIVING REPORT			SIGNATURE

7.後續調查程序(Follow up investigation process)

Ref. CAR/SAM
5.9-5.11
FAA Order
8020.11
Appendix C



⊙ATS事件發生時之ATS單位經理負責人應：
-確保ATS事件按照ICAO、國家、區域和ATS單位綱要、建議和作業手冊進行調查。
-當初步事件報告顯示有其它ATS單位涉案時，應儘速與該單位主管諮商，以確定該單位調查的規模(Scope)和時程。若兩單位間有任何無法達成協議狀況時，應提報其爭議之處予上級單位裁決。
-指派一位主任ATS事件調查員(ATS-IIIC；ATS Incident Investigator-In-Charge)。
- ATS-IIIC可爲輪流擔任亦可固定擔任，但必需是ATS單位經理人、督導或ATS專員。
-組成ATS事件調查小組(ATS Incident Investigation Team)，以協助ATS-IIIC調查ATS事件。
-各國或ATS單位應自行決定調查小組之編組和大小。
-確保調查在一個完整、徹底、客觀的狀況下及時完成。
-確保其它涉案ATS單位經理人負起提供所需資訊和協助之責任。
*這包括可能需要對方展開同樣規模的調查；在這種情況下，ATS單位經理人亦相對的需負起上述責任。
*任何其它涉案ATS單位經理人應同樣負起妥善保存原始資料之責任。
⊙ATS-IIIC應負責執行一個完整的調查，並提報發現和建議予ATS單位經理人。
⊙此外，ATS-IIIC應負責：
-確保已收齊所有相關資料並記載在調查報告內，並提報給ATS單位經理人。
-當有其它ATS單位涉案時，應確認對方調查規模並協調所需之協助與資料交換。
-指派小組成員之任務派遣。
-確保約談之執行符合國家和地方之要求。
⊙ATS 事件調查小組應：
-協助ATS-IIIC執行和完成所有指派工作。
-在事件調查期間接受ATS-IIIC指導。

* FACT FINDING

⊙ATS事件的調查應作有深度(In-depth)的追查，直到發掘出所有的肇因爲止。下列項目應納入徹底調查的考慮之內：

-ATS單位的程序。
-ATS單位的訓練。
-ATS單位的督導管理。
-裝備。
-管制室環境。
-外在因素。
-管制員處置。
-空域結構。
-航流(Traffic flows)。
-駕駛員處置，包括ACAS/TCAS狀況之後續動作。
-天氣狀況。
-管制席位結構。
-協調程序。
-機場環境：
 *跑道標線(Runway markings)
 *機坪使用(Apron use)
 *可見度不良之區域(Areas of poor visibility)
 *跑道結構(Runway configuration)
 *航情擁塞(Congestion)
-人爲因子(Human factor)
-自動化雷達系統準確度(Accuracy of the Automated radar systems)
-雷達資料(Radar data)

* INTERVIEW

⊙用以完成調查的資訊有一定部分是必需由相關管制員身上獲取的。
⊙顯然ATS單位裏可能有部分人員-諸如管制員、助理管制員、班務督導等，可能對相關事件相當了解，或跟本就是事件的一部分。
⊙當從事約談時應注意下列幾點：

-確保約談時被約談人員知道約談的用意和目的。
-應遵守任何國家和當地程序和規定。
-被約談人員應被允許提供書面評語和建議事項。建議事項應有關可被採行以杜絕將來相同狀況再發生之改正措施。
-約談應由ATS-IIIC或事件調查小組執行。

* VOICE RECORDINGS

⊙對於錄音，應作如下之檢視：

-應從母帶製作至少一份官式(Certified)副本。

-包含時間軌-如果有的話，以及所有與事件相牽涉席位，自最初通聯前五分鐘至最後通聯後五分鐘之所有通訊資料。

-在副本錄音帶開頭處，應視需要，加冠下列格式語音宣告令其官式化。

*"This re-recording is being prepared by (facility). The subject concerns (type of incident) involving (aircraft identification(s)) on (date, UTC) at approximately (time, UTC). The agencies/facilities involved in this (type of incident) are (agency/facilities name; do not use abbreviations). Positions of operation are recorded in the following sequence: local control, ground control, etc.)."

*"I hereby certify that the following is a true re-recording of the original recorded transmissions pertaining to the (type of incident). My name is (name). I am employed as (title) at (facility)."

-每個各別操作席位的副本錄音帶，開頭處應冠以如下包含席位名稱、副本錄音開始時間(UTC)和結束時間之敘述：

*"This portion of the re-recording concerns communications at the (position) during the period (UTC) to (UTC) on (UTC date)."

-用以下敘述結束錄音帶：

*"This is the end of the re-recording concerning the (type of incident) involving (aircraft identification(s))."

-所有副本錄音帶的卡匣都應該清楚的標示飛航事件序列號、航機呼號、狀況發生之UTC日期、單位名稱、各席位在錄音帶裏的UTC起止時間。

-所有副本錄音帶的都應經過檢查，以確保聲音品質和時間軌的恰當。

-移除錄音帶卡匣上的塑膠片，以防止繼續錄音。

⊙除非有特殊需求或應CAA要求，並不需要製作全本的錄音抄件。

**ICAO Notes:如果上述錄音長度超過三十分鐘以上，ATS 單位經理人或行政主管得依個案許可僅錄製與事件相關之部分。*

* RADAR DATA

⊙雷情資料得用於證實成立ATS事件之發生：
-但採用這個概念時，應建立書面程序說明如何證實成立。
-自動化系統和雷達系統之能力與資料準確度應一併納入考量。

* RECLASSIFICATION OF ATS INCIDENTS

⊙如果在ATS事件初報通知發出之後發現，經檢視資料後又認爲有對事件重新歸類的正當性，則得對事件加以重新歸類。

8.結報備文(Final report documentation)

Ref. CAR/SAM
5.3
Appendix C

FINAL REPORT DOCUMENTATION

ATS Reporting:

The Final Report

The fundamental objective of the investigation is the prevention of accidents,

NOT TO APPORTION BLAME OR LIABILITY.

⊙儘快找出ATS事件發生的原因，以利採取行動防止相同事件的再發生是件重要的事。
⊙初步ATS調查，通常由收到事件報告或通知的ATS單位負責發起的。
⊙該ATS單位應取得下列資料：
-相關人員的陳述。
-相關平面和陸空通訊的錄音抄件。
-管制條和其它相關資料的副本；如果有的話，包括雷情顯示之錄影。
-與事件相關的天氣和預報資料。

-相關裝備單位所發現操作狀況之技術陳述；如果洽當的話，包括改正措施之建議。

⊙爲使飛航事件調查程序生效，應組成調查小組。該小組應包括：

-ATS單位主管。

-一位資深ATS長官或ATS-QA執事/專員擔任領隊和顧問。

-其它來自下列單位的專家：

*航空公司(Flight operation)

*機工人員(Flight Calibrator)

*電訊工程師

*其它所需人士

⊙當牽涉到兩個單位時，事件發生所在單位應發起召集調查小組行動，並邀請另方單位參與。

⊙若駕駛員拒絕提供調查ATS事件所需資料，應向適當ATS權責單位報告。若相關民用航空權責單位拒絕提供調查ATS事件所需資料，則應向適當ICAO區域辦公室報告。

⊙ATS事件調查小組的行動連同所使用文件和記錄資料應予保密。

⊙ATS單位應備妥調查小組所需之特定*Prima Facie(第一眼或第一面)*事實，並應適當的包括：

-相關涉案人員姓名和操作席位。

-事件發生順序的詳細敘述。

-駕駛員姓名和公司名稱，以及相關航機詳細資料。

-在事發當日離開單位前，相關管制員準備的報告。

-相關駕駛員的報告，必要時得透過公司辦公室取得。

-錄音資料、管制條和其它飛航資料，包括雷情顯示資料。

⊙ATS事件調查小組的報告應包括一份事件和其肇因的摘要

⊙調查報告應包括所有的相關資訊，如果合適的話，以時間順序編列。並以一份發現列表(a list of findings)、事件肇因和以防治事件/事故爲目的的安全建議事項爲總結。

⊙在管制員過失的事件中調查小組不應作出人事或懲戒方面的建議，因爲事件調查的基本主旨是預防事件之發生而不是去分派遣責或追究責任。

⊙調查報告應將下列資料附件：

-相關人員的陳述。

-相關平面和陸空通訊的錄音抄件。

-與事件相關的天氣和預報資料。

-管制條和其它相關資料的副本；如果有的話，包括雷情顯示之錄影。

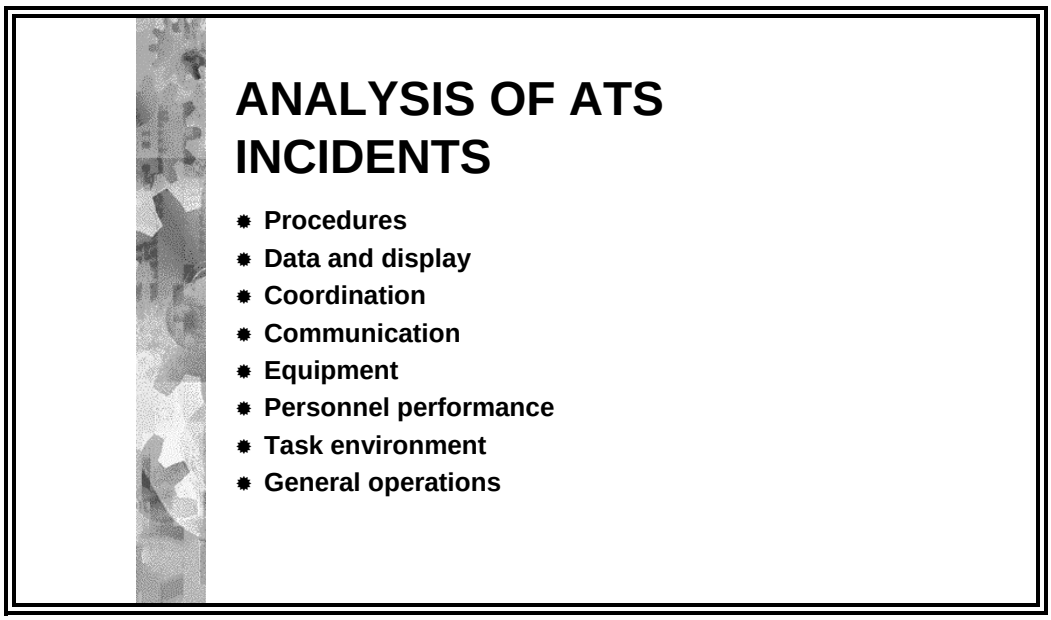
-相關裝備單位所發現操作狀況之技術陳述。

⊙完成調查時，所有發現(finding)的詳細應經由適當管道送交航空器操作國民用航空權責單位和航空公司。

(接下頁)

9.飛航服務事件分析(Analysis of ATS incidents)

Ref. CAR/SAM 5.4



⊙事件分析應從與系統作業間的關係加以考慮，並將下列因素納入考量：

- *程序*。程序和隔離標準對狀況而言是否適當、正確是否？
- *資料與展示*。資料是否完整而正確的按單位指導手冊被展示？所展示的資料是否被正確的解讀與利用？
- *協調*。協調程序是否正確、恰當？有被正確的使用嗎？
- *溝通*。所有相關人員是否都使用正確術語？通話是否簡潔明瞭避免誤會？有無未注意Read-Back/Heard-Back或未加以更正錯誤之問題？有無資料傳遞未確認收到之問題？
- *裝備*。相關技術裝備效能是否恰當？
- *人員效能*。有無發現任何會影響人員效能的因子-諸如疲勞、病痛、個人問題等？(調查小組的出現本身就可能導致個人失誤，一個小程度的疏忽、分神或抱怨應不予指出)。
- *工作環境*。各種可能影響人員效能的工作環境因子都應被納入考量-諸如噪音、通風、溫度、不良照明等。
- *一般作業*。是否每個人上席位前都明白航情狀況和相關資訊？是否每個席位的工作與職掌都定義的很清楚？相對於航情密度，人力格局以及人員輪替、休息時間是否恰當？-若可以的話，督導作業水準是否令人滿意？

⊙一旦 ATS 事件分析完畢；應使其結果，連同結論與建議變成所有相關人員都可獲得。以使改正措施得以依循，以及所有相關人員都可完全明白最後結果並記取教訓。

(接下頁)

練習三：調查程序 (Investigation process)

Fill out the appropriate form using information provided by the instructor.

Use Appendix C at the end of this chapter.

Final Incident Report Package

事件摘要

You are a supervisor at International Ziggy Area Control Center (KZMD) your investigation into the AIRPROX revels the following data for incident involving N12345.

On Sunday, 12 Sep 2004 at 1400 UTC (0901 Local), there was supervisor signed on duty at the time that was responsible for sectors 1,2 and 3. The supervisor was at his duty station talking on the telephone to the training specialist of the facility. The incident occurred at the Ziggy Area Control Center, in class A airspace. The secondary radar was in service and there were no abnormalities noted on the facility log for the day. MSAW was operational and all NAVAIDS were operational. The investigation is to determine if there was deviation to rule 5.11 of the PANS-ATM Doc. 4444.

N12345, a LR35, departed the Atlanta Airport at 1343 GMT was worked out by Atlanta approach, radar contact being established at 1344, with normal service provided, handed off to KZMD at 1350 on a heading of 300 cleared to 15,000 ft.

GT at KZMD, sector 3 accepted the handoff and cleared the aircraft to flight level 230 and vectored the aircraft to a heading of 345 until receiving Kansas City then direct. GT signed on sector 3 at 1230 GMT and was last certified on the position 3/10/2004, GT was working 9 aircraft.

As the aircraft climbed through flight level 190 the pilot noticed traffic at his two o’clock position on a Southeast heading that appeared to close. The pilot was concerned with the traffic and informed the controller that he wanted to file an AIRPROX incident.

N24222 a Cessna Citation model C-500 was southeast bound heading 120. The aircraft had been approved to proceed direct to CAT, a VFR field. The aircraft was level at FL200 descending to FL100.

雷情資料顯示:

1335Z N24222 Handoff activated to Sector 3

1336Z N24222 Handoff accepted by Sector 3

1344Z N24222 Mode “C” indicates descent trajectory

1344Z N12345 Handoff activated from Atlanta Approach Control (ATL) to Sector 3.

1345Z N12345 Handoff accepted by Sector 3

1358Z Conflict Alert activated between N24222 and N12345.

N12345was 86 miles northwest of the Atlanta (ATL) VORTAC climbing through FL 190 to FL 240 on an assigned heading of 345; speed indicated 285 knots squawking code 3414.

N24222 was 92 miles northwest of the ATL VORTAC descending to 10,000, heading 120; speed indicated 325 knots, squawking code 2612.

1401Z N24222 passed 2.8 miles in front of N12345 at an altitude of 19,600 feet

1403Z Conflict Alert deactivated

(接下頁)

錄音資料顯示:

1340Z N24222 Initial call on frequency

1343Z N24222 Issued descent to FL100 from FL240

1346Z N12345 Initial call on frequency

1346Z N12345 Climbed to FL230

1352Z DAL295 Initial call on frequency

1359Z N12345 issued clearance to “turn right immediately, heading 020”

1359Z Traffic call issued to N12345

1400Z Traffic call issued to N24222

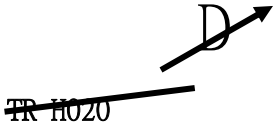
1401Z N12345 reports “Traffic in sight”

1405Z N12345 cleared on course

1406Z N12345 declares intent to file AIRPROX

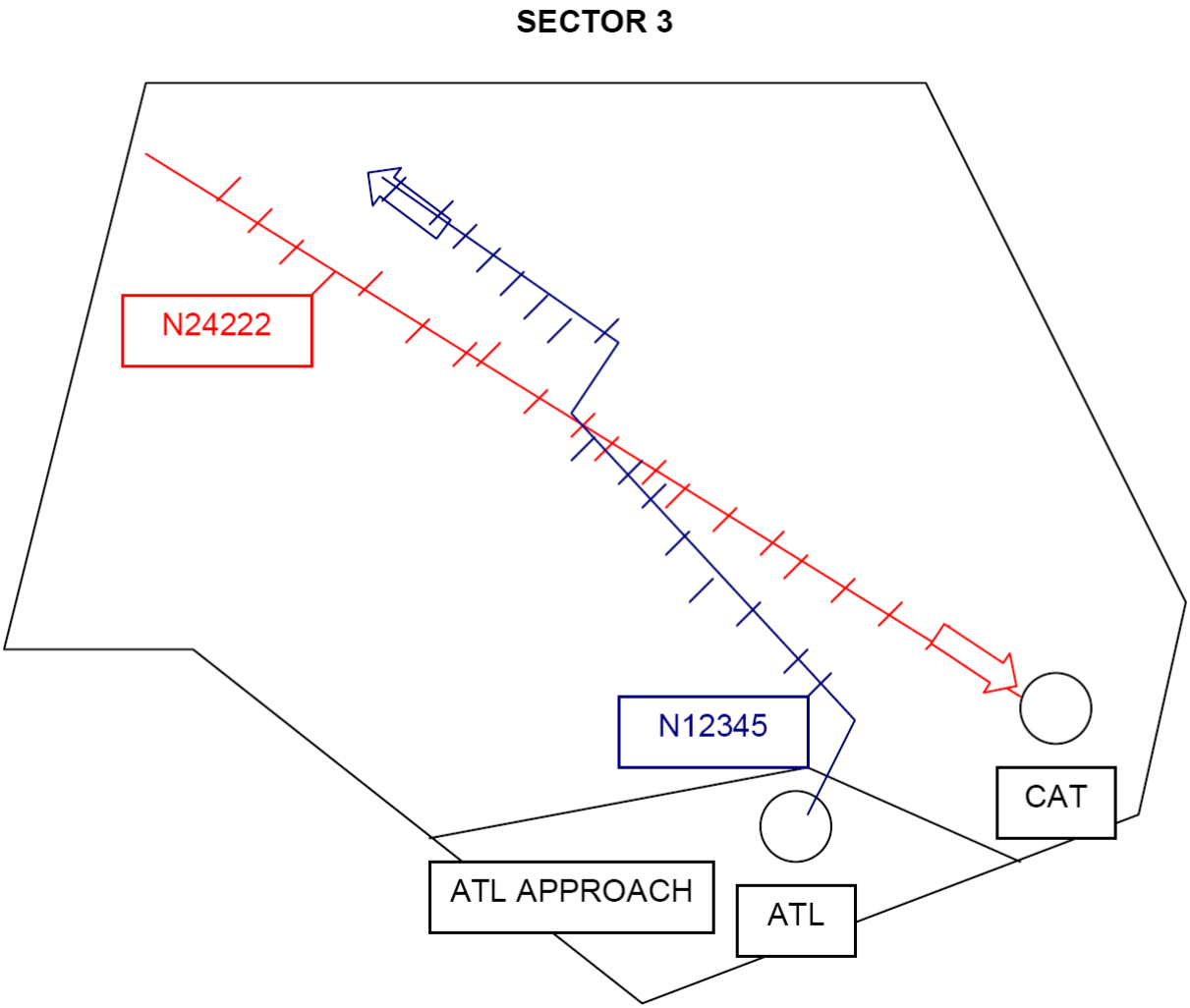
(接下頁)

管制條照片；：

N24222 T/C500/R T340 G352 714 01	ATL 340/125 1340	47 13 ATL350092	~~260~~ 100		DEN./.ATL340125..CAT  R	2612
N12345 LR35/R T425 G418 263 01	ATL 1342	49 13 ATL345042	230 145		ATL./.ATL352044..MCI  ~~TR H020~~ R	3414

(接下頁)

軌跡圖：



(接下頁)

管制員 GT 個人資料：

Name Gary Turnit

Date of Birth 22 Jun 1960

Date hired 06 Dec 1985

Date entered Ziggy Center 06 Dec 1985

Date certified 07 Nov 1987

Ratings Air Traffic Controller

Last Proficiency check 10 Mar 2004

Last Medical 25 Mar 2004

Work schedule Tuesday, and Wednesday are regular days off
Thursday 4-12
Friday 2-10
Saturday 7-3
Sunday 7-3
Monday 11-7
TuesdayOFF
Wednesday OFF

Activities during the shift

1230z - 1410z assigned Sector 3

Remainder of shift relieved of duty

Supervisor: I. Kay Oho

(接下頁)

管制經過報告：

On 9 Sep 2004 I returned to work from my regular days off. I informed the supervisor that I had a cold was not feeling well but was not on any medication that should affect my work. I was assigned sector 3 for my operating position from 1230Z until 2030Z pm and informed I would be relieved in one hour.

I received a pre-duty briefing at 1225Z, then went to sector 3 and relieved FT from duty receiving a position relief briefing. We utilized the standard relief-briefing checklist and all items were covered. Traffic was light to medium and there were only 3 aircraft on the frequency when I assumed the position. I handed a couple of aircraft off and switched frequencies. I descended N24222 to 10,000 feet for his approach into CAT. N24222 was proceeding direct to the CAT NDB. The traffic increased a bit and there were two more aircraft flashing at me, one was N12345, a departure from Atlanta Hartsfield. I accepted the handoff and was talking to the aircraft at 1355. After establishing two-way communication with the aircraft I vectored to a heading of 345 proceed direct Kansas City VORTAC and climbed the aircraft to FL 230 then went back to accept the other handoff. When I noticed the conflict alert activated between N24222 and N12345 I immediately issued corrective action to N12345 in the form of an immediate right turn to a heading of 020. The conflict alert stopped after the aircraft passed and I returned N12345 to his original course direct Kansas City. I had not requested any assistance from the supervisor at any time and did not feel like I was having any problem with the traffic situation.

Gary Turnit (GT)

(接下頁)

FINAL ATS INCIDENT INVESTIGATION REPORT

PART I.
INVESTIGATION INFORMATION

REPORT NUMBER

SECTION A. GENERAL INFORMATION

1.- DATE AND TIME OF THE INCIDENT — DATE: DAY MONTH YEAR — TIME: U T C / LOCAL

2.- ATS UNIT ORIGINATING THE REPORT

A.- IDENTIFICATION

B.- TYPE
☐ TOWER ☐ APP ☐ ACC ☐ FIS

C.- CLASSIFICATION LEVEL
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

3.- WAS THERE ANOTHER UNIT INVOLVED ☐ YES ☐ NO

A.- IDENTIFICATION

B.- TYPE
☐ TOWER ☐ APP ☐ ACC ☐ FIS

C.- CLASSIFICATION LEVEL
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

4.- INCIDENT REPORTED BY
☐ CONTROLLER ☐ SUPERVISOR ☐ PILOT

5.- ALTITUDE OR FLIGHT LEVEL WHERE THE INCIDENT OCCURRED

A.- WAS THE IMMEDIATE UPPER LEVEL OR ALTITUDE AVAILABLE
☐ YES ☐ NO

B.- WAS THE IMMEDIATE LOWER LEVEL OR ALTITUDE AVAILABLE
☐ YES ☐ NO

6.- METEOROLOGICAL CONDITIONS A FACTOR?
☐ YES (EXPLAIN)
☐ NO

7.- TYPE AND CLASS OF AIRSPACE:

☐ TERMINAL AIRSPACE	☐ CLASS A	☐ CLASS E
☐ ENROUTE AIRSPACE	☐ CLASS B	☐ CLASS F
☐ AERODROME SURFACE	☐ CLASS C	☐ CLASS G
☐ OCEANIC	☐ CLASS D	☐ OTHER

8.- LOCATION OF THE INCIDENT

A. ☐ IN AIR
FIX DIRECTION DISTANCE

B. ☐ ON GROUND
INTERSECTION RUNWAY TAXIWAY

REPORT NUMBER

9.- CHRONOLIGICAL SUMMARY OF EVENTS			
TIME (UTC)	TYPE OF DATA	CONTROLLER (A, B, C, ETC.)	EVENT

REPORT NUMBER

SECTION B. CONTROLLER INVOLVED COMPLETE FOR EACH CONTROLLER IF MORE THAN ONE

1.- PERSONAL DATA

OPERATING INITIALS: N A M E:

DATE OF BIRTH

DAY MONTH YEAR

2.- SENIORITY IN THE POSITION

DATE OF ENTRY C U R R E N T P O S I T I O N SINCE

DAY MONTH YEAR DAY MONTH YEAR

3.- CERTIFICATIONS

LICENSE No. TYPE LOCATION

R A T I N G

4.- CERTIFICATION IN THE POSITION

WAS THE CONTROLLER QUALIFIED IN THE POSITION? YES ☼ NO ☼

NAME OF IMMEDIATE SUPERVISOR

5.- CONTROLLER PROFICIENCY CHECK

D A T E O F LAST CHECK

DAY MONTH YEAR

WAS A DEFICIENCY DETECTED YES ☼ NO ☼

EXPLAIN IF AFFIRMATIVE _____

_____

6.- TRAINING OR COURSES

HAS TRAINING BEEN CONDUCTED WITIN THE LAST 12 MONTHS THAT IS RELEVANT TO THE INCIDENT? YES ☼ NO ☼

LIST TYPE OF TRAINING DATE OF THE LAST COURSE OR TRAINING

DAY MONTH YEAR

REPORT NUMBER

7.- MEDICAL CERTIFICATE

DATE OF LAST MEDICAL EXAMINATION DAY MONTH YEAR

a) PHYSICAL LIMITATION YES ☐ NO ☐

b) IF AFFIRMATIVE, EXPLAIN: _____

8.- WORK SCHEDULE

LIST THE WORK SCHEDULE OF THE PREVIOUS FOUR WEEKS OF THE INCIDENT BASED ON THE SIGN-IN SHEET, INCLUDING AREA WORKED (TOWER, ACC, ETC.) AND ANY LEAVE TAKEN.

MONDAY	*TUESDAY*	*WEDNESDAY*	*THURSDAY*	*FRIDAY*	*SATURDAY*	*SUNDAY*

9.- ACTIVITIES DURING THE SHIFT

DETAIL OF THE ACTIVITIES OF THE EMPLOYEE DURING THE SHIFT (USE LOCAL HOURS)

HOUR	FROM	TO	ACTIVITIES DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			

10.- DID THE CONTROLLER REQUIRED ASSISTANCE BEFORE THE INCIDENT ☐ YES ☐ NO

a) WAS THE SUPERVISOR INFORMED OF THE VOLUME AND COMPLEXITY OF THE TRAFFIC ☐ YES ☐ NO

b) WAS THE SUPERVISOR AWARE OF ANYTHING INDICATING THAT THE CONTROLLER REQUIRED ASSISTANCE ☐ YES ☐ NO

c) GIVE DETAILS ON THE KIND OF ASSISTANCE PROVIDED: _____

11.- DID THE CONTROLLER ASKED FOR ASSISTANCE BEFORE THE INCIDENT YES ☐ NO ☐

12.- WAS THE CONTROLLER AWARE THAT AN ATS INCIDENT WAS DEVELOPING?

YES ☐ (WHEN):

_____

NO ☐ (WHY): _____

REPORT NUMBER

13.- DID THE CONTROLLER CONSIDERED TAKING CORRECTIVE ACTION

YES ☼ NO ☼

EXPLAIN: ___ _____

14.- DID THE CONTROLLER TRIED TO TAKE CORRECTIVE ACTION

YES ☼ NO ☼

EXPLAIN: _____

15.- BY WHOM WAS THE CONTROLLER INFORMED OF THE INCIDENT

_____

16.- DATE AND TIME IN WHICH THE CONTROLLER WAS INFORMED OF THE INCIDENT

HOUR (UTC) DAY MONTH YEAR

17.- DID THE CONTROLLER IDENTIFIED ANY DISTRACTION THAT OCCURRED DURING THE DEVELOPMENT OF THE INCIDENT?

YES ☼ NO ☼

EXPLAIN: (Consider the presence of visitors, repair or installation of equipment, volume of alarms, disturbing noises, etc.)

_____

_____

18.- WAS THERE A REASON THAT DISTRACTED THE CONTROLLER BEFORE OR DURING THE DEVELOPMENT OF THE INCIDENT?

YES ☼ NO ☼

EXPLAIN: (Consider training, meetings or inter-personal discussions, etc.)

_____

_____

REPORT NUMBER

SECTION C AIRCRAFT INFORMATION		
(COMPLETE ADDITIONAL INFO. IF MORE THAN TWO)	AIRCRAFT No. 1	AIRCRAFT No. 2
1.- IDENTIFICATION	|_|_|_|_|_|_|_|	|_|_|_|_|_|_|_|
2.- TYPE OF AIRCRAFT(S)	|_|_|_|_|_|_|_|	|_|_|_|_|_|_|_|
3.- DEPARTURE AIRPORT	|_|_|_|_|_|	|_|_|_|_|_|
4.- DESTINATION AIRPORT	|_|_|_|_|_|	|_|_|_|_|_|
STAGE OF FLIGHT WHEN THE INCIDENT OCCURRED	☐ DESCENDING ☐ CLIMBING ☐ LEVEL FLIGHT ☐ LANDING ROLL ☐ TAKEOFF ROLL ☐ MANOEUVERING AREA ☐ ON RUNWAY ☐ ON TAXIWAY ☐ APPROACH ☐ RADAR VECTORS ☐ OTHER	☐ DESCENDING ☐ CLIMBING ☐ LEVEL FLIGHT ☐ LANDING ROLL ☐ TAKEOFF ROLL ☐ MANOEUVERING AREA ☐ ON RUNWAY ☐ ON TAXIWAY ☐ APPROACH ☐ RADAR VECTORS ☐ OTHER
6.- ROUTE OF FLIGHT		
7.- EVASIVE ACTION	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
DID THE PILOT EFFECT ANY REPORT OF AIRPROX	☐ YES ☐ NO ☐ UNKONWN	☐ YES ☐ NO ☐ UNKNOWN
9.- UNDER RADAR CONTROL	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
10- TRANSPODER FUNCTIONING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
11- MODE C FUNCTIONING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
12.- RECEIVED TCAS/ACAS RA	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
13.- AIRCRAFT AND OBSTACLES/OBSTRUCTIONS ☐ TERRAIN ☐ VEHICULES ☐ STAFF ☐ MANOEUVER AREA ☐ OBTRUCTION ☐ EQUIPMENT ☐ CONTROLLED AIRSPACE ☐ NOT APPLICABLE ☐ OTHER		

REPORT NUMBER

SECTION D PROCEDURES

1.- TYPE OF CONTROL USED:

☐ RADAR ☐ MANUAL ☐ TOWER ☐ OCEANIC

2.- TYPE OF PROCEDURE: ☐ ICAO ☐ NATIONAL ☐ LOCAL ☐ OTHER

3.- SPECIFIC MINIMUM SEPARATION INVOLVED

DIRECTIVE |_|_|_|_| • |_|_|_|_| REQUIRED SEPARATION (SPECIFY)

PARAGRAPH |_|_|_|_| • |_|_|_| _____

4.- SEPARATION APPLIED (IF DIFFERENT FROM 3 ABOVE)

☐ YES (EXPLAIN)

☐ NO

5.- DESCRIPTION OF PROCEDURES USED

6.- WERE ANY DEFICIENCIES OF THE PROCEDURE IDENTIFIED.

☐ YES (EXPLAIN)

☐ NO

7.- WAS A SPECIAL PROCEDURE IN EFFECT AT THE TIME OF THE INCIDENT

☐ YES (EXPLAIN)

☐ NO

SECTION E. CLOSEST PROXIMITY

A.- ☐ IN AIR

VERTICAL : |_|_|_|_| FEET

HORIZONTAL : |_|_|_|_| FEET |_|_|_| • |_|_| MILES

B.- ☐ ON GROUND (DESCRIPTION)

REPORT NUMBER

SECTION F WORKLOAD

1.- TRAFFIC COMPLEXITY

A.- NUMBER OF AIRCRAFT UNDER CONTROL

B.- COMPLEXITY OF TRAFFIC

1 2 3 4 5

|----------|----------|----------|----------|

LOW AVERAGE HIGH

C.- EXPLANATION OF THE COMPLEXITY OF TRAFFIC

2. POSITION / SECTOR OF OPERATION

A. ARE DUTIES AND RESPONSIBILIDIES OF EACH POSITION CLEARLY DEFINED ☐ YES ☐ NO

B. COMBINED SECTORS

(1) WERE SECTORS COMBINED ☐ YES ☐ NO

1.
2.
3.

INITIALS OF THE CONTROLLERS WORKING THE COMBINED SECTORS

1. 2. 3.

(2) DID THE SUPERVISOR AUTHORIZED THE COMBINATION ☐ YES ☐ NO

(3) DID TRAFFIC JUSTIFY THE COMBINATION ☐ YES ☐ NO

C. COMBINED POSITIONS

(1) WERE POSITIONS COMBINED ☐ YES ☐ NO

1.
2.
3.

INITIALS OF THE CONTROLLERS WORKING THE COMBINED POSITIONS

1. 2. 3.

(2) DID THE SUPERVISOR AUTHORIZED THE COMBINATION ☐ YES ☐ NO

(2) DID TRAFFIC JUSTIFY THE COMBINATION ☐ YES ☐ NO

3. SUPERVISION

a. WAS A SUPERVISOR ASSIGNED TO THE AREA/CONTROL ROOM? ☐ YES ☐ NO

b. WAS THE SUPERVISOR PRESENT IN THE OPERATIONAL AREA WHEN THE INCIDENT OCCURRED? ☐ YES ☐ NO

c. WAS THE SUPERVISOR AWARE OF: TRAFFIC VOLUME ☐ YES ☐ NO DISTRACTIONS ☐ YES ☐ NO

COMPLEXITY OF WORK ☐ YES ☐ NO REQUEST OF ASSISTANCE ☐ YES ☐ NO

WHAT ACTIVITY WAS THE SUPERVISOR CONDUCTING AT THE TIME OF THE INCIDENT

☐ SUPERVISION ☐ ADMINISTRATIVE DUTIES

☐ COORDINATION ☐ TRAINING/BRIEFING

☐ WORKING POSITION/SECTOR ☐ OTHER (SPECIFY)

REPORT NUMBER

SECTION G. WORKING ENVIRONMENT

INDICATE IF ANY OF THESE FACTORS HAD AN INFLUENCED ON THE OCCURRENCE

☐ ENVIRONMENTAL (AIR/HEATING/COOLING) ☐ PILOT'S ACTION ☐ NOISE ☐ LIGHT

☐ CONTROL ROOM LAYOUT ☐ ERRONEOUS INFORMATION ☐ NOT A FACTOR ☐ OTHER (SPECIFY)

SECTION H. EQUIPMENT

1. DID THE DISTRIBUTION OR DESIGN OF THE EQUIPMENT HAVE AN INFLUENCED ON THE INCIDENT

☐ YES (EXPLAIN)

☐ NO

2. WAS ANY PERTIENT EQUIPMENT OPERATED BY THE CONTROLLER(s) REPORTED AS FUNCTIONING UNSATISFACTORY BEFORE THE INCIDENT?

☐ YES

☐ NO (PROCEED TO PARAGRAPH 3)

a. DATE OF REPORT	b. HOUR OF THE REPORT (UTC)	c. DESCRIBE THE PROBLEM THAT ORIGINATED THE REPORT
|_|_|_|_|_|_|	|_|_|_|_|	

d. WAS ANY ACTION TAKEN TO CORRECT THE PROBLEM?

☐ YES

☐ NO (EXPLAIN)

3. TYPE	GOOD	NORMAL	POOR	OUT OF SERVICE	OUT FOR MAINTENANCE
COMMUNICATIONS AIR – GROUND					
REMARKS					
COMMUNICATIONS POINT TO POINT					
COMPUTER					
RADAR					

4.- SYSTEM(s) IN USE

☐ PRIMARY RADAR ☐ SECONDARY RADAR ☐ ALPHA-NUMERICAL ☐ MODE S

☐ BRITE/DBRITE ☐ ASDE ☐ OTHER

5.- WAS THERE TRANSITION OF MANUAL OR RADAR ☐ YES (EXPLAIN) ☐ NO

REPORT NUMBER

SECTION I. SUMMARY OF INCIDENT

REPORT NUMBER

SECTION I. SUMMARY OF INCIDENT (CONTINUED)

☐ **COMPLEMENTARY PAGES ENCLOSED.**

SECTION J. LIST OF DOCUMENTS ENCLOSED

☐ STATEMENT(S)	☐ ATS ROUTES OR AIRPORT CHART.	☐ CONFIGURATION CHART
☐ FLIGHT PROGRESS STRIPS	☐ TRANSCRIPTIONS	☐ LETTERS OF AGREEMENT
☐ NOTAMS	☐ VOICE RECORDINGS	☐ OTHER (SPECIFY)

SECTION K. INVESTIGATORS

DATE	NAME	SIGNATURE OF ATS INCIDENT INVESTIGATOR IN CHARGE
DATE	NAME	SIGNATURE OF INVESTIGATOR
DATE	NAME	SIGNATURE OF INVESTIGATOR
DATE	NAME	SIGNATURE OF INVESTIGATOR
DATE	NAME	SIGNATURE OF INVESTIGATOR
DATE	NAME	SIGNATURE OF INVESTIGATOR

PART II.
ATS UNIT MANAGER ACTION

REPORT NUMBER

SECTION A. C L A S S I F I C A T I O N			
☐ OPERATIONAL ERROR	☐ OPERATIONAL DEVIATION	☐ PILOT DEVIATION	☐ NON-OCCURRENCE

SECTION B. C A T E G O R I Z A T I O N			
1. CATEGORY OF THE ATS INCIDENT	☐ PROCEDURAL	☐ FACILITY	☐ HUMAN

2. RATIONAL FOR THE CATEGORIZATION.

REPORT NUMBER

SECTION C CAUSAL FACTORS ☼ CONTINUED PAGES ATTACHED								
	NO	YES (EMPLOYEE) INDICATE WITH A CHECK MARK						
		A	B	C	D	E		
1. DATA POSTING								
a. COMPUTER ENTRY								
(1) Incorrect input								
(2) Incorrect update								
(3) Premature termination of data								
(4) Other (EXPLAIN) _____								
b. FLIGHT PROGRESS STRIP								
(1) Not updated								
(2) Interpreted incorrectly								
(3) Posted incorrectly								
(4) Updated incorrectly								
(5) Premature removal								
(6) Other (EXPLAIN) _____								
2. RADAR DISPLAY								
a. Misidentification								
(1) Failure to reidentify aircraft when the accepted identity becomes questionable.								
(2) Overlapping data blocks								
(3) Acceptance of incomplete or difficult to correlate position information								
(4) Other (EXPLAIN) _____								
b. INAPPROPRIATE USE OF DISPLAY DATA								
(1) Mode C								
(2) BRITE								
(3) Conflict alert								
(4) Failure to detect displayed data								
(5) Failure to comprehend displayed data								
(6) Failure to project future status of displayed data								
(6) Other (EXPLAIN) _____								
3. AIRCRAFT OBSERVATION (TOWERS ONLY)								
a. ACTUAL OBSERVATION OF AIRCRAFT								
b. INPROPER USE OF VISUAL DATA								
(1) Landing								
(2) Taking off								
(3) Ground operation								
(a) Taxing across runway								
(b) Holding in position for takeoff								
(4) others (EXPLAIN) ANNEX PAPER								

REPORT NUMBER

	NO	YES (EMPLOYEE) INDICATE WITH A CHECK MARK						
		A	B	C	D	E		
4. COMMUNICATIONS ERROR								
a. PHRASEOLOGY								
b. TRANSPOSITION								
c. MISUNDERSTANDING								
d READBACK								
(1) Altitude								
(2) Clearance								
(3) Identification								
(e) ACKNOWLEDGMENT								
(f) OTHER (EXPLAIN) _____								
5. COORDINATION								
a. AREA OF INCIDENT								
(1) Intra-sector/position								
(2) Inter-sector/position								
(6) Inter-ATS unit ATS unit type _____ Level _____ Unit ID _____								
FAILURE TO UTILIZE/COMPLY UIT PRECOORDINATION INFORMATION								
IMPROPER USE OF INFORMATION EXCHANGED IN COORDINATION								
(1) Aircraft identification								
(2) Altitude/flight level								
(3) Route of flight								
(4) APREQS								
(5) Speed								
(6) Special instructions								
(7) Other (EXPLAIN) _____								
d FAILURE TO COORDINATE BETWEEN GROUND AND TOWER								
(1) Crossing active runway								
(2) Vehicle, equipment or personnel on active runway								
(3) Use of other than active runway for arrivals and departures								
(4) Runway closure								
(5) Other (EXPLAIN) _____								
6.- POSITION RELIEF BRIEFING								
(a) EMPLOYEE DID NOT USE POSITION RELIEF CHECKLIST								
(b) EMPLOYEE BEING RELIEVED GAVE INCOMPLETE BRIEFING								
© RELIEVING EMPLOYEE DID NOT MAKE USE OF PERTINENT DATA EXCHANGED AT BRIEFING								
(d) OTHER (EXPLAIN) _____								

REPORT NUMBER

SECTION D RECOMMENDATIONS AND CORRECTIVE ACTIONS		
		☐ CONTINUED PAGES ENCLOSED
DATE	NAME OF ATS UNIT MANAGER	SIGNATURE

PART III
ATS DIRECTOR / MANAGER

REPORT NUMBER

SECTION A CONCLUSIONS / RECOMMENDATIONS
☒ CONTINUED PAGES ENCLOSED

DATE	NAME OF THE ATS DIRECTOR / MANAGER	SIGNATURE

練習四：調查程序 (Investigation process)

Fill out the appropriate form using information provided by the instructor.

Use Appendix C at the end of this chapter.

事件摘要

⊙ On 1 April 1999, 2210Z (Local time: 0210 CST), Korean Air flight 36 (KAL036) and Air China 9018 (CCA9018), both Boeing 747s, nearly collided on runway 14 Right at the Chicago O'Hare International Airport.

- CCA9018, a cargo flight, had just landed and was rolling out on runway 14R when the ORD local controller instructed KAL036 to taxi into position and hold on runway 14R.

- After Air China exited the runway at taxiway T10, the tower controller instructed the flight to turn left on taxiway Kilo and cross runway 27 left. The flight crew acknowledged the instructions.

- The tower controller then cleared Korean Air for takeoff.

- The flight crew of CCA9018 inadvertently deviated from its assigned taxi route and reentered runway 14R at taxiway M.

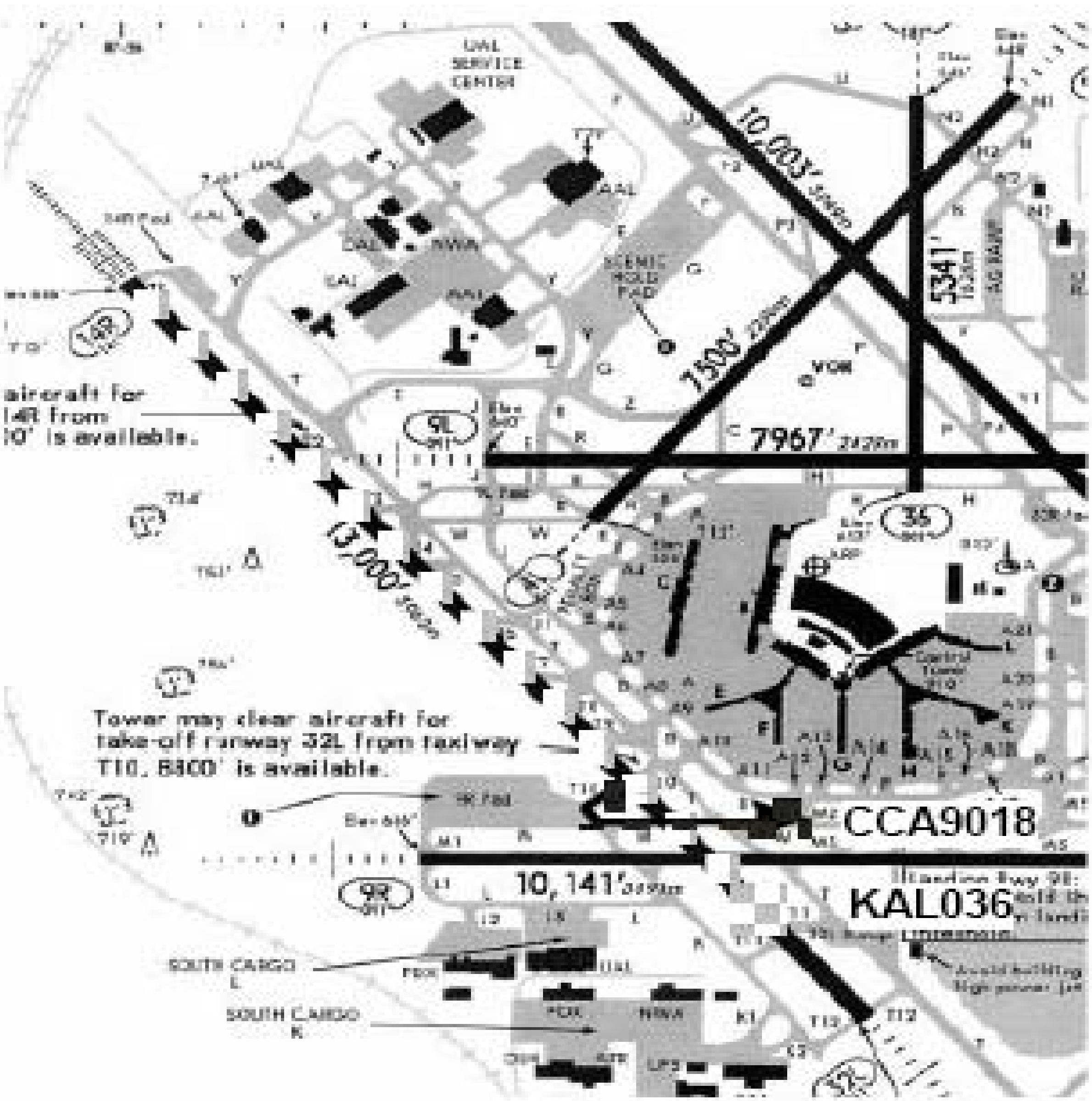
- As KAL036 approached rotation speed, the captain saw CCA9018 crossing the runway ahead, but it was too late to stop. Instead, KAL036 captain abruptly rotated the airplane, banking to the left.

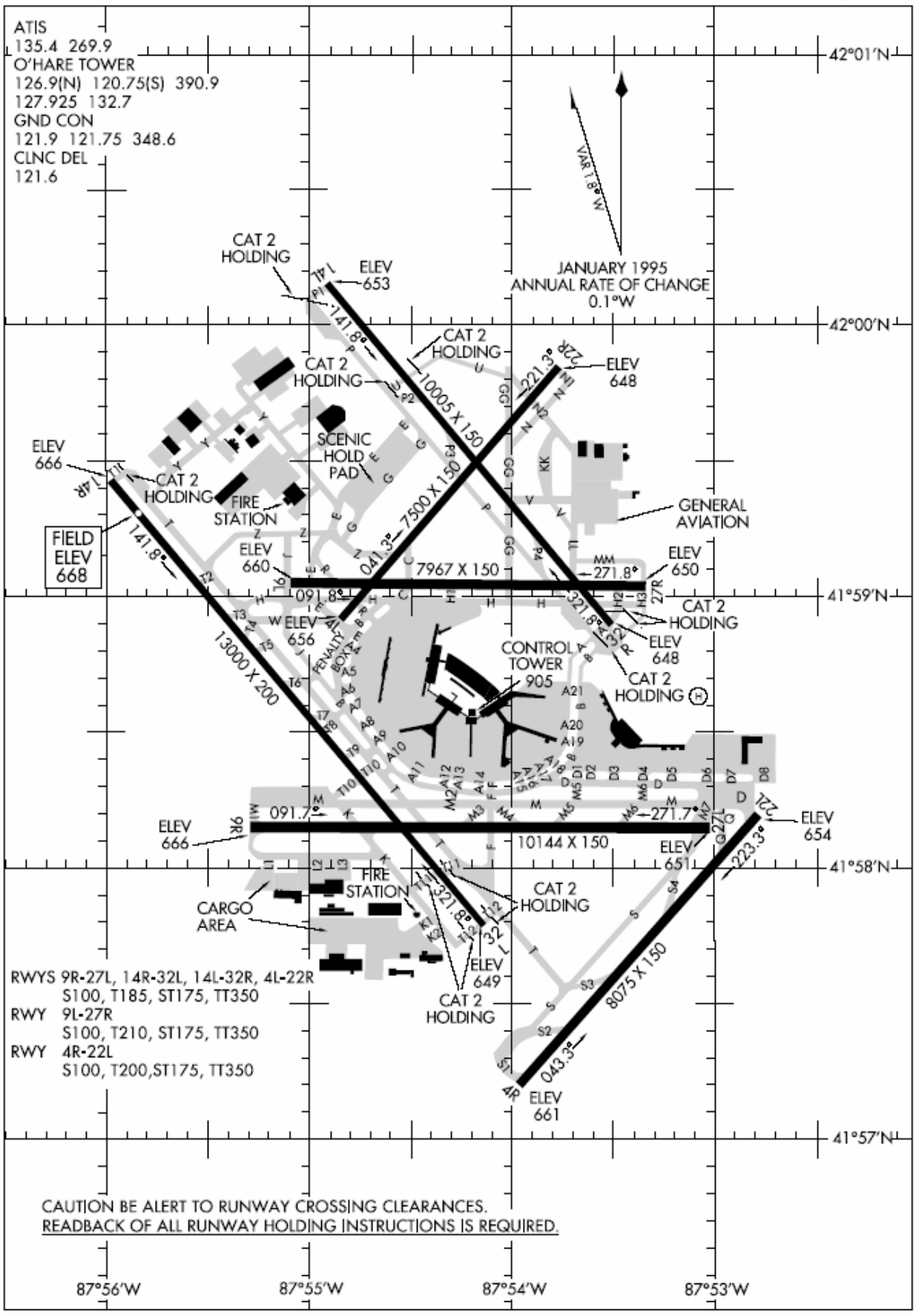
- KAL036 reached 9º of left bank shortly after takeoff, passing directly over CCA9018 within 3 seconds and clearing CCA9018 by about 75 feet.

- The incident occurred in visual meteorological conditions (VMC) at night.

- No injuries were reported, and neither airplane was damaged.

(接下頁)


UAL
SERVICE
CENTER
10,003'
5341'
7500'
7967'
VOR
SCENIC
HOLD
PAD
9L
14R
36
aircraft for
14R from
0' is available.
13,000'
Tower may clear aircraft for
take-off runway 32L from taxiway
T10, 8300' is available.
CCA9018
10,141'
9R
KAL036
SOUTH CARGO
L
SOUTH CARGO
K

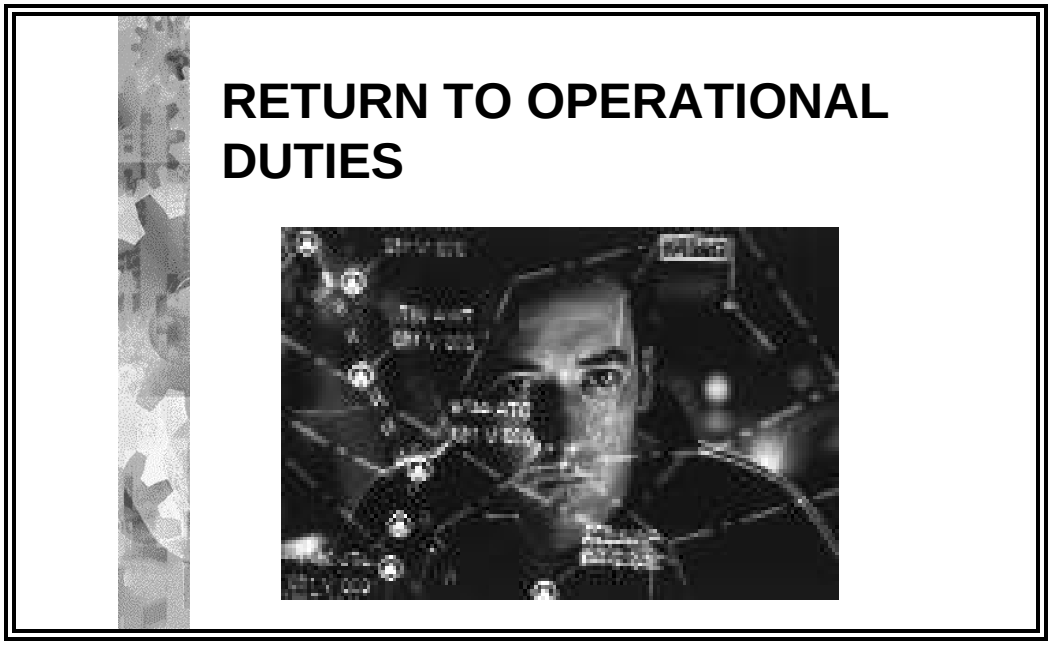

ATIS
135.4 269.9
O'HARE TOWER
126.9(N) 120.75(S) 390.9
127.925 132.7
GND CON
121.9 121.75 348.6
CLNC DEL
121.6
VAR 1.8°W
JANUARY 1995
ANNUAL RATE OF CHANGE
0.1°W
42°01'N
42°00'N
41°59'N
41°58'N
41°57'N
87°56'W
87°55'W
87°54'W
87°53'W
CAT 2 HOLDING
ELEV 653
141.8°
10005 X 150
221.3°
ELEV 648
SCENIC HOLD PAD
ELEV 666
FIELD ELEV 668
FIRE STATION
GENERAL AVIATION
ELEV 660
041.3°
7500 X 150
7967 X 150
271.8°
ELEV 650
091.8°
321.8°
ELEV 656
PENALTY BOX
CONTROL TOWER 905
13000 X 200
091.7°
271.7°
10144 X 150
ELEV 654
ELEV 651
223.3°
CARGO AREA
ELEV 649
8075 X 150
043.3°
ELEV 661
RWYS 9R-27L, 14R-32L, 14L-32R, 4L-22R
S100, T185, ST175, TT350
RWY 9L-27R
S100, T210, ST175, TT350
RWY 4R-22L
S100, T200,ST175, TT350
CAUTION BE ALERT TO RUNWAY CROSSING CLEARANCES.
READBACK OF ALL RUNWAY HOLDING INSTRUCTIONS IS REQUIRED.

Person	Phraseology
Controller	Korean Air 036 Heavy Rwy 14 R, Taxi into position and hold
Pilot	Taking a left uh right to the Tango10
Controller	China Air 9018 Heavy very good Right turn for Tango10 Turn left on kilo and cross Rwy 27L and continue to parking with me
China Air 9018	Right on 10 Tango 10, Kilo, Cross uh 27L
Controller	Thank you
Controller	Korean 036 Heavy Rwy 14 R, Clear for Takeoff Fly Runway heading, remain my frequency
Korean 036	Fly runway heading Clear for Takeoff, Korean Air 036
????	STOP!!
UAL1012	UAL 1012 Heavy, Just turned inbound
Korean 036	Tower, Korean 036 Heavy, airborne, What happen?

(接下頁)

10.重返管制席位(Return to operational duties)

Ref. CAR/SAM 5.12



⊙爲持續和完整的處置所有的ATS事件，我們建議ATS單位經理人保持參與後ATS事件之處置(Post ATS incident process)。

⊙應注意吊銷管制員的檢定資格(Rating)和指派其作專精訓練的目的是在協助管制員增進個人效能至最大值並以符合最低品質標準要求，並不應視爲是對任何個人的懲罰。

⊙而這也會促進整個ATS體系的效能和品質。

⊙在指派管制員返回管制席位之前，建議採取下列措施：

-對該管制員在ATS事件中所扮演的角色作一番深入的檢視。

-檢視時應包括下列項目：

*從開端一直到圍繞整個ATS事件的因子。

*管制員的管制經過報告。

*所牽涉到的程序和隔離標準。

可獲得的ATS事件的錄音

*管制員的訓練記錄。

*所有適用的管制員專精查核。

*所有已接受的適用的專精訓練。

*管制席位時效性驗證。

*適用的電腦資料。

*管制員跟前一個ATS事件牽涉的程度。

*ATS_IIIC/ATS調查小組的約談和建議結果(如果恰當且可及時獲得，不致於不當的延誤管制員重返席位的話)。

⊙所有在ATS事件調查過程中所鑑識出的管制員效能缺陷。

⊙依上述關於管制員效能缺陷之檢視，決定是否吊銷管制員檢定資格。

-管制員檢定資格的吊銷不應爲因涉案的關係，應爲調查過程中所鑑識出的管制員效能缺陷的關係。

-如果有書面記錄顯示相似的缺陷之前就存在，或是該缺陷有安全上的顧慮，則吊銷檢定資格可能是恰當的。

-應考慮對該缺陷所要吊銷的檢定證，是單一席位還是多個席位還是全面吊銷。

⊙針對檢視中所鑑別出的效能缺陷，應裁定讓管制員全面重返席位所需要的適當處置或復甦訓練。

⊙在完成再給證(Re-certification)專精訓練後，應經由至少對管制員發生事件的席位執行專精查核以予再給證(Re-certify)。

11.發佈消息 (Release of information)

Ref. CAR/SAM 5.5;
Annex 13, Chapter 3,4,5

⊙爲利事故和事件之防治，有執行調查的會員國應儘速發佈和通報ICAO。

⊙如果會員國顧慮，公開下列資料會對該調查或將來事件之調查之資訊取得有不良影響時，這些資料將不予公開：

-應對航空器安全操作負責的人員的經過報告。

-應對航空器安全操作負責的人員的通聯資料。

-事故和事件關係人的醫療或私人資訊。

-駕駛艙的錄音和錄音抄件。

-對包括飛行記錄器在內的分析資訊時意見之表述。

⊙記者或公眾查詢狀況時，應予移轉至有權發佈消息的人員。

(接下頁)

Appendix A

Air Traffic Incident Report Form

AIR TRAFFIC INCIDENT REPORT

1. ICAO model air traffic incident report form
2. Instructions for the completion of the air traffic incident report form

***(CLASS NOTE*:** Reproduction of Appendix 4, Air Traffic Incident Report, PANS-RAC (Doc. 4444))

1. ICAO model air traffic incident report form

AIR TRAFFIC INCIDENT REPORT FORM

For use when submitting and receiving reports on air traffic incidents. In an initial report by radio, shaded items should be included.

A – AIRCRAFT IDENTIFICATION	**B – TYPE OF INCIDENT**
	AIRPROX / PROCEDURE / FACILITY[℘]

C – THE INCIDENT

1. General

a) Date / time of incident UTC

b) Position

2. Own aircraft

a) Heading and route _____

b) True airspeed _____ Measured in ( ) kt ___ ( ) km/h ___

c) Level and altimeter setting _____

d) Aircraft climbing or descending

( ) Level flight ( ) Climbing ( ) Descending

e) Aircraft bank angle

( ) Wings level ( ) Slight bank ( ) Moderate bank

( ) Steep bank ( ) Inverted ( ) Unknown

f) Aircraft direction of bank

( ) Left ( ) Right ( ) Unknown

g) Restrictions to visibility (select as many as required)

( ) Sunglare ( ) Windscreen pillar ( ) Dirty windscreen

( ) Other cockpit structure ( ) None

h) Use of aircraft lighting (select as many as required)

( ) Navigation lights ( ) Strobe lights ( ) Cabin lights

( ) Red anti-collision lights ( ) Landing / taxi lights ( ) Logo (tail fin) lights

( ) Other ( ) None

i) Traffic avoidance advice issued by ATS

( ) Yes, based on radar ( ) Yes, based on visual sighting ( ) Yes, based on other information

( ) No

j) Traffic information issued

( ) Yes, based on radar ( ) Yes, based on visual sighting ( ) Yes, based on other information

( ) No

k) Airborne collision avoidance system – ACAS

( ) Not carried ( ) Type ( ) Traffic advisory issued

( ) Resolution advisory issued ( ) Traffic advisory or resolution advisory not issued

[℘] Delete as appropriate

l)	**Radar identification**					
	( )	No radar available	( )	Radar identification	( )	No radar identification
m)	**Other aircraft sighted**					
	( )	Yes	( )	No	( )	Wrong aircraft sighted
n)	**Avoiding action taken**					
	( )	Yes	( )	No		
o)	**Type of flight plan**		**IFR / VFR / none**[℘]			

3.	**Other aircraft**					
a)	**Type and call sign / registration (if known)**					
b)	**If a) above not known, describe below**					
	( )	High wing	( )	Mid wing	( )	Low wing
	( )	Rotorcraft				
	( )	1 engine	( )	2 engines	( )	3 engines
	( )	4 engines	( )	More than 4 engines		
	Marking colour or other available details					

c)	**Aircraft climbing or descending**					
	( )	Level flight	( )	Climbing	( )	Descending
	( )	Unknown				
d)	**Aircraft bank angle**					
	( )	Wings level	( )	Slight bank	( )	Moderate bank
	( )	Steep bank	( )	Inverted	( )	Unknown
e)	**Aircraft direction of bank**					
	( )	Left	( )	Right	( )	Unknown
f)	**Lights displayed**					
	( )	Navigation lights	( )	Strobe lights	( )	Cabin lights
	( )	Red anti-collision lights	( )	Landing / taxi lights	( )	Logo (tail fin) lights
	( )	Other	( )	None	( )	Unknown
g)	**Traffic avoidance advice issued by ATS**					
	( )	Yes, based on radar	( )	Yes, based on visual sighting	( )	Yes, based on other information
	( )	No	( )	Unknown		
h)	**Traffic information issued**					
	( )	Yes, based on radar	( )	Yes, based on visual sighting	( )	Yes, based on other information
	( )	No	( )	Unknown	( )	
i)	**Avoiding action taken**					
	( )	Yes	( )	No	( )	Unknown

[℘] Delete as appropriate

4. Distance

a) Closest horizontal distance _____

b) Closest vertical distance _____

5. Flight weather conditions

a) IMC / VMC*

b) Above / below* clouds / fog / haze or between layers*

c) Distance vertically from cloud _____ m / ft* below _____ m / ft* above

d) In cloud / rain / snow / sleet / fog / haze*

e) Flying into / out of* sun

f) Flight visibility _____ m / km*

6. Any other information considered important by the pilot-in-command

_____

_____

_____

_____

_____

_____

D – MISCELLANEOUS

1. Information regarding reporting aircraft

a) Aircraft registration _____

b) Aircraft type _____

c) Operator _____

d) Aerodrome of departure _____

e) Aerodrome of first landing _____ destination _____

f) Reported by radio or other means to _____ (name of ATS unit) at time _____ UTC

g) Date / time / place of completion of form _____

2. Function, address and signature of person submitting report

a) Function

b) Address

c) Signature

d) Telephone number

3. Function and signature of person receiving report

a) Function _____ b) Signature _____

E – SUPPLEMENTARY INFORMATION BY ATS UNIT CONCERNED

1. Receipt of report

   a) Report received via AFTN / radio / telephone / other (specify)* _____

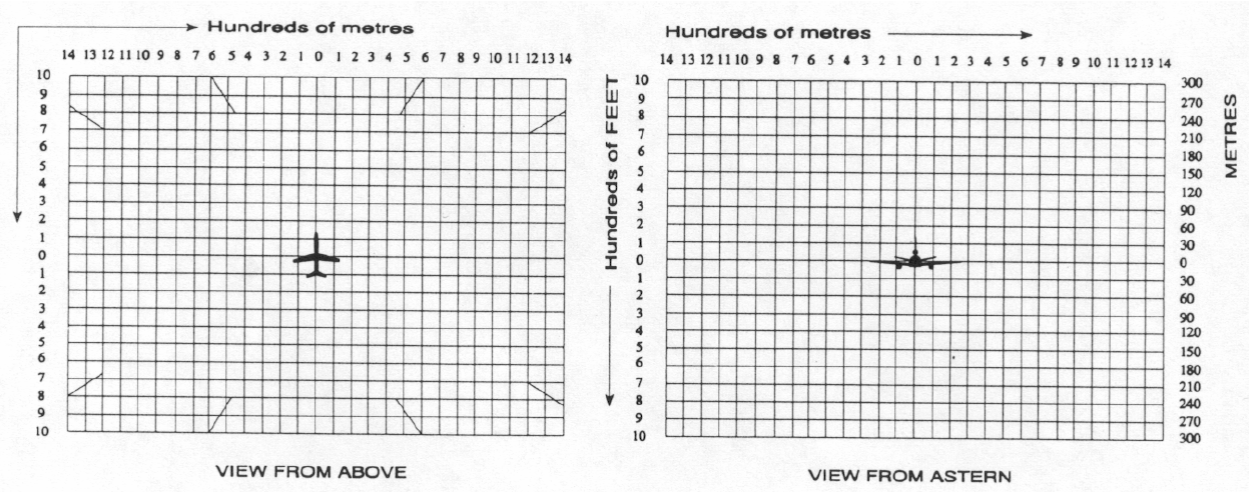
   b) Report received by _____ (name of ATS unit)

2. Details of ATS action

   Clearance, incident seen (radar/visually, warning given, result of local enquiry, etc.)

DIAGRAMS OF AIRPROX

Mark passage of other aircraft relative to you, in plan on the left and in elevation on the right, assuming YOU are at the centre of each diagram. Include first sighting and passing distance.



2. Instructions for the completion of the air traffic incident report form

Item

A Aircraft identification of the aircraft filing the report.

B An AIRPROX report should be filed immediately by radio.

C1 Date/time UTC and position in bearing and distance from a navigation aid or in LAT/LONG.

C2 Information regarding aircraft filing the report, tick as necessary.

C2 c) E.g. FL 350/1 013 hPa or 2 500 ft/QNH 1 007 hPa or 1 200 ft/QFE 998 hPa.

C3 Information regarding the other aircraft involved.

C4 Passing distance — state units used.

C6 Attach additional papers as required. The diagrams may be used to show aircraft's positions.

D1 f) State name of ATS unit and date/time in UTC.

D1 g) Date and time in UTC.

E2 Include details of ATS unit such as service provided, radiotelephony frequency, SSR Codes assigned and altimeter setting. Use diagram to show the aircraft's position and attach additional papers as required.

(接下頁)

APPENDIX B

PRELIMINARY AIR TRAFFIC INCIDENT WORKSHEET

PRELIMINARY REPORT
OF ATS INCIDENT (WORKSHEET)

REPORT NUMBER

1.- CLASSIFICATION ☐ OPERATIONAL ERROR ☐ AIRPROX ☐ OPERATIONAL DEVIATION ☐ PILOT DEVIATION ☐ PROCEDURAL ☐ FACILITY	TIME OF THE INCIDENT DATE _____ TIME _____ _____ DAY MONTH YEAR UTC LOCAL
3.- ATS UNIT ORIGINATING THE REPORT _____ IDENT.	4.- OTHER ATS UNITS INVOLVED ☐ YES ☐ NO _____ IDENT. _____ IDENT.
5.- REPORT OF CLOSE PROXIMITY (AIRPROX) ☐ YES ☐ NO ☐ UNKNOWN	6.- INCIDENT REPORTED BY: ☐ CONTROLLER ☐ SUPERVISOR ☐ PILOT
7.- METEOROLOGICAL INFORMATION ☐ AVAILABLE ☐ NOT AVAILABLE	8.- ALTITUDE OR FLIGHT LEVEL IN WHICH THE INCIDENT OCCURRED _____

9.- LOCATION OF THE INCIDENT	A. IN AIR			B. ON GROUND		
	FIXED	DIRECTION	DISTANCE	INTERSECTION	RUNWAY	TAXIWAY
	_____	_____	_____	_____	_____	_____

10.- CLOSEST PROXIMITY	☐ IN AIR		☐ ON GROUND (DESCRIPTION)
	VERTICAL	HORIZONTAL	
	_____ FEET	☐ _____ FEET ☐ _____ . _____ MILES	

11.- AIRCRAFT INFORMATION	AIRCRAFT No. 1	AIRCRAFT No. 2
A. IDENTIFICATION	_____	_____
B. TYPE OF AIRCRAFT	_____	_____
C. LEVEL FLIGHT	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
CLIMBING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
DESCENDING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
F. EVASIVE ACTION	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
G. TAKEOFF ROLL	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
H. LANDING ROLL	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ INO ☐ UNKNOWN
I. UNDER RADAR CONTROL	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
J. RADAR VECTORED	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
K. TRANSPONDER FUNCTIONING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
L. MODE C FUNCTIONING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
M. RECEIVED TCAS/ACAS RA	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN

AIRCRAFT AND OBSTRUCTIONS/OBSTACLES

☐ TERRAIN ☐ VEHICLES ☐ PERSONNEL ☐ MANOEUVRE AREA ☐ OBSTRUCTION
☐ EQUIPMENT ☐ CONTROLLED AIRSPACE ☐ NOT APPLICABLE ☐ OTHER (EXPLAIN)

12. - CONTROLLER INFORMATION

AREA OF SPECIALIZATION. _____

SECTOR/POSITION. _____

TIME (HRS/MIN) ON POSITION WHEN INCIDENT OCCURRED. _____

TIME (YEARS/MONTHS) SINCE LAST CERTIFIED ON POSITION. _____

NUMBER OF AIRCRAFT CONTROLLER HAD CONTROL RESPONSIBILITY FOR AT TIME OF INCIDENT. _____

WAS THE CONTROLLER PREVIOUSLY FAMILIARIZED WITH THE POSITION. ☐ YES ☐ NO (EXPLAIN)

_____

WAS THE POSITION/SECTOR COMBINED. ☐ YES (EXPLAIN) ☐ NO _____

PRELIMINARY REPORT
OF ATS INCIDENT (WORKSHEET)

REPORT NUMBER

13.- SUPERVISION

A.- WAS A SUPERVISOR ASSIGNED TO THE AREA/CONTROL ROOM?

☐ YES

☐ NO (EXPLAIN)

B.- WHAT WAS THE SUPERVISOR DOING WHEN THE INCIDENT OCCURRED?

14.- WAS TRAINING IN PROGRESS

☐ YES (EXPLAIN) ☐ OTHER

☐ NO

15.- TYPE AND CLASS OF AIRSPACE

☐ TERMINAL AIRSPACE	☐ CLASS A	☐ CLASS E
☐ ENROUTE AIRSPACE	☐ CLASS B	☐ CLASS F
☐ AERODROME SURFACE	☐ CLASS C	☐ CLASS G
☐ OCEANIC	☐ CLASS D	☐ OTHER

16.- PROCEDURES

A.- TYPE OF CONTROL	B.- SPECIFY THE MINIMUM SEPARATION APPLICABLE	
☐ RADAR ☐ TOWER	DIRECTIVE	REQUIRED SEPARATION (SPECIFY)
☐ MANUAL ☐ OCEANIC	PARAGRAPH	_____.

16.- EQUIPMENT

A.- TYPE	GOOD	NORMAL	POOR	OUT OF SERVICE	
RADIO COMMUNICATION					
	REMARKS				
COMMUNICATION POINT-TO-POINT					
	REMARKS				
COMPUTER					
	REMARKS				
RADAR					
	REMARKS				

B.- SYSTEM(s) IN USE

☐ PRIMARY RADAR ☐ SECONDARY RADAR ☐ ALPHA NUMERIC ☐ MODE-S

☐ BRITE/DBRITE ☐ OTHER

C.- WAS THERE A TRANSITION FROM MANUAL TO RADAR ☐ YES (EXPLAIN) ☐ NO

PRELIMINARY REPORT
OF ATS INCIDENT (WORKSHEET)

REPORT NUMBER

17.- MSAW / EMSAW (Complete if applicable)	CONFLICT ALERT (Complete if applicable)
A. AVAILABLE ☼ YES ☼ NO (EXPLAIN)	AVAILABLE YES NO (EXPLAIN)
B.- ACTIVATED ☼ YES ☼ NO (EXPLAIN)	ACTIVATED YES NO (EXPLAIN)
C.- DEACTIVATED ☼ YES (EXPLAIN) ☼ NO	DEACTIVATED YES (EXPLAIN) NO

18.- WERE NAVAIDS A FACTOR
☼ YES (EXPLAIN)
☼ NO

19.- SUMMARY OF PERTINENT INFORMATION (DESCRIPTION OF EVENTS)

20.- PERSON MAKING NOTIFICATION	DATE	TIME	NAME AND POSITION

21.- PERSON RECEIVING REPORT	SIGNATURE

APPENDIX C

FINAL AIR TRAFFIC INVESTIGATION REPORT FORM

FINAL ATS INCIDENT INVESTIGATION REPORT

PART I.
INVESTIGATION INFORMATION

REPORT NUMBER

SECTION A. GENERAL INFORMATION

1.- DATE AND TIME OF THE INCIDENT

DATE: ☐☐☐☐☐☐ (DAY MONTH YEAR) TIME: ☐☐☐☐ (U T C) ☐☐☐☐ (LOCAL)

2.- ATS UNIT ORIGINATING THE REPORT

A.- IDENTIFICATION	B.- TYPE	C.- CLASSIFICATION LEVEL
☐☐☐☐	☐ TOWER ☐ APP ☐ ACC ☐ FIS	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

3.- WAS THERE ANOTHER UNIT INVOLVED ☐ YES ☐ NO

A.- IDENTIFICATION	B.- TYPE	C.- CLASSIFICATION LEVEL
☐☐☐☐	☐ TOWER ☐ APP ☐ ACC ☐ FIS	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

4.- INCIDENT REPORTED BY

☐ CONTROLLER ☐ SUPERVISOR ☐ PILOT

5.- ALTITUDE OR FLIGHT LEVEL WHERE THE INCIDENT OCCURRED ☐☐☐☐

A.- WAS THE IMMEDIATE UPPER LEVEL OR ALTITUDE AVAILABLE ☐ YES ☐ NO

B.- WAS THE IMMEDIATE LOWER LEVEL OR ALTITUDE AVAILABLE ☐ YES ☐ NO

6.- METEOROLOGICAL CONDITIONS A FACTOR?

☐ YES (EXPLAIN)
☐ NO

7.- TYPE AND CLASS OF AIRSPACE:

☐ TERMINAL AIRSPACE	☐ CLASS A	☐ CLASS E
☐ ENROUTE AIRSPACE	☐ CLASS B	☐ CLASS F
☐ AERODROME SURFACE	☐ CLASS C	☐ CLASS G
☐ OCEANIC	☐ CLASS D	☐ OTHER

8.- LOCATION OF THE INCIDENT

A. ☐ IN AIR			B. ☐ ON GROUND		
FIX	DIRECTION	DISTANCE	INTERSECTION	RUNWAY	TAXIWAY
☐☐☐☐☐	☐☐☐	☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐

REPORT NUMBER

SECTION B. CONTROLLER INVOLVED COMPLETE FOR EACH CONTROLLER IF MORE THAN ONE

1.- PERSONAL DATA

OPERATING INITIALS: N A M E:

DATE OF BIRTH

DAY MONTH YEAR

2.- SENIORITY IN THE POSITION

DATE OF ENTRY | C U R R E N T P O S I T I O N | SINCE

DAY MONTH YEAR DAY MONTH YEAR

3.- CERTIFICATIONS

LICENSE No. TYPE LOCATION

R A T I N G

4.- CERTIFICATION IN THE POSITION

WAS THE CONTROLLER QUALIFIED IN THE POSITION? YES ☼ NO ☼

NAME OF IMMEDIATE SUPERVISOR

5.- CONTROLLER PROFICIENCY CHECK

D A T E O F LAST CHECK

DAY MONTH YEAR

WAS A DEFICIENCY DETECTED YES ☼ NO ☼

EXPLAIN IF AFFIRMATIVE _____

_____

6.- TRAINING OR COURSES

HAS TRAINING BEEN CONDUCTED WITIN THE LAST 12 MONTHS THAT IS RELEVANT TO THE INCIDENT? YES ☼ NO ☼

LIST TYPE OF TRAINING DATE OF THE LAST COURSE OR TRAINING

DAY MONTH YEAR

REPORT NUMBER

7.- MEDICAL CERTIFICATE

DATE OF LAST MEDICAL EXAMINATION DAY MONTH YEAR

a) PHYSICAL LIMITATION YES ☐ NO ☐

b) IF AFFIRMATIVE, EXPLAIN: _____

8.- WORK SCHEDULE

LIST THE WORK SCHEDULE OF THE PREVIOUS FOUR WEEKS OF THE INCIDENT BASED ON THE SIGN-IN SHEET, INCLUDING AREA WORKED (TOWER, ACC, ETC.) AND ANY LEAVE TAKEN.

MONDAY	*TUESDAY*	*WEDNESDAY*	*THURSDAY*	*FRIDAY*	*SATURDAY*	*SUNDAY*

9.- ACTIVITIES DURING THE SHIFT

DETAIL OF THE ACTIVITIES OF THE EMPLOYEE DURING THE SHIFT (USE LOCAL HOURS)

HOUR	FROM	TO	ACTIVITIES DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			

10.- DID THE CONTROLLER REQUIRED ASSISTANCE BEFORE THE INCIDENT ☐ YES ☐ NO

a) WAS THE SUPERVISOR INFORMED OF THE VOLUME AND COMPLEXITY OF THE TRAFFIC ☐ YES ☐ NO

b) WAS THE SUPERVISOR AWARE OF ANYTHING INDICATING THAT THE CONTROLLER REQUIRED ASSISTANCE ☐ YES ☐ NO

c) GIVE DETAILS ON THE KIND OF ASSISTANCE PROVIDED: _____

11.- DID THE CONTROLLER ASKED FOR ASSISTANCE BEFORE THE INCIDENT YES ☐ NO

12.- WAS THE CONTROLLER AWARE THAT AN ATS INCIDENT WAS DEVELOPING?

YES ☐ (WHEN):

_____

NO ☐ (WHY): _____

REPORT NUMBER

13.- DID THE CONTROLLER CONSIDERED TAKING CORRECTIVE ACTION

YES ☼ NO ☼

EXPLAIN: _____

14.- DID THE CONTROLLER TRIED TO TAKE CORRECTIVE ACTION

YES ☼ NO ☼

EXPLAIN: _____

15.- BY WHOM WAS THE CONTROLLER INFORMED OF THE INCIDENT

_____

16.- DATE AND TIME IN WHICH THE CONTROLLER WAS INFORMED OF THE INCIDENT

HOUR (UTC) DAY MONTH YEAR

17.- DID THE CONTROLLER IDENTIFIED ANY DISTRACTION THAT OCCURRED DURING THE DEVELOPMENT OF THE INCIDENT?

YES ☼ NO ☼

EXPLAIN: (Consider the presence of visitors, repair or installation of equipment, volume of alarms, disturbing noises, etc.)

_____

_

_____

_

18.- WAS THERE A REASON THAT DISTRACTED THE CONTROLLER BEFORE OR DURING THE DEVELOPMENT OF THE INCIDENT?

YES ☼ NO ☼

EXPLAIN: (Consider training, meetings or inter-personal discussions, etc.)

_____

_

_____

_

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REPORT NUMBER

SECTION C AIRCRAFT INFORMATION		
(COMPLETE ADDITIONAL INFO. IF MORE THAN TWO)	AIRCRAFT No. 1	AIRCRAFT No. 2
1.- IDENTIFICATION	|_|_|_|_|_|_|_|	|_|_|_|_|_|_|_|
2.- TYPE OF AIRCRAFT(S)	|_|_|_|_|_|_|_|	|_|_|_|_|_|_|_|
3.- DEPARTURE AIRPORT	|_|_|_|_|_|	|_|_|_|_|_|
4.- DESTINATION AIRPORT	|_|_|_|_|_|	|_|_|_|_|_|
5.- STAGE OF FLIGHT WHEN THE INCIDENT OCCURRED	☐ DESCENDING ☐ CLIMBING ☐ LEVEL FLIGHT ☐ LANDING ROLL ☐ TAKEOFF ROLL ☐ MANOEUVERING AREA ☐ ON RUNWAY ☐ ON TAXIWAY ☐ APPROACH ☐ RADAR VECTORS ☐ OTHER	☐ DESCENDING ☐ CLIMBING ☐ LEVEL FLIGHT ☐ LANDING ROLL ☐ TAKEOFF ROLL ☐ MANOEUVERING AREA ☐ ON RUNWAY ☐ ON TAXIWAY ☐ APPROACH ☐ RADAR VECTORS ☐ OTHER
6.- ROUTE OF FLIGHT		
7.- EVASIVE ACTION	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
8.- DID THE PILOT EFFECT ANY REPORT OF AIRPROX	☐ YES ☐ NO ☐ UNKONWN	☐ YES ☐ NO ☐ UNKNOWN
9.- UNDER RADAR CONTROL	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
10- TRANSPODER FUNCTIONING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
11- MODE C FUNCTIONING	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
12.- RECEIVED TCAS/ACAS RA	☐ YES ☐ NO ☐ UNKNOWN	☐ YES ☐ NO ☐ UNKNOWN
13.- AIRCRAFT AND OBSTACLES/OBSTRUCTIONS ☐ TERRAIN ☐ VEHICULES ☐ STAFF ☐ MANOEUVER AREA ☐ OBTRUCTION ☐ EQUIPMENT ☐ CONTROLLED AIRSPACE ☐ NOT APPLICABLE ☐ OTHER		

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REPORT NUMBER

SECTION D PROCEDURES

1.- TYPE OF CONTROL USED:

☐ RADAR ☐ MANUAL ☐ TOWER ☐ OCEANIC

2.- TYPE OF PROCEDURE: ☐ ICAO ☐ NATIONAL ☐ LOCAL ☐ OTHER

3.- SPECIFIC MINIMUM SEPARATION INVOLVED

DIRECTIVE ____ • ____ REQUIRED SEPARATION (SPECIFY)

PARAGRAPH ____ • ____ _____

4.- SEPARATION APPLIED (IF DIFFERENT FROM 3 ABOVE)

☐ YES (EXPLAIN)

☐ NO

5.- DESCRIPTION OF PROCEDURES USED

6.- WERE ANY DEFICIENCIES OF THE PROCEDURE IDENTIFIED.

☐ YES (EXPLAIN)

☐ NO

7.- WAS A SPECIAL PROCEDURE IN EFFECT AT THE TIME OF THE INCIDENT

☐ YES (EXPLAIN)

☐ NO

SECTION E. CLOSEST PROXIMITY

A.- ☐ IN AIR

VERTICAL : ____ FEET

HORIZONTAL : ____ FEET ____ • ____ MILES

B.- ☐ ON GROUND (DESCRIPTION)

REPORT NUMBER

SECTION F WORKLOAD

1.- TRAFFIC COMPLEXITY

A.- NUMBER OF AIRCRAFT UNDER CONTROL ☐☐

B.- COMPLEXITY OF TRAFFIC

1 2 3 4 5
|----------|----------|----------|----------|
LOW AVERAGE HIGH

C.- EXPLANATION OF THE COMPLEXITY OF TRAFFIC

2. POSITION / SECTOR OF OPERATION

A. ARE DUTIES AND RESPONSIBILIDIES OF EACH POSITION CLEARLY DEFINED

☐ YES
☐ NO

B. COMBINED SECTORS

(1) WERE SECTORS COMBINED ☐ YES ☐ NO

1. ☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐
2. ☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐
3. ☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐

INITIALS OF THE CONTROLLERS WORKING THE COMBINED SECTORS

1. ☐☐☐ 2. ☐☐☐ 3. ☐☐☐

(2) DID THE SUPERVISOR AUTHORIZED THE COMBINATION

☐ YES ☐ NO

(3) DID TRAFFIC JUSTIFY THE COMBINATION

☐ YES ☐ NO

C. COMBINED POSITIONS

(1) WERE POSITIONS COMBINED ☐ YES ☐ NO

1. ☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐
2. ☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐
3. ☐☐☐☐☐☐☐ ☐☐☐☐☐☐☐

INITIALS OF THE CONTROLLERS WORKING THE COMBINED POSITIONS

1. ☐ 2. ☐ 3. ☐

(2) DID THE SUPERVISOR AUTHORIZED THE COMBINATION

☐ YES ☐ NO

(2) DID TRAFFIC JUSTIFY THE COMBINATION

☐ YES ☐ NO

3. SUPERVISION

a. WAS A SUPERVISOR ASSIGNED TO THE AREA/CONTROL ROOM?

☐ YES ☐ NO

b. WAS THE SUPERVISOR PRESENT IN THE OPERATIONAL AREA WHEN THE INCIDENT OCCURRED?

☐ YES ☐ NO

c. WAS THE SUPERVISOR AWARE OF:

TRAFFIC VOLUME	☐ YES	☐ NO	DISTRACTIONS	YES	☐ NO
COMPLEXITY OF WORK	☐ YES	☐ NO	REQUEST OF ASSISTANCE	☐ YES	☐ NO

e. WHAT ACTIVITY WAS THE SUPERVISOR CONDUCTING AT THE TIME OF THE INCIDENT

☐ SUPERVISION
☐ COORDINATION
☐ WORKING POSITION/SECTOR
☐ ADMINISTRATIVE DUTIES
☐ TRAINING/BRIEFING
☐ OTHER (SPECIFY)

REPORT NUMBER

SECTION I. SUMMARY OF INCIDENT

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PART II.
ATS UNIT MANAGER ACTION

REPORT NUMBER

SECTION A. C L A S S I F I C A T I O N			
☐ OPERATIONAL ERROR	☐ OPERATIONAL DEVIATION	☐ PILOT DEVIATION	☐ NON-OCCURRENCE

SECTION B. C A T E G O R I Z A T I O N				
1. CATEGORY OF THE ATS INCIDENT	☐ PROCEDURAL	☐ FACILITY	☐ HUMAN	
2. RATIONAL FOR THE CATEGORIZATION.				

REPORT NUMBER

SECTION C CAUSAL FACTORS ☼ CONTINUED PAGES ATTACHED								
	NO	YES (EMPLOYEE) INDICATE WITH A CHECK MARK						
		A	B	C	D	E		
1. DATA POSTING								
a. COMPUTER ENTRY								
(1) Incorrect input								
(2) Incorrect update								
(3) Premature termination of data								
(4) Other (EXPLAIN) _____								
b. FLIGHT PROGRESS STRIP								
(1) Not updated								
(2) Interpreted incorrectly								
(3) Posted incorrectly								
(4) Updated incorrectly								
(5) Premature removal								
(6) Other (EXPLAIN) _____								
2. RADAR DISPLAY								
a. Misidentification								
(1) Failure to reidentify aircraft when the accepted identity becomes questionable.								
(2) Overlapping data blocks								
(3) Acceptance of incomplete or difficult to correlate position information								
(4) Other (EXPLAIN) _____								
b. INAPPROPRIATE USE OF DISPLAY DATA								
(1) Mode C								
(2) BRITE								
(3) Conflict alert								
(4) Failure to detect displayed data								
(5) Failure to comprehend displayed data								
(6) Failure to project future status of displayed data								
(6) Other (EXPLAIN) _____								
3. AIRCRAFT OBSERVATION (TOWERS ONLY)								
a. ACTUAL OBSERVATION OF AIRCRAFT								
b. INPROPER USE OF VISUAL DATA								
(1) Landing								
(2) Taking off								
(3) Ground operation								
(a) Taxing across runway								
(b) Holding in position for takeoff								
(4) others (EXPLAIN) ANNEX PAPER								

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	NO	YES (EMPLOYEE) INDICATE WITH A CHECK MARK						
		A	B	C	D	E		
4. COMMUNICATIONS ERROR								
a. PHRASEOLOGY								
b. TRANSPOSITION								
c. MISUNDERSTANDING								
d READBACK								
(1) Altitude								
(2) Clearance								
(3) Identification								
(e) ACKNOWLEDGMENT								
(f) OTHER (EXPLAIN) _____								
5. COORDINATION								
a. AREA OF INCIDENT								
(1) Intra-sector/position								
(2) Inter-sector/position								
(3) Inter-ATS unit ATS unit type _____ Level _____ Unit ID _____								
b. FAILURE TO UTILIZE/COMPLY UIT PRECOORDINATION INFORMATION								
c. IMPROPER USE OF INFORMATION EXCHANGED IN COORDINATION								
(1) Aircraft identification								
(2) Altitude/flight level								
(3) Route of flight								
(4) APREQS								
(5) Speed								
(6) Special instructions								
(7) Other (EXPLAIN) _____								
d FAILURE TO COORDINATE BETWEEN GROUND AND TOWER								
(1) Crossing active runway								
(2) Vehicle, equipment or personnel on active runway								
(3) Use of other than active runway for arrivals and departures								
(4) Runway closure								
(5) Other (EXPLAIN) _____								
6.- POSITION RELIEF BRIEFING								
(a) EMPLOYEE DID NOT USE POSITION RELIEF CHECKLIST								
(b) EMPLOYEE BEING RELIEVED GAVE INCOMPLETE BRIEFING								
(c) RELIEVING EMPLOYEE DID NOT MAKE USE OF PERTINENT DATA EXCHANGED AT BRIEFING								
(d) OTHER (EXPLAIN) _____								

REPORT NUMBER

SECTION D RECOMMENDATIONS AND CORRECTIVE ACTIONS		
		☼ CONTINUED PAGES ENCLOSED
DATE	NAME OF ATS UNIT MANAGER	SIGNATURE

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PART III
ATS DIRECTOR / MANAGER

REPORT NUMBER

SECTION A CONCLUSIONS / RECOMMENDATIONS		
		☼ CONTINUED PAGES ENCLOSED
DATE	NAME OF THE ATS DIRECTOR / MANAGER	SIGNATURE

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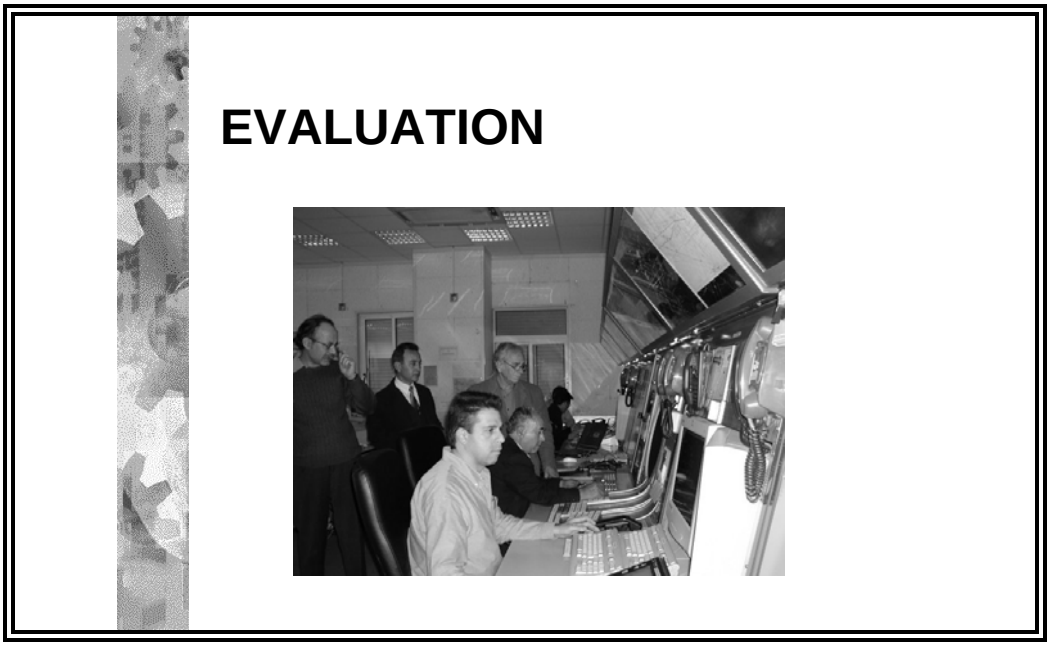
第 七章 評鑑(Evaluations)：

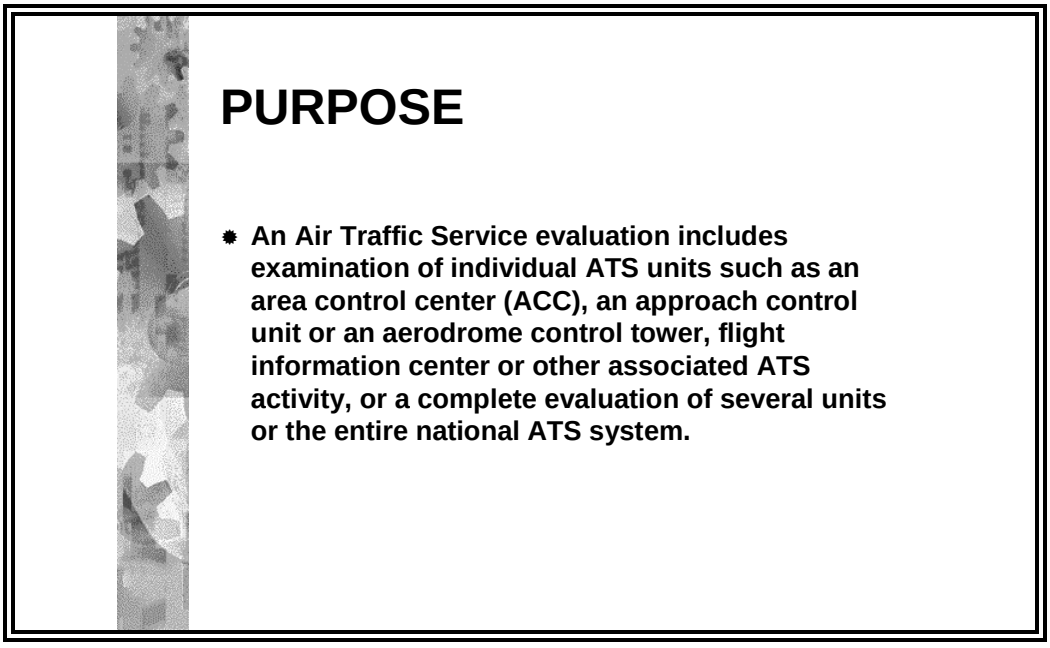
1.簡介(Introduction)



⊙程序和作業標準化，對那些負有國際性義務和使用跨單位程序的單位而言是很重要的。
⊙所能達到的標準化的程度，是直接和那些執行工作的個人的專業性程度相關的。
⊙這接著也決定了所提供給使用者和旅行公眾的服務的效率。

2.主旨和規模(Purpose and scope)

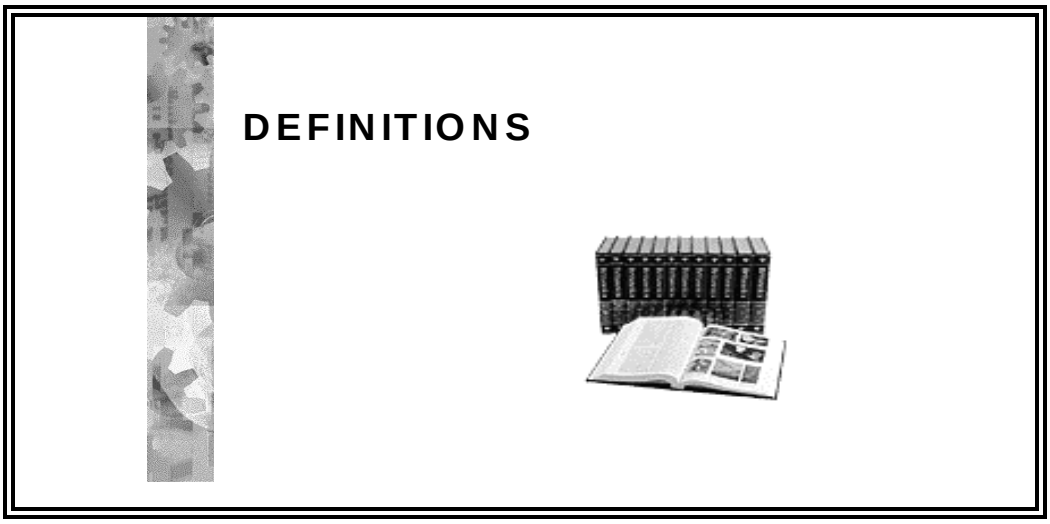
Ref. CAR/SAM 7.2.1; 7.2.2



⊙評鑑ATS單位是必要的，以確保：
-所提供的服務是保持在最高標準狀況上。
-所有單位和人員都是使用法定的政策、標準、規則、程序和隔離標準。
⊙ATS評鑑通常包括下列全部或部分活動：
-檢驗所提供給使用者的服務的標準化、品質和恰當性。
-確定操作程序與國家標準一致。
-檢驗作業需求和作出建議。
-鑑識出潛在的不安全的程序或作業細則(Unsafe procedure or practice)以便立即改善。
-偵測問題區域或缺陷，並確認可能的原因以及作出建議的改善方式。
-檢驗單位內(Intra-Facility)和單位間(Inter-facility)的通連和協調之有效性(effectiveness)。
-檢驗人事運作、席位工作量和單位格局以確保其匹配性。
⊙在ATS評鑑的結論中，所有的發現都需作成書面記載；並在需要改革之處適當的作成建議。
⊙有關需緊急矯正的事項，應儘速的-最好是在正式報告出爐之前-告知並加以改正。

3.名詞定義(Definitions)

Ref. FAA Order 7010.1



⊙行動計劃(Action plan)：
-行動計劃是ATS單位經理人針對被核判(Rating)爲〝A〞的項目之改善方式和預計結案日期所製作的概述性文件。
-對無法按律定時程結案之被核判爲〝P〞和〝M〞的項目也可能被要求製作行動計劃。
⊙行動判等(Action Rating)-〝A〞：行動判等是指未遵照國家、區域或地方要求之不論是檢查表中(Checklist)或檢查表外(Off_checklist)必需立即加以改善的項目。
⊙附掛項目(Appended items)：附掛項目是得自飛航中或飛航前空中評鑑或是OD/OE、事故、事件調查發現(Investigation findings)結果所發現新的或昇格的(elevated)項目。
⊙優異判等(Commendable Rating)-〝C〞：優異判等是指不論是檢查表中(Checklist)或檢查表外(Off-checklist)之服務效能、計畫或品質，達到卓越的表現。
⊙評量表(Critique)：評量表是ATS單位經理人對評鑑小組、評鑑人員的表現和評鑑過程的評

價和建議。

⊙缺陷判等(Deficiency Rating)-〝D〞：缺陷判等是指不論是檢查表中(Checklist)或檢查表外(Off-checklist)的操作性支援項目未遵照國家、區域或地方要求。

-解決缺陷項目的方式取決於區域ATS經理人的裁量。

⊙非現場評鑑(Desk Audit)：非現場評鑑是非現場(Off-site)執行之後續評鑑(Follow-Up Evaluation，FUE)。

-非現場評鑑可藉由電話約談ATS單位及/或要求將錄音、錄影資料寄到相關飛航評鑑支部(Air Traffic Evaluation Division branch)完來成。

⊙後續評鑑(Follow-Up Evaluation，FUE)：後續評鑑是爲確認對單位總評鑑時所發現的特定項目已改善完畢所爲的現場或非現場評鑑。

⊙單位總評鑑(Full Facility Evaluation，FFE)：單位總評鑑是現場依適當的國家級檢查表格(National Checklist)，檢驗單位在作業、作業支援和特別強調項目之整體效能之評鑑。

⊙飛航中/飛航前評鑑(in-flight/pre-flight Evaluations)：

-飛航中/飛航前評鑑是對ATS單位所提供之服務所作的驗證。

-評鑑員-包括國家權責總部和區域ATS部門人員，利用航空公司、軍事單位、代理機關或租賃的航空器執行飛航中評鑑。

-利用代理機關或租賃的航空器執行飛航中評鑑，是一種獲得緊急支援能力的手段。

⊙資訊判等(information rating)-〝I〞：資訊判等是指不論是檢查表中(Checklist)或檢查表外(Off-checklist)可能會引起區域ATS部門經理人或國家檢閱評鑑報告人士興趣的項目。

⊙經營管理有效性判等(Management Effectiveness Rating)-〝M〞：經營管理有效性判等是指經營管理未確保偏差已在單位層級被解決。

-這項目的目的是提醒區域ATS部門，區域層級的幫助可能是需要的。

-這判等通常在往後的評鑑中會被重判爲〝P〞。

⊙不適用判等(Not Applicable Rating，N/A)：不適用判等是指列表中之項目不適用於被評鑑單位。

⊙未觀察到判等(Not Observed Rating，N/O)：未觀察到判等是指列表中之項目適用於被評鑑單位，但於評鑑過程中並未被觀察到。

⊙觀察到的事跡(Observed Event)：觀察到的事跡，是被評鑑人員見證到並被確認具有操作重要性(Operationally significant)的事跡，比如說是OD/OE等。

-觀察到的事跡應判等爲〝I〞，並記載入報告中。

⊙檢查表外項目(Off-Check list item)：檢查表外項目是指未特別在國家檢查表中特別指明的驗證到項目。

⊙問題判等(Problem Rating)-〝P〞：問題判等是指未符合國家、區域或地方要求之不論是檢查表中(Checklist)或檢查表外(Off-checklist)，單位層級可以解決的操作項目或重判等的作業支援項目。

⊙質疑判等(Questionable Rating)-〝Q〞：質疑判等是指飛航中/飛航前評鑑所遇到的可能需要進一步評鑑的狀況(Occurrence)或情形(Condition)的結果。

⊙區域判等(Regional Rating)-〝R〞：區域判等是指不論是檢查表中(Checklist)或檢查表外(Off-checklist)未符國家、區域或地方要求，又無法由單位層級解決的項目。

⊙滿意判等(Satisfactory Rating)-〝S〞：滿意判等是指遵照國家、區域或地方要求，所達成的檢查表中(Checklist)項目。

⊙特殊評鑑(Special Evaluations)：特殊評鑑是指在飛航評鑑部門指示下或國家總部或區域辦公室(Regional Office)要求下所執行針對特定問題或焦點的特別評鑑。

-這種評鑑可以是定期的也可以是不定期的。

⊙結案三步驟(Three-Step Closure Process)：結案三步驟是對被判等爲A、M、P的項目予以結案所需的方法。

-在60~180個日曆天中所需的回應可敘述爲如下三步驟：

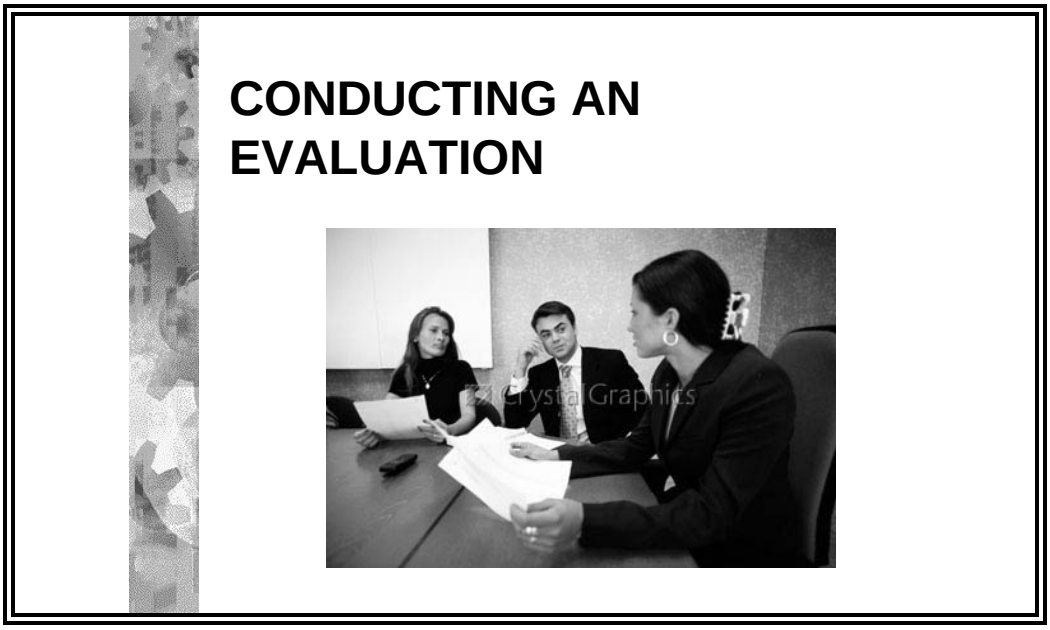
*改正措施(Corrective Action)：改正措施是執行單位最初所採取用以改正偏差的行動或系列的行動。

*後繼措施(Folloe-up Action)：後繼措施是在適當時程之後所採取用以驗證改正措施之成功的行動。其書面資料應包括完成日期和結果。

*經理控管(Management Controll)：經理控管包括繼續保持偏差不再發生之措施和/或計劃，以及所指定負責定期檢視所改正偏差的人員，和檢視的頻率。

4.執行評鑑(Conducting an evaluation)

Ref. CAR/SAM 7.3



⊙指定的人員應以不少於兩年一次的建議頻率執行常規定期評鑑。

⊙可能對選定的單位實施期中評鑑(Interim Evaluation)，必要的話會大約在兩次常規評鑑的中間。

⊙在開始評鑑一個ATS單位前，應通知該單位主管。該單位主管應負責安排所有適當執行評鑑所需的協助；包括安排與其它相關單位的接觸，如：

-通訊部門。

-機場管理部門。

-航空公司OD。

⊙在完成一個ATS單位評鑑後應用召開一個會議，會議中該單位主管將被告知任何重要的發現和建議。

⊙該會議的目的在於：

-檢視發現(Findings)。

-釐清問題焦點(Problem areas)。

-檢視替代解決方案(Alternative soloutions)。

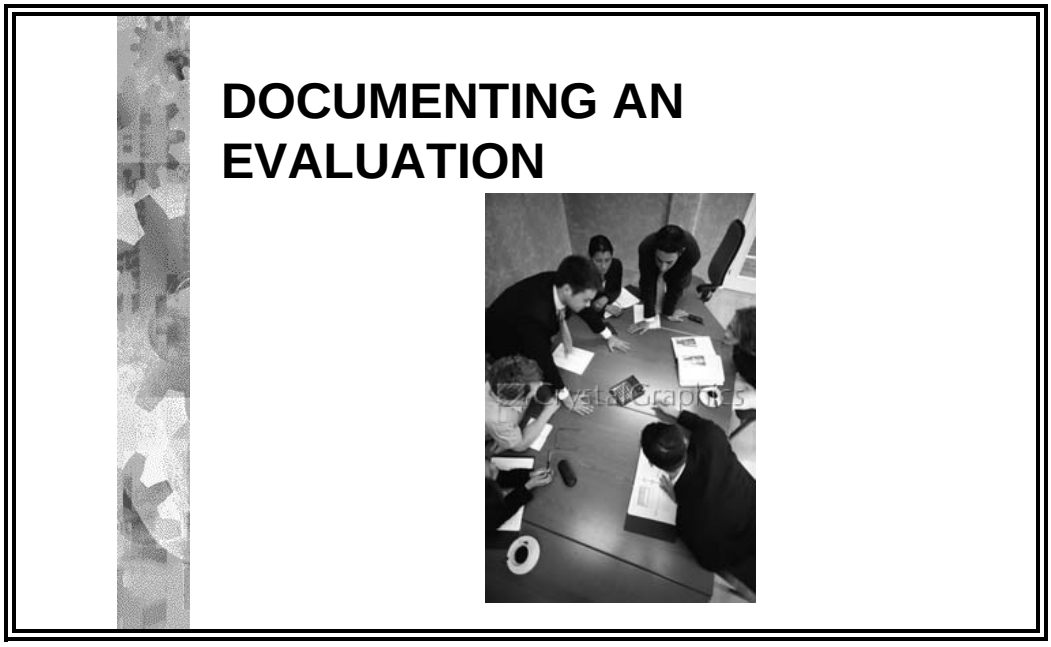
-指定後續行動(Follow-Up Actions)的責任。
-協調矯正行動(Remedial Actions)。
-擬定約略完成行動之日期(Tentative target dates)。

⊙任何時候都可從事特別評鑑以檢驗特定焦點或功能。

⊙這種特別評鑑，可包括在正常工作期間之在空監聽(In-flight monitoring)許可和程序。

5.評鑑備文(Documenting an Evaluation)

Ref. CAR/SAM 7.4.4



⊙在完成一個ATS單位評鑑後，評鑑小組負責人應：
-製作所評鑑系統中各個被評鑑單位的書面報告。
-視需要，製作在空監聽書面報告。
-發送評鑑報告到相關權責單位。

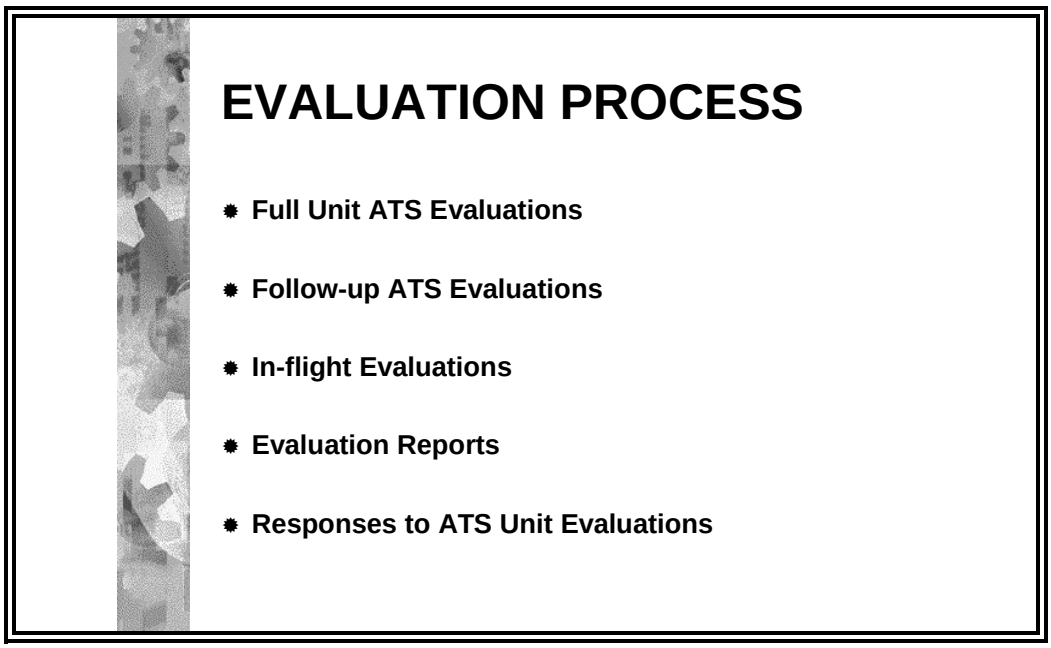
⊙每一次ATC常規觀察或評鑑，其評鑑報告應以敘述方式書寫，並最少應包括下列資訊：
-所檢測到的缺陷或問題焦點的敘述。
-對改善措施的建議。
-如果恰當的話，負責後續措施的人或機關。
-改善措施的標的日期。

⊙ATS單位應通知相關權責單位對所被指出的問題所採取的行動-最好在收到報告的30日內。並自此時起每固定時段通知一次，直到所有問題都解決為止。

(接下頁)

6.評鑑程序(Evaluation process)

Ref. CAR/SAM
7.6.1~7.66



Full unit evaluations

⦿通知和準備：
-單位總評鑑使用本章附錄的檢查表執行，每個單位通常應每兩年實施一次。
-ATS權責單位得在檢查表中添入適用於ATS單位的項目以補充檢查表。
-在執行單位總評鑑時，ATS權責單位應至少在30天前通知ATS單位經理人。
-通知書中亦可要索取資料以爲先期檢視和作爲提出特別驗證題材之用。
⦿開使簡報(In-briefing)：
-介紹小組成員、評鑑流程以及需與ATS單位經理人和相關幹部討論的事宜。
⦿執行評鑑：評鑑人員以下列一部或全部方法執行評鑑。
-直接觀察。
-管制席位和/或錄音/錄影監視、監聽。
-參與幹部會議。
-觀察訓練活動。
-檢視行政性記錄。
-約談/討論
-檢視在空評鑑報告。
⦿例行簡報(Daily-briefin):
-評鑑小組領隊通常會提供ATS單位經理人每日例行評鑑進度的簡報。
⦿結束簡報(Out-briefing):
-在評鑑結束時，ATS單位經理人將會收到評鑑小組對所發現項目的簡報。
-這時候應提供ATS單位經理人評鑑小組報告草案副本，或應儘可能快的提供。
⦿評鑑評量表(Evaluation Critique)：

-評鑑小組領隊應提供ATS單位經理人一份評量表以供填寫。

⊙重判等項目(Re-identified items)：

-對前次ATS單位評鑑中被重判等爲不滿意項目亦應予以注意。

Follow-up ATS evaluations

⊙通知和準備：

-後續 ATS 評鑑通常應以無預警或最低通知方式以現場或非現場或兩者並行方式執行。

-這種評鑑通常應在單位總評鑑結束簡報之日起六個月內舉行，或由 ATS 權責單位決定之。

⊙未結案項目(Open items)：

-對前次評鑑中被判等爲不滿意項目，若未完成結案三步驟或仍可檢測到偏差的存在，應視爲未結案。

⊙結案三步驟：

-結案三步驟是對評鑑中被判等爲不滿意的項目予以結案的方法。

-所需的回應，應在60~180個日曆天中作成，並以如下三步驟加以敘述：

*改正措施(Corrective Action)：執行單位最初所採取用以改正偏差的行動。

*後繼措施(Follow-up Action)：是在適當時程之後所採取用以驗證改正措施之成功的行動。其書面資料應包括完成日期和結果。

*經理控管(Management Controll)：爲ATS權責單位或ATS單位所採取繼續保持偏差不再發生之措施，並包括指定負責定期檢視所改正偏差的人員，和完成檢視的時間。

⊙新增項目(New items)：

-在後續評鑑中所確認的新增項目應予適當書面記載。

⊙結案項目(Closed items)：

-當偏差不再能被檢測到時，該項目便可視爲已結案(Closed)。

-ATS單位用以改正偏差的最初行動已完成。

-ATS單位已完成後繼驗證措施。

-以建立作爲/程序以確保問題不會再發生。

In-flight evaluations

⊙ATS 權責單位應每年至少對管區內各單位實施兩次在空評鑑。

⊙在空中評鑑，應由評鑑員和其它ATS權責單位授權人員，利用經建立協議之航空公司或其它操作單位執行。

⊙若可能的話，評鑑員在飛航中會對飛航服務作下列評鑑：

-飛航服務通報辦公室(ATS reporting office)。

-自動終端廣播服務(ATIS)。

-機場管制服務(許可頒發席、地面管制席、機場管制席等)。

-近場管制服務(APP)。

-區域管制服務(ACC)。

-飛航諮詢服務(Air traffic advisory service)。

-飛航情報服務(FIS)。

-其它有必要的服務單位。

Special evaluations

⊙特別評鑑得依 ATS 單位之請求或 ATS 權責單位認爲有必要而實施。

Evaluation reports

⊙報告之完成：

-所有評鑑結果皆應作成書面文件，以確保所有相關辦公室都被充分告知關於ATS系統效能之情況。

-所有的最終報告皆應於結束簡報之日起 30 日內完成並發送出去。

-ATS 單位總評鑑報告應：

*包含關於所驗證焦點(Area assessed)的評鑑結果。

*敘述所有可報告項目(Reportable items)。

*指定追控號碼(Tracking controll numbers)予辨識出之項目。

-執行摘要(Executive summaries)：ATS單位總評鑑皆應製作執行摘要。

Responses to ATS unit evaluations

⊙所有 ATS 單位評鑑中被判等爲不滿意項目都應依結案三步驟予以回應。並應遵守下列準則：

-行動計劃：所有被判等爲不滿意之項目都應於收到最終 ATS 單位評鑑報告之日起 30 日內完成行動計劃之建立並傳送至適當 ATS 權責單位。

-初步回應：初步回應應由 ATS 單位經理人於結束簡報之日起 60 日內完成並傳送至適當 ATS 權責單位。

-第二回應：第二回應應由 ATS 單位經理人於結束簡報之日起 180 日內，以及往後的每 180 日內完成並傳送至適當 ATS 權責單位，直到所有項目都結案爲止。

(接下頁)

練習一：決定判等代碼(DETERMIND RATING CODE)

You are conducting a Full Unit Evaluation. Listed below are the errors found. Using the codes in definition, place the appropriate code to the error.

Code:		Problem Status	OPEN
Problem Title:	INTERPHONE FORMAT		
Problem Text:	ZMD ATSS's were observed using incorrect interphone format on numerous occasions.		

Code:		Problem Status	OPEN
Problem Title:	POSITION RELIEF/CHECKLIST		
Problem Text:	Position relief checklists were not always used when ATCS's transferred position responsibilities. Additionally, the requirement to verbally state runway status was not on the position relief checklist in the control tower.		

Code:		Problem Status	OPEN
Problem Title:	LETTER OF AGREEMENT BETWEEN ZMD AND AREA CONTROL		
Problem Text:	The Letter of Agreement between ZMD and the area control is in violation with ICAO Annex 13.		

Code:		Problem Status	OPEN
Problem Title:	QUALITY ASSURANCE DEPARTMENT		
Problem Text:	The ZMD QA department has developed a computer program that keeps track of all training of controllers.		

Code:		Problem Status	OPEN
Problem Title:	ACCIDENTS REPORTS		
Problem Text:	As noted in previous Full Unit Evaluations, the report numbers on accident reports is missing and has not been corrected.		

練習二：結案三步驟(THREE-STEP PROCESS)

You are the QA specialists for your facility. The manager has assigned you the task of responding to the errors during a Full Unit Evaluation. Using the three-step process, complete the form. Use the sample in Appendix 3 as a guide.

Problem Number:	04-T-ZMD-05P	**Problem Status**	
Problem Title:	INCIDENT INVESTIGATION		
Problem Text:	Pilot deviations were not always logged on proper form and required notification of the incidents was not always made in a timely manner.		

Corrective Action		

Follow Up Action		

Management Control		

APPENDIX 1: TERMINAL CHECKLIST

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
A. ADMINISTRATION				
Organization of ATS	1. What is the organizational structure its relationship with the Administration, ATS Units, and other offices? 2. Does the structure meet the needs of ATS?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc 9426 (Part IV)
ICAO and State's documents	1. Check availability and amendment status (annexes 2 and 11, PANS RAC, Doc. 4444, Manuals and Circulars). 2. Are documents up-to-date?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		ICAO Regional Office Manual
Status of Differences from SARPS	1. Differences from Annexes 2 and 11 and Recommended Practices. 2. Has State notified ICAO of differences? 3. Are differences published in AIP?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 15 ICAO Regional Office Manual

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
Air Navigation Plan	1. Check implementation status of the ATM Section in the CAR/SAM ANP.	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		CAR/SAM ANP Doc. 9749
CAR/SAM/3 RAN	1. Check implementation status of CAR/SAM/3 RAN Recommendations and Conclusions.	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		CAR/SAM/3 RAN Report Doc. 9749
Air Traffic Controller Licenses	1. Do controllers comply with the requirement of an ATC license?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 1 Doc 9426 (Part IV, Section I. Chap. 4)
Air Traffic Control Ratings	1. Do ATC controllers have all required ratings for their function? 2. Which ratings have been approved for this particular unit?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 1 Doc 9426 (Part IV, Section I. Chap. 4)

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
Medical Clearance	1. Do ATC Controllers take medical exams? 2. How often?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 1
B. OPERATIONS				
Operational Efficiency	1. Effectiveness and application of procedures; overall operational efficiency of ATS unit. 2. Are Repetitive Flight Plan used? 3. Is there a proper sectorization of the airspace? 4. Are separation standards used properly within the ATS unit?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 4444 (part III) Doc. 9426 (part II, Sec. 3 Chap. 1)
Operational Teamwork	1. Does the ATC staff work as a team?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (Part IV)
Operational Supervisor/Controller-in-Charge monitors the Operation	1. Is a operational supervisor or controller-in-charge designated? 2. Does the Supervisor/ Controller-in-Charge supervise the operations, monitor the operations and anticipates traffic flow, implements air traffic flow management initiatives, etc.?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (part II, Section 1, Part IV)

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
Air Traffic Flow Management	1. Does the unit have an Air Traffic Flow Management program? 2. What are the responsibilities and procedures to be used?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc 4444 Doc 9426 (Part 2, Section 1, Chap. 3)
ATFM Coordination/Delay Reporting	1. How does the unit coordinate ATFM initiatives? 2. How are delays recording and reported?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (Part II, Section I)
Communications Procedure	1. Is aeronautical phraseology properly used? 2. Are communications' procedures properly used with aircraft and adjacent ATS Units?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 10 Doc. 4444 (Part X)
Flight Progress Strips	1. Are flight progress strips used correctly according to local, national and ICAO directives?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
Coordination Procedures and Letters of Agreement	1. Are there any coordination procedures with adjacent ATS Units? 2. Are there any Letters of Agreement with adjacent ATS Units? 3. Are LOAs up to date?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (Part IV, Chap. 4)
Controller operational currency	1. How does the ATS Unit ensures that controllers are kept operationally current? 2. How much time can they stop working as ATC before losing their rating (i.e., controller in extended leave status, etc.)	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (Part IV, Chap. 4)
Sector position relief briefings	1. Is there a standardized sector/position relief briefing checklist? 2. Are verbal briefings accomplished using the checklist?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (Part IV, Chap. 1)
Weather	1. What weather does ATC have available? 2. Do they solicit pilot reports (PIREPs)? 3. What do they do with PIREPs? 4. SIGMETs? 5. Do they allow severe weather avoidance/rerouting? 6. What is done in the event of a volcanic eruption?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		#1 Annex 3 Ch 10 #3 DOC4444-II-16.1 #4. Annex 11 - 7.1.2.1 #6. Annex 11 7.5, DOC4444 -Appendix 1-2.

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
Operational Directives Controller reference material, [what is readily available?]	1. Are ICAO and State reference material readily available in the control room? Maps/charts, Charts with the minimum safe altitudes, Instrument procedures, Manual of Operations, Letters of Agreement, etc. 2. Are these documents up-to-date?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 11 Para 2.21
C. OPERATIONAL SUPPORT				
Customer Services/Coordination	1. General responsiveness to customer needs; conferences education, communications, seminars, users forum, etc.	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 Part IV
Shift coverage	1. Is there a basic coverage for all shifts? 2. Is there enough staff to cover shifts during holidays, overtime, etc.?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (Part IV)
Relations with other Aviation Organizations/Offices	1. What is the relationship with other ATS units, other States, Airports, etc.)	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc- 9426 (Part IV)

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
Contingency procedures	1. What happens in the event of catastrophic failure of equipment? 2. Is there delegation of airspace to a neighboring ATS unit? 3. With Letter of Agreements? 4. Are there notification procedures?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 II-1-1.3.3 Doc. 4444 III-17
Emergency procedures	1. What does the controller do when a pilot declares an emergency? 2. Can the controller give IFR approach instructions (in Spanish or English) topilot making an emergency landing at an unpublished airport? 3. What is management's role in emergencies? 4. Is there a standardized procedures/check list for emergencies,hijacks, or bomb threats? 5. Is 121.5 MHz monitored? 6. Are adjacent or expecting units notified? 7. Records, reports, debriefs?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 11 Ch5 #3. Annex11 2.20
Traffic counts	1. by time of day? 2. by airway? 3. by type? 4. other?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426 (Part IV)

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
D. QUALITY ASSURANCE				
ATS Quality Assurance Program	1. Does the ATS unit have an established ATS quality assurance program? 1(a) Is there a directive outlining the program? 1(b) Has an ATS quality assurance officer/specialist been designated?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 11 Doc. 4444 Doc. 9426
Loss of separation	1. What is the administrative process when a loss of separation occurs? 1(a). At Headquarters? 1(b). At the Regional headquarters? 1(c). At the ATS unit where the incident occurred?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Annex 11, Doc. 4444, Doc. 9426
Handling of incidents/accidents	1. How are pilot deviations handled? 1(a). What role does the military play? 1(b). What is ATC's military intercept procedure? 2. How are incidents handled? 3. What ATS data is recorded? 4. Are there reports? Who gets them? Are they reviewed? Is there feedback back to the unit? Recommendations made?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		#1(b). Annex 11 2.23, Doc. 4444, part III, para 19 #2 Doc. 9426 II-1-Ch3 #3. Doc. 9426 I-2-8.4 #4. Annex 13, DOC 9156 - 1.4
Evaluations	1. Is there a regional or national evaluation program established? 2. If so what do they check? 3. How often does this happen? 4. Does this result in action plans and accountability?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc 9426 II-1-Ch4

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
E. TRAINING				
Certification and recertification	1. What is the training and certification process? 2. Who determines this? 3. What constitutes loss of currency and recertification?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc 9426 IV-1-3.2 and 3.3
Proficiency checks and proficiency training	1. Are controllers required to demonstrate job performance. (a) Are proficiency checks conducted? (b) If so how often? 2 Is proficiency training conducted? 2(a) Does the unit have a list of annual proficiency training requirements? 2(b) Who and how are the subjects determined?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc 9426 IV, sec 1, Ch3
Controller workload	1. Who monitors this? 2. Is there a defined acceptable level of traffic? 3. If so, is this differentiated between domestic and international traffic?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc 9426 II-1-1 APNDX C, also II, sec 3, Ch1
Controller briefings	1. How are controllers briefed concerning changes in procedures? 2. How and who ensures that all controllers have been briefed?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 9426

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
English refresher training	1. Are proficiency tests given? 2. Who prepares the test (local, regional, or national)? 3. How often administered (is it systematic)? 4. What determines an acceptable level of competency? 5. Is there remedial training or loss of certification? 6. Is there refresher training?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc 9426 IV-1-3.4
Communication with pilot	1. Are preflight briefings given? 2. When and how often is destination weather reports given to the pilot? 3. Are braking action reports given? 4. How do you issue and distribute NOTAMs?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		#1. Annex 3 Ch 9
Monitoring the airspace and advertised services	1. Are NAVAIDs monitored and status known both within the local and adjacent FIRs? 2. How are temporary flight restrictions or airspace reservations handled?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		#1. Doc 9426 I-2-10.3.1 #2. Doc 4444 II-6.3

ITEM	TASK/QUESTIONS	STATUS	COMMENTS	ICAO Ref.
F. EQUIPMENT AND FACILITIES				
Communications Systems	1. What is the reliability of communications? (ground-ground, airground) a) Aeronautical Fixed Service (AFS) – AFTN - ATS Speech Circuits b) Aeronautical Mobile Service (AMS) – VHF - HF 2. Are there procedures that compensate for deficiencies? 3. How are the ATS voice recordings handled and preserved?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		#1 Annex 11 Ch6
Navigation Systems	1. What is the reliability of the navigation system? 1(a) Ground-based systems? 2(b) Satellite based systems? 2. Are there contingency procedures in case of failure? 3. Is the performance of the navigation equipment monitored and checked? 4. Are flight checks of the system performed?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 4444 (Part VI)
Radar Equipment	1. What is the reliability of the radar equipment? 2. Are there contingency procedures in case of radar failure? 3. Is the performance of the radar equipment checked? 4. Is the radar equipment alignment checked?	☐Satisfactory ☐Unsatisfactory ☐Not Applicable ☐Not Rated		Doc. 4444 (Part VI)

APPENDIX #2 - FAA TERMINAL CHECKLIST EXAMPLE

8/7/2003 - 9/30/2004

Version 4.0.2003.4

I. SYSTEM SAFETY

A. EQUIPMENT

_____ (1A01) **ALTIMETER REQUIREMENTS.** (7210.3, pars. 2-10-3 and 2-10-4)

_____ (1A02) **ASDE/AMASS.** Performance checks/usage (7110.65, pars. 3-6-1 through 3-6-4; 7210.3, par. 10-5-8 and ch. 11 sec. 9)

_____ (1A03) **BATTERY TRANSCEIVERS.** Checked weekly. (7210.3, par. 3-3-5)

_____* (1A04) **CENRAP.** (7110.109, par. 6-11)

_____ (1A05) **EMERGENCY FREQUENCIES.** (7210.3, par. 3-3-4)

_____* (1A06) **MODE 3A CODES.** (7110.65, par. 5-2-1; 7110.66, par. 7c; 7210.3, par. 3-7-4b)

_____ (1A07) **MSAW ALARM CHECK.** (7210.3, par. 11-2-7d2)

_____ (1A08) **RADAR ALIGNMENT CHECK.** (7110.65, par. 5-1-2)
Causal Factor: RADAR DISPLAY

_____ (1A09) **RADAR PERFORMANCE CHECK.** (7210.3, par. 10-5-4)

_____ (1A10) **WIND INDICATOR CHECK.** Cross-checked when facility uses the same sensing equipment as NWS. (7210.3, par. 2-10-2)

B. GENERAL

_____* (1B01) **EMERGENCY OBSTRUCTION VIDEO MAP (EOVM).** (7210.3, par. 3-9-4)

_____ (1B02) **EXTERNALLY PUBLISHED FACILITY DATA.** Accuracy of published data pertaining to the facility: Area charts, sectional charts, etc. (7210.3, pars. 2-1-6 and 10-1-4; 7930.2, par. 2-1-6)

_____ (1B03) **GENOT HANDLING.** (7210.3, par. 2-2-7c and d1)

_____* (1B04) **MAP VERIFICATION/VALIDATION.** Display and depiction requirements, preparation, verification, of MVA/IFR charts and MSAW digital terrain maps, magnetic variation validation, VFR waypoint. (7210.3, pars. 3-9-1, 3-9-2, 10-1-7d, 10-4-8, 11-2-8, 11-2-10, 11-8-8 through 11-8-10, and 11-10-1 through 11-10-4)

_____ (1B05) **MSAW/CONFLICT/MCI ALERT.** Inhibit. (7110.65, pars. 5-15-6c and 5-15-7; 7210.3, pars. 11-2-7, 11-8-7 and 11-8-11)
Causal Factor: RADAR DISPLAY

_____ (1B06) **NOTAM HANDLING.** Evaluate the handling and distributions of NOTAMs. (7210.3, pars. 2-2-3b, 3-5-2, and 3-5-4; 7930.2, pars. 1-3-1a and b, 2-2-3, 3-2-1 and 3-2-2; N7210.544; GENOT 3/27)
Causal Factors: COORDINATION, DATA POSTING

_____ (1B07) **OPERATIONAL CURRENCY.** Operational/staff personnel maintain currency (including ASR approaches) and when appropriate, receive 1.6

percent differential. (3550.13, par. 4a(2); 7210.3, pars. 2-3-1, 2-3-2b, 2-3-3b, and 2-3-4)

_____ (1B08) **OPERATIONAL EFFICIENCY.** Effectiveness and application of procedures and overall operational efficiency

_____ (1B09) **OPERATIONAL REFERENCE MATERIAL.** Currency/accuracy of SIA, position binders, directives, charts, publications, and other documents used in the operational area. Mandatory subjects and compliance to national directives. (7210.3, pars. 2-1-3, 2-1-4, 2-2-3b3, 10-2-1, and 10-2-2)

_____* (1B10) **UCR PROCESSING.** Appropriate subjects reported and processed within time limits (1800.6)

C. OPERATIONAL DIRECTIVES

_____ (1C01) **AIRPORT DE-ICING PLANS.** (7210.3, par. 10-1-11)

_____* (1C02) **ASR-9 SYSTEM AND DISPLAY SETTINGS DIRECTIVE.** (7210.3, par. 3-7-6)

_____ (1C03) **BIRD HAZARDS/ADVISORIES.** (7110.65, par. 2-1-22; 7210.3, par. 2-1-15)

_____ (1C04) **DATA ENTRIES/DISPLAY DATA.** Use of scratch pad, ATIS, alpha character, general system information, system altimeter setting, select/inhibit switches. (7110.65, par. 5-2-23; 7210.3, pars. 3-10-1, 11-2-2, 11-2-3, 11-8-2 and 11-8-3)

Causal Factor: DATA POSTING

_____ (1C05) **DUTY FAMILIARIZATION DIRECTIVE.** Positions that require duty familiarization and information to be read/discussed as part of the duty familiarization (7110.65, par. 2-6-1; 7210.3, par. 2-2-3a)

_____ (1C06) **LETTERS OF AGREEMENT.** LOA required subjects, content and application. (7110.65, par. 2-1-4o; 7110.118, par. 12; 7210.3, pars. 2-1-14, 3-4-3b1, 4-3-1, 4-3-2, 4-4-1 thru 4-4-3, 10-4-1d1, 10-6-2b, and 10-6-3)

_____ (1C07) **LETTERS OF PROCEDURE.** LOP subject matter. (7210.3, par. 4-5-1)

_____ (1C08) **MODIFY/QUICK LOOK.** (7210.3, pars. 11-2-4 and 11-8-4)

_____ (1C09) **NAVAID MONITORING DIRECTIVE.** (7210.3, par. 3-5-1)

_____ (1C10) **OE/D PREVENTION PLAN.** Facility program established and in compliance (7210.56, pars. 2-1-3a and 5-1-13g)

_____* (1C11) **PREARRANGED COORDINATION.** (7110.65, 5-3-9b, 5-4-10, and 5-15-4e; and 7210.3, par. 3-7-7)

Causal Factor: COORDINATION

_____ (1C12) **RUNWAY INCURSION PREVENTION PLAN.** (7210.56, par 2-1-2b10 and 4-1-10)

_____ (1C13) **SELECTING ACTIVE RUNWAYS.** (7210.3, par. 10-1-6)

_____ (1C14) **SERVICE CONTINUITY/EMERGENCY PLANS.** Air traffic service continuity, emergency and bomb threat plans, etc. (1900.1, par. 1-11b; 1900.47, pars. 7i through k, 9, and 10a(1); 7210.3, pars. 2-1-7 through 2-1-9)

_____ (1C15) **SOP DIRECTIVE.** (7110.65, par. 2-1-4o; 7210.3, par. 2-1-2)

_____* (1C16) **STARS TRANSITION PROCEDURES.** (7210.3, pars. 11-8-12 through 11-8-15)

_____ (1C17) **WATCH SUPERVISION DIRECTIVE.** (7210.3, par. 2-6-1a)

D. OPERATIONAL REQUIREMENTS

_____ (1D01) **AIRPORT CONDITIONS.** Closed/unsafe runways, timely information, braking action, abnormal operations, etc. (7110.65, pars. 3-3-1 through 3-3-7 and 4-7-12b and c)
Causal Factor: COORDINATION

_____ (1D02) **ALTITUDE ASSIGNMENT AND VERIFICATION.** (7110.65, ch. 4 sec. 5)
Causal Factors: COORDINATION, COMMUNICATIONS ERROR

_____ (1D03) **APPROACH/MISSED APPROACH INFORMATION.** (7110.65, pars. 4-7-10, 4-7-11, and 4-8-9 through 4-8-11, pars. 4-7-1 and 4-7-3 through 4-7-5, and 4-7-8 through 4-7-13; 7210.3, par. 10-3-5)

_____ (1D04) **ARRIVAL PROCEDURES.** (7110.65, ch. 3, sec. 10, pars. 4-8-1 through 4-8-8, 5-9-4, and 5-9-5)

_____ (1D05) **ATIS PROCEDURES.** ATIS duties including code broadcast, content, tape review etc. (7110.65, ch. 2, sec. 9 and pars. 3-1-8a, and 3-3-5a; 7210.3, pars. 2-1-7 and 10-4-1)
Causal Factor: COMMUNICATIONS ERROR

_____* (1D06) **AUTOMATED INFORMATION TRANSFER (AIT).** (7110.65, par. 5-4-8; 7210.3, par. 4-3-8)
Causal Factors: COORDINATION, DATA POSTING

_____ (1D07) **CLASS B/C/D/TRSA AIRSPACE OPERATIONS.** (7110.65, par. 3-1-11 and ch. 7, secs. 7 through 9; 7210.3, pars. 11-1-3 through 11-1-5)
Causal Factor: RADAR DISPLAY

_____ (1D08) **CLEARANCES.** Manual and automated (7110.65, pars. 4-2-1 through 4-2-9, ch. 4, sec. 4; 7110.113, par. 6)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D09) **COORDINATE USE OF AIRSPACE.** (7110.65, par. 2-1-14)
Causal Factor: COORDINATION

_____ (1D10) **COORDINATION.** (7110.65)
Causal Factor: COORDINATION

_____ (1D11) **DATA BLOCKS.** (7110.65, pars. 5-3-9a and 5-15-8)
Causal Factor: RADAR DISPLAY

_____ (1D12) **DEPARTURE PROCEDURES.** (7110.65, ch. 3, sec. 9, ch. 4, sec. 3, and ch. 5, sec. 8)
Causal Factors: AIRCRAFT OBSERVATION, COORDINATION

_____ (1D13) **EMERGENCY PROCEDURES.** (7110.65, ch. 10)

_____ (1D14) **HELICOPTER OPERATIONS.** (7110.65, pars. 3-11-1 through 3-11-6)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1D15) **INTERPHONE FORMAT.** (7110.65, pars. 2-4-12 and 2-4-13)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D16) **INTERPHONE/FREQUENCY MONITORING.** (7110.65, par. 2-4-2; 7210.3, par. 3-3-3)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D17) **INTERSECTION DEPARTURES.** (7110.65, par. 3-7-1c, d and e; 7210.3, par. 2-1-11)

Causal Factor: AIRCRAFT OBSERVATION

_____ (1D18) **MERGING TARGET PROCEDURES.** (7110.65, par. 5-1-8)
Causal Factor: RADAR DISPLAY

_____ (1D19) **MODE C VALIDATION.** (7110.65, par. 5-2-17)
Causal Factor: RADAR DISPLAY

_____ (1D20) **MULTIPLE INSTRUMENT APPROACH PROCEDURES.** Simultaneous ILS/MLS approaches, parallel ILS/MLS approaches, simultaneous independent ILS/MLS approaches, converging instrument approaches, and dependent converging instrument approaches with converging runway display aid. (7110.65, pars. 5-9-6 through 5-9-8; 7110.98; 7110.110; 7210.3, par. 10-4-6)
Causal Factor: RADAR DISPLAY

_____ (1D21) **NONRADAR PROCEDURES.** (7110.65, ch. 6)
Causal Factors: COORDINATION, DATA POSTING

_____ (1D22) **OPENING/CLOSING PROCEDURES.** Part-time facility opening/closing procedures including ATIS broadcast (7210.3, pars. 2-4-4 and 10-4-1g and h)

_____ (1D23) **OS/CIC MONITORS OPERATION.** OS/CIC designated, monitors operation, anticipates traffic flow, and implements traffic management. (7110.65, par. 2-1-25; 7210.3, pars. 2-2-2, 2-6-1, 2-6-2, 2-6-5, 2-6-6, 5-1-2, and 5-3-7e)

_____ (1D24) **PHRASEOLOGY.** (7110.65)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D25) **POINT OUT PROCEDURES.** (7110.65, pars. 5-4-3 and 5-4-7)
Causal Factor: COORDINATION

_____ (1D26) **POSITION RELIEF/CHECKLIST.** Position relief checklists established and comprehensive verbal briefings are accomplished. (7110.65, par. 2-1-23 and app. D; 7210.3, par. 2-2-3b through e)
Causal Factor: POSITION RELIEF BRIEFING

_____ (1D27) **PRECISION APPROACH CRITICAL AREAS.** (7110.65, par. 3-7-5)
Causal Factors: AIRCRAFT OBSERVATION, COORDINATION

_____ (1D28) **RADAR HANDOFF PROCEDURES.** (7110.65, pars. 2-1-15, 5-4-1, and 5-4-3 through 5-4-6)
Causal Factor: RADAR DISPLAY

_____ (1D29) **RADAR IDENTIFICATION METHODS.** (7110.65, pars. 5-3-2 through 5-3-7)
Causal Factor: RADAR DISPLAY

_____ (1D30) **RADAR SEPARATION STANDARDS.** (7110.65, ch. 5, sec. 5; 7210.3, par. 10-4-7)
Causal Factor: RADAR DISPLAY

_____ (1D31) **RADAR TERMINATION.** (7110.65, par. 5-1-13)

_____ (1D32) **RADIO COMMUNICATIONS.** Format, pilot acknowledgment, abbreviated transmissions, and readback errors. (7110.65, pars. 2-4-3, 2-4-8, and 2-4-9)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D33) **RUNWAY PROTECTED AREAS.** (7210.3, par. 2-1-18)

_____ (1D34) **RUNWAY UTILIZATION.** (7110.65, pars. 3-8-1 through 3-8-4)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1D35) **RVR AND RVV ISSUANCE.** Issuance of runway visual range and runway visibility. (7110.65, pars. 2-8-1 through 2-8-3; 7210.3, par. 2-9-8)

_____ (1D36) **SAFETY ALERTS.** (7110.65, pars. 2-1-6 and 5-15-6a and b)
Causal Factor: RADAR DISPLAY

_____ (1D37) **SPECIAL FLIGHTS HANDLING.** (7110.65 ch. 9)

_____ (1D38) **SPECIAL VFR.** (7110.65, ch. 7, sec. 5)

_____ (1D39) **SPEED ADJUSTMENTS.** Speed control application, methods, and minima (7110.65, pars. 5-7-1 through 5-7-4)
Causal Factors: COMMUNICATIONS ERROR, RADAR DISPLAY

_____ (1D40) **STRIP MARKING/USAGE.** (7110.65, pars. 2-3-1 and 2-3-3 through 2-3-9; 7210.3, par. 10-1-8)
Causal Factor: DATA POSTING

_____ (1D41) **TCAS.** Resolution advisories (7110.65, par. 2-1-27)

_____ (1D42) **TOWER RADAR DISPLAYS.** (7110.65, par. 3-1-9, 7210.3, par. 10-5-3)
Causal Factor: RADAR DISPLAY

_____ (1D43) **TRAFFIC ADVISORIES.** (7110.65, par. 2-1-21)
Causal Factors: COMMUNICATIONS ERROR, RADAR DISPLAY

_____ (1D44) **VECTORING.** (7110.65, ch. 5, sec. 6)
Causal Factor: RADAR DISPLAY

_____ (1D45) **VECTORING TO FINAL APPROACH.** (7110.65, pars. 5-9-1 through 5-9-3)
Causal Factor: RADAR DISPLAY

_____ (1D46) **VISUAL OPERATIONS.** VFR-on-top, visual approaches, etc. (7110.65, pars. 7-1-1, 7-3-1, and ch. 7, sec. 4)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D47) **VISUAL SEPARATION.** (7110.65, pars. 7-2-1a and c)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1D48) **WAKE TURBULENCE.** (7110.65, pars. 2-1-19, 2-1-20, 3-9-7, 3-9-8, 3-10-3b, 3-10-4c, 4-8-11a2, and 5-5-4 e, f, and g)
Causal Factors: AIRCRAFT OBSERVATION, RADAR DISPLAY

E. OPERATIONAL TRAINING REQUIREMENTS

_____ (1E01) **CIC TRAINING.** Course #'s 57060 & 55073 (3120.4, app. 8; 7210.3, pars. 2-6-3 and 2-6-4)

_____ (1E02) **QUALIFICATION TRAINING.** (3120.4, par. 2-11)

_____ (1E03) **REFRESHER TRAINING.** (1900.47, par. 10a2; 3120.4, par. 2-12b; 7110.52, par. 5; 7110.67, par. 4; 7210.3, par. 10-1-11c9)

_____ (1E04) **REMEDIAL TRAINING.** Remedial training and employee letter. (3120.4, par. 2-12e)

_____ (1E05) **SKILL ENHANCEMENT TRAINING FOR CPC'S.** (3120.4, par. 2-12d)

_____ (1E06) **SUPPLEMENTAL TRAINING.** Given prior to the date of new/revised procedures, regulations or equipment, etc. (3120.4, par. 2-12c; 7210.3,

pars. 2-2-7d2 and 11-2-5)

_____ (1E07) **TECHNICAL PERFORMANCE REVIEW/DISCUSSION.** (7210.56, par. 3-1-3a and b)

_____ (1E08) **VERBAL BRIEFINGS.** ATB's, required supplemental training. (7210.3, pars. 2-2-8b and 2-2-11)

F. SURFACE ERROR PREVENTION

_____ (1F01) **INTERSECTING RUNWAY SEPARATION.** (7110.65, pars. 3-9-8 and 3-10-4)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F02) **LAHSO.** (7110.65, par. 3-10-4; 7110.118; 7210.3, par. 10-3-7)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F03) **LOCAL/GROUND COORDINATION.** (7110.65, pars. 3-1-3a, b, c, and e and 3-1-4)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F04) **MEMORY AIDS.** (7210.3, par. 10-1-7a and b)
Causal Factors: COORDINATION, DATA POSTING

_____ (1F05) **POSITION DETERMINATION.** (7110.65, par. 3-1-7)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F06) **RUNWAY EXITING.** (7110.65, par. 3-10-9; 7210.3, par. 10-1-7e)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F07) **SAME RUNWAY SEPARATION.** (7110.65, par. 3-10-3)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F08) **TAXI/GROUND MOVEMENT PROCEDURES.** Aircraft/vehicle authorization. Cab coordinator requirements (7110.65, pars. 3-7-1 through 3-7-4; 7210.3, par. 10-1-7c)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F09) **TIPH.** (7110.65, pars. 3-9-4 and 3-10-5b)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F10) **VEHICULAR TRAFFIC.** Authorization for other than runway crossings, direct communication requirements, traffic issuance. (7110.65, pars. 3-1-3d, 3-1-5, and 3-1-6)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F11) **VISUAL SCANNING.** (7110.65, par. 3-1-12)
Causal Factor: AIRCRAFT OBSERVATION

G. WEATHER INFORMATION

_____ (1G01) **DENSITY ALTITUDE BROADCAST.** (7210.3, par. 2-10-6)

_____ (1G02) **HIWAS BROADCAST.** (7110.65, par. 2-6-2; 7210.3, par. 10-3-1b2)

_____ (1G03) **LLWAS/TDWR.** (7110.65, par. 3-1-8; 7210.3, pars. 2-10-1 and 10-3-3)

_____ (1G04) **PIREP INFORMATION.** Solicitation/dissemination. (7110.65, par. 2-6-3)

_____ (1G05) **WEATHER CURRENCY.** LAWRS/ASOS (3120.4, par. 2-11g and h; 7210.3, par. 2-9-1)

_____ (1G06) **WEATHER PROCESSING.** Receipt and dissemination of weather observations. (7110.65, par. 2-9-2b; 7210.3, pars. 2-9-2, 2-9-4, 2-9-5, 6-3-1.a.4, and 10-3-1; 7900.5)

_____ (1G07) **WEATHER/CHAFF SERVICES.** (7110.65, par. 2-6-4)

II. SYSTEM EFFICIENCY

A. MANAGEMENT/STAFF INVOLVEMENT

_____ (2A01) **EVALUATION PROCESS.** (7010.1)

_____ (2A02) **FAMILIARIZATION.** Non-operational personnel maintain familiarization (7210.3, pars. 2-3-1, 2-3-2a, and 2-3-3a)

_____ (2A03) **MANAGEMENT TEAM INVOLVEMENT.** Competent knowledge level demonstrated of day-to-day operations. (7210.56, par. 2-1-2c1)

_____ (2A04) **OPSNET REPORTING.** (7210.55, pars. 10 and 11)

_____ (2A05) **WATCH COVERAGE.** Basic watch coverage, holiday staffing, overtime, etc. (7210.3, pars. 2-6-7 thru 2-6-9; NATCA/FAA Agreement)

B. OPERATIONAL EFFICIENCY

_____ (2B01) **CUSTOMER SERVICES/COORDINATION.** General responsiveness to customer needs; conferences, education, communication. (7210.3, ch. 4, sec. 2)

_____ (2B02) **OPERATIONAL TEAMWORK.** (7110.65, pars. 2-10-2 and 2-10-3)

_____ (2B03) **RELATIONS WITH FAA ORGANIZATIONS.**

C. QUALITY ASSURANCE

_____ (2C01) **INCIDENT INVESTIGATION.** (7210.56, par. 4-1-2a and b; 8020.11, par. 80)

_____ (2C02) **OE/D INVESTIGATIVE PROCESS.** (7210.56, pars. 4-1-6,5-1-3 through 5-1-7 and 5-1-13g, and app. 1)

_____ (2C03) **OE/D REMOVAL/RETURN TO DUTY.** (7210.56, pars. 5-1-3(b, k, l and m), 5-1-8 and 5-1-9)

_____ (2C04) **QA PROGRAM ESTABLISHED AND FACILITY COMPLIANCE.** (7210.56, pars. 2-1-2c2, 2-1-2c3, and 2-1-3)

_____ (2C05) **QUALITY ASSURANCE REVIEW.** (7210.56, par. 4-1-3)

D. TRAFFIC MANAGEMENT

_____ (2D01) **COORDINATION/DELAY REPORTING.** (7210.3, pars. 4-7-4, 17-2-4a2, 17-5-4, 17-5-6 and 17-11-5; 7210.55, pars. 12 through 14; N7210.541, pars. 5c(3), 5c(4), 5c(6) and 5d(2))

_____ (2D02) **FLOW MANAGEMENT.** (7210.3, ch. 17, sec. 8, and pars. 17-10-3c, 17-10-4b2, 17-10-4c2, 17-11-2, and 17-11-4)

_____ (2D03) **GATE HOLD PROCEDURES.** (7110.65, par. 3-9-2; 7210.3, pars. 10-4-3 and 17-2-4c4)

_____* (2D04) **STRATEGIC PLAN OF OPERATION.** (7210.3 ch. 17, sec. 19;

N7210.541, 5c(2))

_____ (2D05) **TM RESPONSIBILITIES.** (7110.65, par. 11-1-2; 7210.3, pars. 17-2-4, 17-5-5, and ch. 17, secs. 4, 19, 21 and 22; N7210.541, pars. 5c(1), 5c(5), 5c(7))

_____* (2D06) **TRAFFIC MANAGEMENT INITIATIVES.** (7210.3, 17-16-3)

III. SYSTEM MANAGEMENT

A. ACCIDENTS/INCIDENTS

_____ (3A01) **AIRSPACE INTRUSION.** (7210.56, par. 4-1-8)

_____ (3A02) **ARTS CLOCK COMPARISON CHECK.** Compare ARTS clock with time source and voice recorder clock. (8020.11, par. 70. b. (3))

_____ (3A03) **EMERGENCIES.** (7210.56, par. 4-1-4; 8020.11, pars. 60c and 87)

_____ (3A04) **FAA FORM 8020-3.** Ensure that a notification record is established in the operational quarters. (7210.56, par. 4-1-4a; 8020.11, par. 64b(1) and (2))

_____ (3A05) **FLIGHT ASSIST.** (7210.56, par. 4-1-5)

_____ (3A06) **GENERAL HANDLING PROCEDURES.** (7210.56, par. 4-1-2c and d1)

_____* (3A07) **INVALID MODE C REPORTING.** (7210.56, par. 4-1-9)

_____ (3A08) **NMAC.** (8020.11, par. 81 and app. 2, pp. 53-55 and 59)

_____ (3A09) **PACKAGES/FILES.** Labeled correctly, content, retention. (8020.11, pars. 68, 70b(6), 72, 73, 79, 81l, 82c(4), 83c(4), 84r, 85j, 86j, 87, 88, and app. 2)

_____ (3A10) **PILOT DEVIATION.** (8020.11, par. 84 and app. 2, pp. 56-59)

_____ (3A11) **RETENTION/HANDLING OF TAPES.** (8020.11, pars. 76 and 78)

_____ (3A12) **SPILL OUT.** (7210.56, par. 4-1-7; 8020.11, par. 84n)

_____ (3A13) **SURFACE INCIDENTS AND RUNWAY INCURSIONS.** (7210.56, par. 4-1-10)

_____ (3A14) **VEHICLE/PEDESTRIAN DEVIATION.** (8020.11, par. 86, app. 2, pp. 61-64)

B. FAMILIARIZATION TRAINING

_____* (3B01) **DUTY STATUS.** (3120.29, par. 2-5)

_____* (3B02) **FORMS COMPLETION/PROCESSING.** FAA Forms 3120-28, 3120-29, and 3120-31 (3120.29, pars. 2-10 and 2-37)

_____* (3B03) **NUMBER OF TRIPS.** (3120.29, par. 2-32; NATCA/FAA Agreement)

_____* (3B04) **REPORT TIMELINESS.** Trip reports completed within one week following return to duty (3120.29, par. 2-34)

_____* (3B05) **TRACKING/ACCOUNTABILITY OF FORMS.** (3120.29, ch. 3)

C. GENERAL TRAINING REQUIREMENTS

_____ (3C01) **CBI RESPONSIBILITIES.** (3120.4, pars. 2-10a(3) and 4-3)

_____* (3C02) **INSTRUCTOR TRAINING COURSE.** Classroom/lesson plans. (3120.4, par. 2-10a(1)(d), (e), and b(10))

_____ (3C03) **TECHNICAL TRAINING RESPONSIBILITIES.** (7210.56, pars. 3-1-3c, d, and 3-1-4)

_____* (3C04) **TMC TRAINING.** (3120.4, app. 7)

_____ (3C05) **TRAINING COURSE MATERIALS.** Developed. (3120.4, par. 2-10b(7) and c, and app. 6)

_____ (3C06) **TRAINING DIRECTIVE.** (3120.4, pars. 2-10a(1)(a) and (b), 2-10a(2)(e), and 3-2)

_____ (3C07) **TRAINING RECORD ENTRIES.** Record entries are timely and complete, appropriate training, certification signatures, initials entered, ASR approach entry etc. (3120.4, pars. 2-10 through 2-15, 2-17d, 3-3b and c, 3-9d, 4-3g, and app. 1; 3120.29, pars. 2-35 and 3-8b(4); 7210.3, pars. 2-2-4 and 2-2-7d3; 7210.56, par. 3-1-4)

_____ (3C08) **TRAINING RECORD RETENTION.** (3120.4, par. 2-17)

_____ (3C09) **WRITTEN REFRESHER TRAINING PROGRAM.** (3120.4, pars. 2-10a(2)(d) and 2-12b)

D. OE/D REQUIREMENTS

_____ (3D01) **OE/D FOLLOWUP SKILL CHECK.** (7210.56, par. 5-1-11)

_____ (3D02) **OE/D INTERVIEW STATEMENT.** Interview statement read or given to employee prior to conducting interviews (7210.56, par. 5-1-5b(1) and app. 9)

_____ (3D03) **OE/D INVESTIGATION FILE.** Labeling/contents/ retention (7210.56, pars. 5-1-3n, 5-1-5c(1), 5-1-7d, and 5-1-15a and b)

_____ (3D04) **OE/D TRAINING RECORD ENTRIES/REMOVAL.** Appropriate entries in/removed from the training records (3120.4, par. 2-13a(1) and app. 1, par. 8; 7210.56, pars. 5-1-4, 5-1-14 and 5-1-15c)

E. ON-THE-JOB TRAINING (OJT)

_____* (3E01) **CERTIFICATION SKILL CHECKS.** (3120.4, par. 3-7a, b, c, and e, f, and g)

_____* (3E02) **FAA FORMS 3120-25/32/36 PREPARATION.** (3120.4, pars. 2-10e(11), f(3), g(3), h(5), 2-16, 3-6f, 3-7d, 3-8f(5), app. 2, and app.7, sec. 4, pars. 2 through 4, and app. 8 sec. 5)

_____* (3E03) **OJT DISCUSSION.** Instructor and developmental evaluation report training discussion (3120.4, par. 2-10e(10) and g(4))

_____* (3E04) **OJT PROGRAM EVALUATION.** Annual written evaluation of the OJT program (3120.4, par. 2-10a(2)(f))

_____* (3E05) **OJTI SELECTION/TRAINING.** (3120.4, par. 3-3)

_____* (3E06) **PERFORMANCE SKILL CHECKS.** Conducted monthly. (3120.4, par. 3-6a through e, g, and h)

_____* (3E07) **SKILL ENHANCEMENT TRAINING FOR DEVELOPMENTALS.** (3120.4, par. 3-8)

_____* (3E08) **TRAINING PLAN/TEAM RESPONSIBILITIES.** (3120.4, pars. 3-4 and 3-5)

_____* (3E09) **TRAINING REVIEW PROCESS.** (3120.4, par. 3-10)

F. OPERATIONAL SUPPORT DIRECTIVES/RECORDS/REPORTS

_____ (3F01) **ADMINISTRATIVE REFERENCE FILES.** Facility master library and staff office reference material (7210.3, par. 2-1-4)

_____ (3F02) **AIR TRAFFIC RECORDS RETENTION.** (1350.15, Ch. 10; 3120.29, pars. 2-34f, 2-37, and 3-7c; 7210.3, pars. 4-6-6b, 11-3-1, and 11-3-2)

_____ (3F03) **AUTOMATIC ACQUISITION DIRECTIVE.** (7210.3, pars. 11-2-6 and 11-8-6)

_____* (3F04) **FACILITY DIRECTIVES/LETTERS TO AIRMEN (LTA).** Directives (Orders, LOA's, LOP's, etc.)/LTA current, formatted and/or revised correctly, reviewed by ATD when necessary, etc. (1320.1; 7210.3, pars. 2-1-4, 4-1-1b, 4-1-3, 4-3-3 through 4-3-7, 4-5-1, and 4-5-2 with example)

_____* (3F05) **INFORMATION REQUESTS.** Processing FOIA, NTSB, etc. requests. (7210.3, pars. 2-1-5, 4-8-1 through 4-8-4; 8020.11 pars. 380 through 387)

_____ (3F06) **LETTERS TO AIRMEN.** Nonvisibility movement area, LLWAS, and practice approaches (7210.3, pars. 10-1-5, 10-3-3a1, 10-3-3a5(a), and 10-4-5e)

_____ (3F07) **MEDICAL CLEARANCES.** (3930.3, par. 32c; 7210.3, par. 2-8-2)

_____ (3F08) **PREPARATION OF FAA FORM 7230-10.** (7210.3, pars. 4-6-3, 4-6-6, and 4-6-7b)

_____ (3F09) **PREPARATION OF FAA FORM 7230-4.** (7210.3, pars. 4-6-3 through 4-6-5, 11-9-1c, and 11-9-3a and b)

_____* (3F10) **RUNWAY SAFETY PROGRAM.** (7050.1, par. 9 and app. 1)

_____* (3F11) **T&A RECORDING.** (7210.3, par. 4-6-8)

_____ (3F12) **TIME CHECK.** Time checked each 8 hours (7210.3, par. 2-4-3)

_____ (3F13) **VISIBILITY CHART DEVELOPED/MARKED.** Visibility charts: Developed in conjunction with the National Weather Service (NWS) and marked appropriately (7210.3, par. 2-9-6)

_____ (3F14) **VOICE RECORDER PROCEDURES.** DVRS/tape recorder: Checks do not exceed 26 hours and are documented/labeled/retained. (7210.3, pars. 3-4-3d and 3-4-4)

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EN ROUTE CHECKLIST

8/7/2003 - 9/30/2004

Version 4.0.2003.4

I. SYSTEM SAFETY

A. EQUIPMENT

_____ (1A01) **EMERGENCY FREQUENCIES.** (7210.3, par. 3-3-4)

_____ (1A02) **OCEAN21.** (7110.65, ch. 13, sec. 2; 7210.3, pars. 3-1-1, 3-1-2, and 6-8-6 through 6-8-8)

_____ (1A03) **RADAR ALIGNMENT CHECK.** (7110.65, pars. 5-1-2d and e, and 5-14-5; 7210.3, par. 8-3-3)

_____ (1A04) **RADAR PERFORMANCE CHECK.** (7210.3, ch. 7, sec. 1 and par. 7-2-1)

_____ (1A05) **URET EQUIPMENT.** (7110.65, chapter 13; 7210.3, 3-1-1, 3-1-2, 6-7-1 through 6-7-3 and 6-7-5 through 6-7-7)

_____ (1A06) **VSCS.** (7210.3, pars. 2-2-12 and 3-3-8 through 3-3-11)

B. GENERAL

_____ (1B01) **E-MSAW/CONFLICT ALERT/MCI.** Inhibit (7110.65, pars. 5-14-1 and 5-14-2; 7210.3, pars. 8-2-4 through 8-2-6 and 11-2-7d)

_____ (1B02) **EXTERNALLY PUBLISHED FACILITY DATA.** Accuracy of published data pertaining to the facility: Area charts, sectional charts, etc. (7210.3, pars. 2-1-6 and 10-1-4; 7930.2, par. 2-1-6)

_____ (1B03) **GENOT HANDLING.** (7210.3, par. 2-2-7d1)

_____ (1B04) **MAP VERIFICATION/VALIDATION.** (7210.3, par. 8-3-1)

_____ (1B05) **MINIMUM IFR ALTITUDES.** (7210.3, par. 6-4-2; 7210.37)

_____ (1B06) **NOTAM HANDLING.** Evaluate the handling and distributions of NOTAMs. (7210.3, pars. 2-2-3, 3-5-2 and 6-3-2; 7930.2, pars. 1-3-1a and b, and 2-2-3; N7210.544)

Causal Factors: COORDINATION, DATA POSTING

_____ (1B07) **OPERATIONAL CURRENCY.** Operational/staff personnel maintain currency and when appropriate, receive 1.6 percent differential (3550.13, par. 4a(2); 7210.3, pars. 2-3-1, 2-3-2b, 2-3-3b, and 2-3-4)

_____ (1B08) **OPERATIONAL EFFICIENCY.** Effectiveness and application of procedures and overall operational efficiency

_____ (1B09) **OPERATIONAL REFERENCE MATERIAL.** Currency/accuracy of SIA, position binders, directives, charts, publications, and other documents used in the operational area. Mandatory subjects and compliance to national directives. (7210.3, pars. 2-1-3, 2-1-4, 2-2-3b3, 6-2-2, 6-7-4, 6-8-1 through 6-8-8)

_____ (1B10) **UCR PROCESSING.** Appropriate subjects reported and processed within time limits (1800.6)

C. OPERATIONAL DIRECTIVES

_____ (1C01) **COMPUTER ASSIGNED ALTITUDE/WAIVER.** Interim altitude requirements (7110.65, pars. 5-14-3 and 5-14-4; 7210.3, par. 6-7-12 and 8-2-7)

_____ (1C02) **CWSU DIRECTIVE.** Comprehensive local CWSU order, CWSU coordinator designated and responsibilities defined (7210.38, pars. 10, 11a, and 13)

_____ (1C03) **DUTY FAMILIARIZATION DIRECTIVE.** Positions that require duty familiarization and information to be read/discussed as part of the duty familiarization (7110.65, par. 2-6-1; 7210.3, par. 2-2-3a)

_____ (1C04) **LETTERS OF AGREEMENT.** LOA required subjects, content and application. (7110.65, par. 2-1-4o; 7210.3, pars. 2-1-14, 4-3-1, 4-3-2, 6-4-4a, 6-7-4a and 6-8-4a)

_____ (1C05) **LETTERS OF PROCEDURE.** LOP subject matter. (7210.3, par. 4-5-1)

_____ (1C06) **OCEAN21 DIRECTIVE.** (7210.3, pars. 6-8-3, 6-8-4b, 6-8-5 through 6-8-7)

_____ (1C07) **OE/D PREVENTION PLAN.** Facility program established and in compliance (7210.56, pars. 2-1-3a and 5-1-13g)

_____ (1C08) **PREARRANGED COORDINATION.** (7110.65, 5-3-9b, 5-4-10, and 5-15-4e; and 7210.3, par. 3-7-7)

Causal Factor: COORDINATION

_____ (1C09) **SERVICE CONTINUITY/EMERGENCY PLANS.** Air traffic service continuity, emergency and bomb threat plans, etc. (1900.1, par. 1-11b; 1900.47, pars. 7i through k, 9, and 10a1; 7210.3, pars. 2-1-7 through 2-1-9)

_____ (1C10) **SOP DIRECTIVE.** (7110.65, par. 2-1-4o; 7210.3, par. 2-1-2)

_____ (1C11) **TRANSITION PROCEDURES.** Transition procedures to and from radar data processing and DARC operations (7210.3, par. 8-1-1)

_____ (1C12) **URET DIRECTIVE.** (7210.3, pars. 6-7-4b, 6-7-5, 6-7-6, and 6-7-7)

_____ (1C13) **WATCH SUPERVISION DIRECTIVE.** (7210.3, par. 2-6-1a and 6-8-2)

D. OPERATIONAL REQUIREMENTS

_____ (1D01) **ALTITUDE ASSIGNMENT AND VERIFICATION.** (7110.65, ch. 4, sec. 5)

Causal Factors: COMMUNICATIONS ERROR, COORDINATION

_____ (1D02) **APPROACH INFORMATION AND ARRIVAL PROCEDURES.** (7110.65, ch. 4, secs. 7 and 8, and pars. 5-9-4 and 5-9-5; 7210.3, par. 6-4-1)

_____ (1D03) **ATIS INFORMATION.** (7110.65, par. 2-9-2b through d)

Causal Factor: COMMUNICATIONS ERROR

_____ (1D04) **AUTOMATED INFORMATION TRANSFER (AIT).** (7110.65, pars. 5-4-8 and 5-4-9; 7210.3, par. 4-3-8)

Causal Factor: COORDINATION

_____ (1D05) **BEACON SYSTEMS.** (7110.65, pars. 5-2-1 through 5-2-16 and 5-2-18 through 5-2-22; 7110.66, par. 7c)

Causal Factor: DATA POSTING

_____ (1D06) **CLEARANCES.** Manual and Automated (7110.65, pars. 4-2-1 through

4-2-9, ch. 4, sec. 4)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D07) **COORDINATE USE OF AIRSPACE.** (7110.65, par. 2-1-14)
Causal Factor: COORDINATION

_____ (1D08) **COORDINATION.** (7110.65)
Causal Factor: COORDINATION

_____ (1D09) **DATA BLOCKS.** (7110.65, pars. 5-3-8 and 5-14-6 through 5-14-8; 7210.3, par. 8-3-2)
Causal Factors: RADAR DISPLAY, DATA POSTING

_____ (1D10) **DEPARTURE PROCEDURES.** (7110.65, ch. 4, sec. 3 and ch. 5, sec. 8)
Causal Factor: RADAR DISPLAY

_____ (1D11) **EMERGENCY PROCEDURES.** (7110.65, ch. 10)

_____ (1D12) **FIX POSTING.** (7110.65, par. 5-1-11)
Causal Factor: DATA POSTING

_____ (1D13) **INTERPHONE FORMAT.** (7110.65, pars. 2-4-12 and 2-4-13)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D14) **INTERPHONE/FREQUENCY MONITORING.** (7110.65, par. 2-4-2; 7210.3, par. 3-3-3)

_____ (1D15) **MERGING TARGET PROCEDURES.** (7110.65, par. 5-1-8)
Causal Factor: RADAR DISPLAY

_____ (1D16) **MODE C VALIDATION.** (7110.65, par. 5-2-17)
Causal Factor: RADAR DISPLAY

_____ (1D17) **NONRADAR PROCEDURES.** (7110.65, ch. 6)
Causal Factors: COORDINATION, DATA POSTING

_____ (1D18) **OCEANIC PROCEDURES.** (7110.65, ch. 8)

_____ (1D19) **OS/CIC MONITORS OPERATION.** OS/CIC monitors operation, anticipates traffic flow, and implements traffic management . (7110.65, par. 2-1-25; 7210.3, pars. 2-2-2, 2-6-1, 2-6-2, 2-6-5, 2-6-6, 5-1-2, 5-3-7e, 6-7-2 and 6-7-3)

_____ (1D20) **PHRASEOLOGY.** (7110.65)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D21) **POINT OUT PROCEDURES.** (7110.65, pars. 5-4-3, and 5-4-7)
Causal Factor: COORDINATION

_____ (1D22) **POSITION RELIEF/CHECKLIST.** Position relief checklists established and comprehensive verbal briefings are accomplished. (7110.65, par. 2-1-23 and app. D; 7210.3, par. 2-2-3b through e, 6-7-13)
Causal Factor: POSITION RELIEF BRIEFING

_____ (1D23) **RADAR HANDOFF PROCEDURES.** (7110.65, pars. 2-1-15, 5-4-1, and 5-4-3 through 5-4-6)
Causal Factors: COORDINATION, RADAR DISPLAY

_____ (1D24) **RADAR IDENTIFICATION METHODS.** (7110.65, pars. 5-3-2 through 5-3-7)
Causal Factor: RADAR DISPLAY

_____ (1D25) **RADAR SEPARATION STANDARDS.** (7110.65, ch. 5, sec. 5; 7210.3,

par. 10-4-7)
Causal Factor: RADAR DISPLAY

_____ (1D26) **RADAR TERMINATION.** (7110.65, par. 5-1-13)

_____ (1D27) **RADIO COMMUNICATIONS.** Format, pilot acknowledgment, abbreviated transmissions, and readback errors. (7110.65, pars. 2-4-3, 2-4-8, and 2-4-9)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D28) **SAFETY ALERTS.** (7110.65, par. 2-1-6)
Causal Factors: COORDINATION, RADAR DISPLAY

_____ (1D29) **SPECIAL FLIGHTS HANDLING.** (7110.65, ch. 9)

_____ (1D30) **SPECIAL VFR.** (7110.65, ch. 7, sec. 5)

_____ (1D31) **SPEED ADJUSTMENTS.** Speed control application, methods, and minima (7110.65, pars. 5-7-1 through 5-7-4)
Causal Factors: RADAR DISPLAY, COMMUNICATIONS ERROR

_____ (1D32) **STRIP MARKING/USAGE.** (7110.65, pars. 2-3-1, 2-3-2, and 2-3-4 through 2-3-9; 7210.3, par. 6-1-6)
Causal Factor: DATA POSTING

_____ (1D33) **TCAS.** Resolution advisories (7110.65, par. 2-1-27)

_____ (1D34) **TRAFFIC ADVISORIES.** (7110.65, par. 2-1-21)
Causal Factors: COMMUNICATIONS ERROR, RADAR DISPLAY

_____ (1D35) **VECTORING.** (7110.65, ch. 5, sec. 6)
Causal Factor: RADAR DISPLAY

_____ (1D36) **VECTORING TO FINAL APPROACH.** (7110.65, pars. 5-9-1 through 5-9-3)
Causal Factor: RADAR DISPLAY

_____ (1D37) **VISUAL OPERATIONS.** VFR-on-top, visual approaches, etc. (7110.65, pars. 7-1-1, 7-3-1, and ch. 7, sec. 4)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D38) **VISUAL SEPARATION.** (7110.65, par. 7-2-1b)

_____ (1D39) **WAKE TURBULENCE.** (7110.65, pars. 2-1-19, 2-1-20, 4-8-11a2, and 5-5-4e)
Causal Factor: RADAR DISPLAY

E. OPERATIONAL TRAINING REQUIREMENTS

_____ (1E01) **CIC TRAINING.** Course #'s 57057 and 55072 (3120.4. app. 8 and 7210.3, par. 2-6-3 and 2-6-4)

_____ (1E02) **QUALIFICATION TRAINING.** (3120.4, par. 2-11)

_____ (1E03) **REFRESHER TRAINING.** (1900.47, par. 10a2; 3120.4, par. 2-12b; 7110.52, par. 5; 7110.67, par. 4)

_____ (1E04) **REMEDIAL TRAINING.** Remedial training and employee letter. (3120.4, par. 2-12e)

_____ (1E05) **SKILL ENHANCEMENT TRAINING FOR CPC'S.** (3120.4, par. 2-12d)

_____ (1E06) **SUPPLEMENTAL TRAINING.** Given prior to the date of new/revised procedures, regulations or equipment, etc. (3120.4, par. 2-12c; 7210.3, par.

2-2-7d2)

_____ (1E07) **TECHNICAL PERFORMANCE REVIEW/DISCUSSION.** (7210.56, par. 3-1-3a and b)

_____ (1E08) **VERBAL BRIEFINGS.** ATB's, required supplemental training. (7210.3, pars. 2-2-8b and 2-2-11)

F. WEATHER INFORMATION

_____ (1F01) **HIWAS BROADCAST.** (7110.65, par. 2-6-2; 7210.3, par. 6-3-1a)

_____ (1F02) **PIREP INFORMATION.** Solicitation/dissemination. (7110.65, par. 2-6-3; 7210.3, par. 6-3-1b)

_____ (1F03) **WEATHER PROCESSING.** Receipt/dissemination of weather observations/ASOS/AWOS (7110.65, par. 2-9-2b; 7210.3, pars. 2-9-2a and b, 2-9-4, 2-9-5, and 2-10-5; 7900.5)

_____ (1F04) **WEATHER/CHAFF SERVICES.** (7110.65, par. 2-6-4)

II. <u>SYSTEM EFFICIENCY</u>

A. MANAGEMENT/STAFF RESPONSIBILITIES

_____ (2A01) **EVALUATION PROCESS.** (7010.1)

_____ (2A02) **FAMILIARIZATION.** Non-operational personnel maintain familiarization. (7210.3, pars. 2-3-1, 2-3-2a, and 2-3-3a)

_____ (2A03) **MANAGEMENT TEAM INVOLVEMENT.** Competent knowledge level demonstrated of day-to-day operations. (7210.56, par. 2-1-2c1)

_____ (2A04) **OPSNET REPORTING.** (7210.55, pars. 10 and 11)

_____ (2A05) **WATCH COVERAGE.** Basic watch coverage, holiday staffing, overtime, etc. (7210.3, pars. 2-6-7, 2-6-8, and 2-6-9)

B. OPERATIONAL EFFICIENCY

_____ (2B01) **CUSTOMER SERVICES/COORDINATION.** General responsiveness to customer needs; conferences, education, communication (7210.3, ch.4 sec. 2)

_____ (2B02) **OPERATIONAL TEAMWORK.** (7110.65, par. 2-10-1)

_____ (2B03) **RELATIONS WITH FAA ORGANIZATIONS.**

C. QUALITY ASSURANCE

_____ (2C01) **INCIDENT INVESTIGATION.** (7210.56, par. 4-1-2a and b; 8020.11, par.80)

_____ (2C02) **OE/D INVESTIGATIVE PROCESS.** (7210.56, pars. 4-1-6, 5-1-3 through 5-1-7, and 5-1-13g, and app. 1)

_____ (2C03) **OE/D REMOVAL/RETURN TO DUTY.** (7210.56, pars. 5-1-3 (b, k, l, and m), 5-1-8 and 5-1-9)

_____ (2C04) **OEDP AUDIT.** (7210.56, pars. 7-1-1 and 7-1-2)

_____ (2C05) **QA PROGRAM ESTABLISHED AND FACILITY COMPLIANCE.** (7210.56, pars. 2-1-2c2, 2-1-2c3, and 2-1-3)

_____ (2C06) **QUALITY ASSURANCE REVIEW.** (7210.56, par. 4-1-3)

D. TRAFFIC MANAGEMENT

_____ (2D01) **CODED DEPARTURE ROUTES (CDR).** (7210.3, ch. 17, sec. 18)

_____ (2D02) **COORDINATION/DELAY REPORTING.** (7210.3, pars. 4-7-4, 6-7-10, 17-2-4a2,17-5-3, 17-5-6 and 17-11-5; 7210.55, pars. 12 through 14; N7210.541, par. 5b(3))

_____ (2D03) **FLOW MANAGEMENT.** (7210.3, ch. 17, sec. 8, and pars. 17-10-3b, 17-10-4b2, 17-10-4c2, 17-11-2, and 17-11-4)

_____ (2D04) **MONITOR AND ALERT PARAMETERS (MAP).** (7210.3, pars. 17-6-1b2, 17-6-2b, and ch. 17, sec. 7)

_____ (2D05) **PREFERRED IFR ROUTES.** Action, development, coordination, and operational procedures (7210.3, ch. 17, sec. 15)

_____ (2D06) **SEQUENCING PROGRAM.** Departure, enroute, arrival (7210.3, ch. 17, sec. 9)

_____ (2D07) **SEVERE WEATHER AVOIDANCE PROGRAM (SWAP).** (7210.3, ch. 17, sec. 14 and 20)

_____ (2D08) **SPECIAL PROGRAMS.** (7210.3, ch. 17, sec. 12)

_____ (2D09) **STRATEGIC PLAN OF OPERATION.** (7210.3 ch. 17, sec. 19; N7210.541, pars. 5b(1) and 5b(2))

_____ (2D10) **SUPPLEMENTAL DUTIES.** To include telephone conferences, special interest flights, data analysis, operational support, and diversion recovery (7210.3, pars. 17-4-2, 17-4-4, 17-4-5, and 17-4-6 and sec. 4)

_____ (2D11) **TM RESPONSIBILITIES.** (7110.65, par. 11-1-2; 7210.3, pars. 6-7-4c and d, 6-7-9, 17-2-4, 17-5-5, and ch. 17 secs 21 and 22)

_____ (2D12) **TRAFFIC MANAGEMENT INITIATIVES.** (7210.3, ch. 17, sec. 16)

_____ (2D13) **WEATHER COORDINATOR.** Duties, staffing, training of the weather coordinator position (7210.3, par. 17-2-4b4; 7210.38, pars. 14a through d, and 20)

III. <u>SYSTEM MANAGEMENT</u>

A. ACCIDENTS/INCIDENTS

_____ (3A01) **AIRSPACE INTRUSION.** (7210.56, par. 4-1-8)

_____ (3A02) **EMERGENCIES.** (7210.56, par. 4-1-4; 8020.11, pars. 60c and 87)

_____ (3A03) **FAA FORM 8020-3.** Ensure that a notification record is established in the operational quarters. (7210.56, par. 4-1-4a; 8020.11, par. 64b(1) and (2))

_____ (3A04) **FLIGHT ASSIST.** (7210.56, par. 4-1-5)

_____ (3A05) **GENERAL HANDLING PROCEDURES.** (7210.56, par. 4-1-2c and d)

_____ (3A06) **INVALID MODE C REPORTING.** (7210.56, par. 4-1-9)

_____ (3A07) **NMAC.** (8020.11, par. 81 and app. 2, pp. 53-55 and 59)

_____ (3A08) **PACKAGES/FILES.** Labeled correctly, content, retention. (8020.11, pars. 68, 70b(6), 72, 73, 79, 81l, 82c(4), 83c(4), 84r, 85j, 86j, 87, 88, and app. 2)

_____ (3A09) **PILOT DEVIATION.** (8020.11, par. 84 and app. 2, pp. 56-59)

_____ (3A10) **RETENTION/HANDLING OF TAPES.** (8020.11, pars. 76 and 78)

_____ (3A11) **SPILL OUT.** (7210.56, par. 4-1-7; 8020.11, par. 84n)

B. FAMILIARIZATION TRAINING

_____ (3B01) **DUTY STATUS.** (3120.29, par. 2-5)

_____ (3B02) **FORMS COMPLETION/PROCESSING.** FAA Forms 3120-28, 3120-29, and 3120-31 (3120.29, pars. 2-10 and 2-37)

_____ (3B03) **NUMBER OF TRIPS.** (3120.29, par. 2-32; NATCA/FAA Agreement)

_____ (3B04) **REPORT TIMELINESS.** Trip reports completed within one week following return to duty (3120.29, par. 2-34)

_____ (3B05) **TRACKING/ACCOUNTABILITY OF FORMS.** (3120.29, ch. 3)

C. GENERAL TRAINING REQUIREMENTS

_____ (3C01) **CBI RESPONSIBILITIES.** (3120.4, pars. 2-10a(3) and 4-3)

_____ (3C02) **INSTRUCTOR TRAINING COURSE.** Classroom/lesson plans. (3120.4, par. 2-10a(1)(d), (e), and b(10))

_____ (3C03) **TECHNICAL TRAINING RESPONSIBILITIES.** (7210.56, pars. 3-1-3c and d, and 3-1-4)

_____ (3C04) **TMC TRAINING.** (3120.4, app. 7)

_____ (3C05) **TRAINING COURSE MATERIALS.** Developed. (3120.4, par. 2-10b(7) and c and app. 4)

_____ (3C06) **TRAINING DIRECTIVE.** (3120.4, pars. 2-10a(1)(a) and (b), 2-10a(2)(e), and 3-2)

_____ (3C07) **TRAINING RECORD ENTRIES.** Record entries are timely and complete; appropriate training, certification signatures, initials entered. (3120.4, pars. 2-10 through 2-15, 2-17d, 3-3b and c, 3-9d, 4-3g, and app. 1; 3120.29, pars. 2-35 and 3-8b(4); 7210.3, pars. 2-2-4 and 2-2-7d3; 7210.56, par. 3-1-4)

_____ (3C08) **TRAINING RECORD RETENTION.** (3120.4, par. 2-17)

_____ (3C09) **WRITTEN REFRESHER TRAINING PROGRAM.** (3120.4, pars. 2-10a(2)(d) and 2-12b)

D. OE/D REQUIREMENTS

_____ (3D01) **OE/D FOLLOWUP SKILL CHECK.** (7210.56, par. 5-1-11)

_____ (3D02) **OE/D INTERVIEW STATEMENT.** Interview statement read or given to employee prior to conducting interviews (7210.56, par. 5-1-5b(1) and app. 9)

_____ (3D03) **OE/D INVESTIGATION FILE.** Labeling/contents/ retention (7210.56, pars. 5-1-3n, 5-1-5c(1), 5-1-7d, and 5-1-15a and b)

_____ (3D04) **OE/D TRAINING RECORD ENTRIES/REMOVAL.** Appropriate entries in/removed from the training records (3120.4, par. 2-13a(1) and app. 1, par. 8; 7210.56, pars. 5-1-4, 5-1-14 and 5-1-15c)

E. ON-THE-JOB TRAINING (OJT)

_____ (3E01) **CERTIFICATION SKILL CHECKS.** (3120.4, par. 3-7a, b, c, e, f, and g)

_____ (3E02) **FAA FORMS 3120-25/32/36 PREPARATION.** (3120.4, pars. 2-10e(11), f(3), g(3), h(5), 2-16, 3-6f, 3-7d, 3-8f(5), app. 2, and app. 7, sec. 4, pars. 2 through 4, and app. 8. sec. 5)

_____ (3E03) **OJT DISCUSSION.** Instructor and developmental evaluation report training discussion (3120.4, par. 2-10e(10) and g(4))

_____ (3E04) **OJT HOURS ON BACKUP SYSTEM.** (3120.4, app. 4, sec. 5, par. 3b)

_____ (3E05) **OJT PROGRAM EVALUATION.** Annual written evaluation of the OJT program (3120.4, par. 2-10a(2)(f))

_____ (3E06) **OJTI SELECTION/TRAINING.** (3120.4, par. 3-3)

_____ (3E07) **PERFORMANCE SKILL CHECKS.** Conducted monthly. (3120.4, par. 3-6a through e, g, and h)

_____ (3E08) **SKILL ENHANCEMENT TRAINING FOR DEVELOPMENTALS.** (3120.4, par. 3-8)

_____ (3E09) **TRAINING PLAN/TEAM RESPONSIBILITIES.** (3120.4, pars. 3-4 and 3-5)

_____ (3E10) **TRAINING REVIEW PROCESS.** (3120.4, par. 3-10)

F. OPERATIONAL SUPPORT DIRECTIVES/RECORDS/REPORTS

_____ (3F01) **ADMINISTRATIVE REFERENCE FILES.** Facility master library and staff reference material (7210.3, par. 2-1-4)

_____ (3F02) **AIR TRAFFIC RECORDS RETENTION.** (1350.15, ch. 10; 3120.29, pars. 2-34f, 2-37, 3-7c; 7210.3, pars. 3-4-5, 4-6-6b, 6-7-11, and 8-1-3)

_____ (3F03) **FACILITY DIRECTIVES/LETTERS TO AIRMEN (LTA).** Directives (Orders, LOA's, LOP's, etc.)/LTA current, formatted and/or revised correctly, reviewed by ATD when necessary, etc. (1320.1; 7210.3, pars. 2-1-4, 4-1-1b, 4-1-3, 4-3-3 through 4-3-7, 4-5-1, 4-5-2, and example)

_____ (3F04) **INFORMATION REQUESTS.** Processing FOIA, NTSB, etc. requests. (7210.3, pars. 2-1-5, 4-8-1 through 4-8-4; 8020.11, pars. 380 through 387)

_____ (3F05) **LETTERS TO AIRMEN.** Practice instrument approaches (7210.3, par. 6-4-4b)

_____ (3F06) **MEDICAL CLEARANCES.** (3930.3, par. 32c; 7210.3, par. 2-8-2)

_____ (3F07) **MILITARY OPERATIONS AREA SCHEDULE.** Changes to published military operations area activity schedules (7210.3, par. 6-3-6; 7110.10 par. 6-5-1)

_____ (3F08) **PREPARATION OF FAA FORM 7230-10.** (7210.3, pars. 4-6-3, 4-6-6, and 4-6-7b)

_____ (3F09) **PREPARATION OF FAA FORM 7230-4.** (7210.3, pars. 4-6-3 through 4-6-5)

_____ (3F10) **T&A RECORDING.** (7210.3, par. 4-6-8)

_____ (3F11) **VOICE RECORDER PROCEDURES.** DVRS/tape recorder: Checks do not exceed 26 hours and are documented/labeled/retained. (7210.3, pars. 3-4-3d and 3-4-4)

COMBINED CONTROL FACILITY CHECKLIST

8/7/2003 - 9/30/2004

Version 4.0.2003.4

I. SYSTEM SAFETY

A. EQUIPMENT

_____ (1A01) **ALTIMETER REQUIREMENTS.** (7210.3, pars. 2-10-3 and 2-10-4)

_____ (1A02) **ASDE/AMASS.** Performance checks/usage. (7110.65, pars. 3-6-1 through 3-6-4; 7210.3, par. 10-5-8 and ch. 11, sec. 9)

_____ (1A03) **BATTERY TRANSCEIVERS.** Checked weekly. (7210.3, par. 3-3-5)

_____ (1A04) **EMERGENCY FREQUENCIES.** (7210.3, par. 3-3-4)

_____ (1A05) **MODE 3A CODES.** (7110.65, par. 5-2-1; 7110.66, par. 7c; 7210.3, par. 3-7-4b)

_____ (1A06) **MSAW ALARM CHECK.** (7210.3, par. 11-2-7d2)

_____ (1A07) **OCEAN21.** (7110.65, ch. 13, sec. 2; 7210.3, pars. 3-1-1, 3-1-2, and 6-8-6 through 6-8-8)

_____ (1A08) **RADAR ALIGNMENT CHECK.** (7110.65, par. 5-1-2 and 5-14-5; 7210.3, par 8-3-3)
Causal Factor: RADAR DISPLAY

_____ (1A09) **RADAR PERFORMANCE CHECK (ATCT).** (7210.3, ch. 7, sec. 1 and pars. 7-2-1 and 10-5-4)

_____ (1A10) **VSCS.** Voice Switching Control System (7210.3, pars. 2-2-12 and 3-3-8 through 3-3-11)

_____ (1A11) **WIND INDICATOR CHECK.** Cross-checked when facility uses the same sensing equipment as NWS. (7210.3, par. 2-10-2)

B. GENERAL

_____ (1B01) **EMERGENCY OBSTRUCTION VIDEO MAP (EOVM).** (7210.3, par. 3-9-4)

_____ (1B02) **EXTERNALLY PUBLISHED FACILITY DATA.** Accuracy of published data pertaining to the facility: Area charts, sectional charts, etc. (7210.3, pars. 2-1-6 and 10-1-4; 7930.2, par. 2-1-6)

_____ (1B03) **GENOT HANDLING.** (7210.3, par. 2-2-7c and d1)

_____ (1B04) **MAP VERIFICATION/VALIDATION.** Display and depiction requirements, preparation, verification, of MVA/IFR charts and MSAW/E-MSAW, magnetic variation validation. (7210.3, pars. 3-9-1, 3-9-2, 10-1-7d, 10-4-8, 11-2-8, 11-2-10 and 11-8-8 through 11-8-10 and 11-10-1 through 11-10-4)

_____ (1B05) **MINIMUM IFR ALTITUDES.** (7210.3, par. 6-4-2; 7210.37)

_____ (1B06) **MSAW/E-MSAW/CONFLICT/MCI ALERT.** Inhibit. (7110.65, pars. 5-14-1, 5-14-2, 5-15-6c, and 5-15-7; 7210.3, par. 11-2-7)

_____ (1B07) **NOTAM HANDLING.** Evaluate the handling and distributions of NOTAMs. (7210.3, pars. 2-2-3, 3-5-2, 3-5-4 and 6-3-2; 7930.2, pars.

1-3-1a and b, 1-3-5, 2-2-3, 3-1-1b and 3-2-1; N7210.544)
Causal Factors: DATA POSTING, COORDINATION

_____ (1B08) **OPERATIONAL CURRENCY.** Operational/staff personnel maintain currency (including ASR approaches) and when appropriate, receive 1.6 percent differential. (3550.13, par. 4a(2); 7210.3, pars. 2-3-1, 2-3-2b, 2-3-3b, and 2-3-4)

_____ (1B09) **OPERATIONAL EFFICIENCY.** Effectiveness and application of procedures and overall operational efficiency

_____ (1B10) **OPERATIONAL REFERENCE MATERIAL.** Currency/accuracy of SIA, position binders, directives, charts, publications, and other documents used in the operational area. (7210.3, pars. 2-1-3, 2-1-4, 2-2-3b3, 10-2-1, and 10-2-2)

_____ (1B11) **UCR PROCESSING.** Appropriate subjects reported and processed within time limits (1800.6)

C. OPERATIONAL DIRECTIVES

_____ (1C01) **AIRPORT DE-ICING PLANS.** (7210.3, par. 10-1-11)

_____ (1C02) **ASR-9 SYSTEM AND DISPLAY SETTINGS DIRECTIVE.** (7210.3, par. 3-7-6)

_____ (1C03) **BIRD HAZARDS/ADVISORIES.** (7110.65, par. 2-1-22; 7210.3, par. 2-1-15)

_____ (1C04) **COMPUTER ASSIGNED ALTITUDE/WAIVERS.** Waiver to interim altitude requirements (7110.65, pars. 5-14-3 and 5-14-4; 7210.3, par. 8-2-7)
Causal Factor: DATA POSTING

_____ (1C05) **DATA ENTRIES/DISPLAY DATA.** Use of scratch pad, ATIS, alpha character, general system information, system altimeter setting, select/inhibit switches. (7210.3, pars. 3-10-1, 11-2-2, 11-2-3, 11-8-2 and 11-8-3)
Causal Factor: DATA POSTING

_____ (1C06) **DUTY FAMILIARIZATION DIRECTIVE.** Positions that require duty familiarization and information to be read/discussed as part of the duty familiarization (7110.65, par. 2-6-1; 7210.3, par. 2-2-3a)

_____ (1C07) **LETTERS OF AGREEMENT.** LOA required subjects, content and application. (7110.65, par. 2-1-4o; 7110.118; 7210.3, pars. 2-1-14, 3-4-3b1, 4-3-1, 4-3-2, 4-4-1 thru 4-4-3, 10-4-1d1, 10-6-2b, and 10-6-3)

_____ (1C08) **LETTERS OF PROCEDURE.** LOP subject matter. (7210.3, par. 4-5-1)

_____ (1C09) **MODIFY/QUICK LOOK.** (7210.3, par. 11-2-4)

_____ (1C10) **NAVAID MONITORING DIRECTIVE.** Directive and compliance (7210.3, pars. 3-5-1 through 3-5-3)

_____ (1C11) **OCEAN21 DIRECTIVE.** (7210.3, pars. 6-8-3, 6-8-4b, 6-8-5 through 6-8-7)

_____ (1C12) **OE/D PREVENTION PLAN.** Facility program established and in compliance (7210.56, par. 2-1-3a and 5-1-13g)

_____ (1C13) **PREARRANGED COORDINATION.** (7110.65, 5-3-9b, 5-4-10, and 5-15-4e; and 7210.3, par. 3-7-7)
Causal Factor: COORDINATION

_____ (1C14) **RUNWAY INCURSION PREVENTION PLAN.** (7210.56, par 2-1-2b10 and 4-1-10)

_____ (1C15) **SELECTING ACTIVE RUNWAYS.** (7210.3, par. 10-1-6)

_____ (1C16) **SERVICE CONTINUITY/EMERGENCY PLANS.** Air traffic service continuity, emergency and bomb threat plans, etc. (1900.1, par. 1-11b; 1900.47, pars. 7i through k, 9, and 10a(1); 7210.3, pars. 2-1-7 through 2-1-9)

_____ (1C17) **SOP DIRECTIVE.** (7110.65, par. 2-1-4o; 7210.3, par. 2-1-2)

_____ (1C18) **WATCH SUPERVISION DIRECTIVE.** (7210.3, par. 2-6-1a)

D. OPERATIONAL REQUIREMENTS

_____ (1D01) **AIRPORT CONDITIONS.** Closed/unsafe runways, timely information, braking action, abnormal operations, etc. (7110.65, pars. 3-3-1 through 3-3-7 and 4-7-12b and c)
Causal Factor: COORDINATION

_____ (1D02) **ALTITUDE ASSIGNMENT AND VERIFICATION.** (7110.65 ch. 4. sec. 5)
Causal Factors: COMMUNICATIONS ERROR, COORDINATION

_____ (1D03) **APPROACH/MISSED APPROACH INFORMATION.** (7110.65, pars. 4-7-10, 4-7-11, and 4-8-9; 7210.3, par. 10-3-5)

_____ (1D04) **ARRIVAL PROCEDURES.** (7110.65, ch. 3, sec. 10, ch. 4, sec. 7, and pars. 4-8-1 through 4-8-8, 5-9-4, and 5-9-5; 7210.3, pars. 6-4-1 and 10-3-5)

_____ (1D05) **ATIS PROCEDURES.** ATIS duties including code broadcast, content, tape review etc.
Causal Factor: COMMUNICATIONS ERROR

_____ (1D06) **AUTOMATED INFORMATION TRANSFER (AIT).** (7110.65, pars. 5-4-8 and 5-4-9; 7210.3, par. 4-3-8)
Causal Factors: DATA POSTING, COORDINATION

_____ (1D07) **BEACON SYSTEMS.** (7110.65, pars. 5-2-1 through 5-2-16 and 5-2-18 through 5-2-22; 7110.66, par. 7c)
Causal Factor: RADAR DISPLAY

_____ (1D08) **CLASS B/C/D/TRSA AIRSPACE OPERATIONS.** (7110.65, par. 3-1-11 and ch. 7, secs. 7 through 9; 7210.3, pars. 11-1-3 through 11-1-5)
Causal Factor: RADAR DISPLAY

_____ (1D09) **CLEARANCES.** Manual and Automated (7110.65, pars. 4-2-1 through 4-2-9, ch. 4. sec. 4; 7110.113, par. 6)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D10) **COORDINATE USE OF AIRSPACE.** (7110.65, par. 2-1-14)
Causal Factor: COORDINATION

_____ (1D11) **COORDINATION.** (7110.65)
Causal Factor: COORDINATION

_____ (1D12) **DATA BLOCKS.** (7110.65, pars. 5-3-8, 5-3-9a, and 5-14-6 through 5-14-8 and 5-15-8; 7210.3, par. 8-3-2)
Causal Factors: RADAR DISPLAY, DATA POSTING

_____ (1D13) **DEPARTURE PROCEDURES.** (7110.65, ch. 3, sec. 9, ch. 4, sec. 3 and

ch. 5, sec. 8)
Causal Factors: AIRCRAFT OBSERVATION, COORDINATION

_____ (1D14) **EMERGENCY PROCEDURES.** (7110.65, ch. 10)

_____ (1D15) **FIX POSTING.** Radar fix posting (7110.65, par. 5-1-11)
Causal Factor: DATA POSTING

_____ (1D16) **HELICOPTER OPERATIONS.** (7110.65, pars. 3-11-1 through 3-11-6)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1D17) **INTERPHONE FORMAT.** (7110.65, pars. 2-4-12 and 2-4-13)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D18) **INTERPHONE/FREQUENCY MONITORING.** (7110.65, par. 2-4-2; 7210.3, par. 3-3-3)

_____ (1D19) **INTERSECTION DEPARTURES.** (7110.65, par. 3-7-1c, d, and e; 7210.3, par. 2-1-11)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1D20) **MERGING TARGET PROCEDURES.** (7110.65, par. 5-1-8)
Causal Factor: RADAR DISPLAY

_____ (1D21) **MODE C VALIDATION.** (7110.65, par. 5-2-17)
Causal Factor: RADAR DISPLAY

_____ (1D22) **MULTIPLE INSTRUMENT APPROACH PROCEDURES.** Simultaneous ILS/MLS approaches, parallel ILS/MLS approaches, simultaneous independent ILS/MLS approaches, converging instrument approaches, and dependent converging instrument approaches with converging runway display aid. (7110.65, pars. 5-9-6 through 5-9-8; 7110.98; 7110.110; 7210.3, par. 10-4-6)
Causal Factor: RADAR DISPLAY

_____ (1D23) **NONRADAR PROCEDURES.** (7110.65, ch. 6)
Causal Factor: DATA POSTING

_____ (1D24) **OCEANIC PROCEDURES.** (7110.65, ch. 8)

_____ (1D25) **OPENING/CLOSING PROCEDURES.** Part-time facility opening/closing procedures including ATIS broadcast (7210.3, pars. 2-4-4 and 10-4-1g and h)

_____ (1D26) **OS/CIC MONITORS OPERATION.** OS/CIC designated, monitors operation, anticipates traffic flow, and implements traffic management . (7110.65, par. 2-1-25; 7210.3, pars. 2-2-2, 2-6-1, 2-6-2, 2-6-5, 2-6-6 and 5-1-2)

_____ (1D27) **PHRASEOLOGY.** (7110.65)
Causal Factor: COMMUNICATIONS ERROR

_____ (1D28) **POINT OUT PROCEDURES.** (7110.65, pars. 5-4-3 and 5-4-7)
Causal Factor: COORDINATION

_____ (1D29) **POSITION RELIEF/CHECKLIST.** Position relief checklists established and comprehensive verbal briefings are accomplished. (7110.65, par. 2-1-23 and app. D; 7210.3, par. 2-2-3b through e)
Causal Factor: POSITION RELIEF BRIEFING

_____ (1D30) **PRECISION APPROACH CRITICAL AREAS.** (7110.65, par. 3-7-5)

_____ (1D31) **RADAR HANDOFF PROCEDURES.** (7110.65, pars. 2-1-15, 5-4-1, and 5-4-3 through 5-4-6)

Causal Factor: RADAR DISPLAY

_____ (1D32) **RADAR IDENTIFICATION METHODS.** (7110.65, pars. 5-3-2 through 5-3-7)

Causal Factor: RADAR DISPLAY

_____ (1D33) **RADAR SEPARATION STANDARDS.** (7110.65, ch. 5, sec. 5; 7210.3, par. 10-4-7)

Causal Factor: RADAR DISPLAY

_____ (1D34) **RADAR TERMINATION.** (7110.65, par. 5-1-13)

_____ (1D35) **RADIO COMMUNICATIONS.** Format, pilot acknowledgment, abbreviated transmissions, and readback errors. (7110.65, pars. 2-4-3, 2-4-8, and 2-4-9)

Causal Factor: COMMUNICATIONS ERROR

_____ (1D36) **RUNWAY PROTECTED AREAS.** (7210.3, par. 2-1-18)

_____ (1D37) **RUNWAY UTILIZATION.** (7110.65, pars. 3-8-1 through 3-8-4)

Causal Factor: AIRCRAFT OBSERVATION

_____ (1D38) **RVR AND RVV ISSUANCE.** Issuance of runway visual range and runway visibility. (7110.65, par. 2-8-1 through 2-8-3; 7210.3, par. 2-9-8)

_____ (1D39) **SAFETY ALERTS.** (7110.65, pars. 2-1-6 and 5-15-6a and b)

Causal Factor: RADAR DISPLAY

_____ (1D40) **SPECIAL FLIGHTS HANDLING.** (7110.65, ch. 9)

_____ (1D41) **SPECIAL VFR.** (7110.65, ch. 7, sec. 5)

_____ (1D42) **SPEED ADJUSTMENTS.** Speed control application, methods, and minima (7110.65, pars. 5-7-1 through 5-7-4)

_____ (1D43) **STRIP MARKING/USAGE.** (7110.65, ch. 2, sec. 3; 7210.3, pars. 6-1-6 and 10-1-8)

Causal Factor: DATA POSTING

_____ (1D44) **TCAS.** Resolution advisories (7110.65, par. 2-1-27)

_____ (1D45) **TOWER RADAR DISPLAYS.** (7110.65, par. 3-1-9, 7210.3, par. 10-5-3)

_____ (1D46) **TRAFFIC ADVISORIES.** (7110.65, par. 2-1-21)

Causal Factors: RADAR DISPLAY, COMMUNICATIONS ERROR

_____ (1D47) **VECTORING.** (7110.65, ch. 5, sec. 6)

Causal Factor: RADAR DISPLAY

_____ (1D48) **VECTORING TO FINAL APPROACH.** (7110.65, pars. 5-9-1 through 5-9-3)

_____ (1D49) **VISUAL OPERATIONS.** VFR-on-top, visual approaches, etc. (7110.65, pars. 7-1-1, 7-3-1, and ch. 7, sec. 4)

_____ (1D50) **VISUAL SEPARATION.** (7110.65, par. 7-2-1)

Causal Factor: AIRCRAFT OBSERVATION

_____ (1D51) **WAKE TURBULENCE.** (7110.65, pars. 2-1-19, 2-1-20, 3-9-7, 3-9-8, 3-10-3b, 3-10-4c, 4-8-11a2, and 5-5-4e, f, and g)

E. OPERATIONAL TRAINING REQUIREMENTS

_____ (1E01) **CIC TRAINING.** Terminal Courses 57060 and 55073, En route Courses 57057 and 55072 (3120.4 app 8; 7210.3, par. 2-6-3 and 2-6-4)

_____ (1E02) **QUALIFICATION TRAINING.** (3120.4, par. 2-11)

_____ (1E03) **REFRESHER TRAINING.** (1900.47, par. 10a2; 3120.4, par. 2-12b; 7110.52, par. 5; 7110.67, par. 4; 7210.3, par. 10-1-11c9)

_____ (1E04) **REMEDIAL TRAINING.** Remedial training and employee letter. (3120.4, par. 2-12e)

_____ (1E05) **SKILL ENHANCEMENT TRAINING FOR CPC'S.** (3120.4, par 2-12d)

_____ (1E06) **SUPPLEMENTAL TRAINING.** Given prior to the date of new/revised procedures, regulations or equipment, etc. (3120.4, par. 2-12c; 7210.3, pars. 2-2-7d2 and 11-2-5)

_____ (1E07) **TECHNICAL PERFORMANCE REVIEW/DISCUSSION.** (7210.56, par. 3-1-2a and b)

_____ (1E08) **VERBAL BRIEFINGS.** ATB's, required supplemental training. (7210.3, pars. 2-2-8b and 2-2-11)

F. SURFACE ERROR PREVENTION

_____ (1F01) **INTERSECTING RUNWAY SEPARATION.** Separation standards; Intersecting runways (7110.65, pars. 3-9-8 and 3-10-4)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F02) **LAHSO.** Land and Hold Short (7110.65, par. 3-10-4; 7110.118; 7210.3, par. 10-3-7)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F03) **LOCAL/GROUND COORDINATION.** (7110.65, par. 3-1-4)
Causal Factor: COORDINATION

_____ (1F04) **MEMORY AIDS.** (7210.3, par. 10-1-7a)
Causal Factor: COORDINATION

_____ (1F05) **POSITION DETERMINATION.** (7110.65, par. 3-1-7)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F06) **RUNWAY EXITING.** (7110.65, par. 3-10-9; 7210.3, par. 10-1-7e)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F07) **SAME RUNWAY SEPARATION.** (7110.65, par. 3-10-3)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F08) **TAXI/GROUND MOVEMENT PROCEDURES.** Aircraft/vehicle authorization. Cab coordinator requirements. (7110.65, pars. 3-7-1 through 3-7-4; 7210.3, par. 10-1-7c)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F09) **TIPH.** (7110.65, pars. 3-9-4 and 3-10-5b)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F10) **VEHICULAR TRAFFIC.** Authorization for other than runway crossings, direct communication requirements, traffic issuance. (7110.65, pars. 3-1-3d, 3-1-5, and 3-1-6)
Causal Factor: AIRCRAFT OBSERVATION

_____ (1F11) **VISUAL SCANNING.** (7110.65, par. 3-1-12)
Causal Factor: AIRCRAFT OBSERVATION

G. WEATHER INFORMATION

_____ (1G01) **HIWAS BROADCAST.** (7110.65, par. 2-6-2, 7210.3, par. 10-3-1b2)

_____ (1G02) **LLWAS/TDWR.** (7110.65, par. 3-1-8; 7210.3, pars. 2-10-1 and 10-3-3)

_____ (1G03) **PIREP INFORMATION.** Solicitation/dissemination. (7110.65, par. 2-6-3)

_____ (1G04) **WEATHER CURRENCY.** LAWRS/ASOS (3120.4, par. 2-11g and h; 7210.3, par. 2-9-1)

_____ (1G05) **WEATHER PROCESSING.** Receipt and dissemination of weather observations (7110.65, par. 2-9-2b; 7210.3, pars. 2-9-2, 2-9-4, 2-9-5 and 10-3-1; 7900.5)

_____ (1G06) **WEATHER/CHAFF SERVICES.** (7110.65, par. 2-6-4)

II. <u>SYSTEM EFFECIENCY</u>

A. MANAGEMENT/STAFF INVOLVEMENT

_____ (2A01) **EVALUATION PROCESS.** (7010.1)

_____ (2A02) **FAMILIARIZATION.** Non-operational personnel maintain familiarization (7210.3, pars. 2-3-1, 2-3-2a, and 2-3-3a)

_____ (2A03) **MANAGEMENT TEAM INVOLVEMENT.** Competent knowledge level demonstrated of day-to-day operations. (7210.56, par. 2-1-2c1)

_____ (2A04) **OPSNET REPORTING.** (7210.55, pars. 10 and 11)

_____ (2A05) **WATCH COVERAGE.** Basic watch coverage, holiday staffing, overtime, etc. (7210.3, pars. 2-6-7 through 2-6-9; NATCA/FAA Agreement)

B. OPERATIONAL EFFICIENCY

_____ (2B01) **CUSTOMER SERVICES/COORDINATION.** General responsiveness to customer needs; conferences, education, communication. (7210.3, ch. 4, sec. 2)

_____ (2B02) **OPERATIONAL TEAMWORK.** (7110.65, pars. 2-10-2 and 2-10-3)

_____ (2B03) **RELATIONS WITH FAA ORGANIZATIONS.**

C. QUALITY ASSURANCE

_____ (2C01) **INCIDENT INVESTIGATION.** (7210.56, par. 4-1-2a and b; 8020.11, par.80)

_____ (2C02) **OE/D INVESTIGATIVE PROCESS.** (7210.56, pars. 4-1-6 and 5-1-3 through 5-1-7 and app. 1)

_____ (2C03) **OE/D REMOVAL/RETURN TO DUTY.** (7210.56, pars. 5-1-3(b, k, l, m), 5-1-8, and 5-1-9)

_____ (2C04) **QA PROGRAM ESTABLISHED AND FACILITY COMPLIANCE.** (7210.56, pars. 2-1-2c2, 2-1-2c3, and 2-1-3)

_____ (2C05) **QUALITY ASSURANCE REVIEW.** (7210.56, par. 4-1-3)

D. TRAFFIC MANAGEMENT

_____ (2D01) **COORDINATION/DELAY REPORTING.** (7210.3, pars. 4-7-4,

17-2-4a2, 17-5-4, 17-5-6 and 17-11-5; 7210.55, pars. 12 through 14)

_____ (2D02) **FLOW MANAGEMENT.** (7210.3, ch. 17, sec. 8, and pars. 17-10-3c, 17-10-4b2, 17-10-4c2, 17-11-2, and 17-11-4)

_____ (2D03) **GATE HOLD PROCEDURES.** (7110.65, par. 3-9-2; 7210.3 pars. 10-4-3 and 17-2-4c4)

_____ (2D04) **STRATEGIC PLAN OF OPERATION.** (7210.3, ch. 17, sec. 19)

_____ (2D05) **TM RESPONSIBILITIES.** (7110.65, par. 11-1-2; 7210.3, pars. 17-2-4, 17-5-5, and ch. 17, secs. 4, 19, 21, and 22)

_____ (2D06) **TRAFFIC MANAGEMENT INITIATIVES.** (7210.3, ch. 17, sec.16)

III. SYSTEM MANAGEMENT

A. ACCIDENTS/INCIDENTS

_____ (3A01) **AIRSPACE INTRUSION.** (7210.56, par. 4-1-8)

_____ (3A02) **ARTS CLOCK COMPARISON CHECK.** Compare ARTS clock with time source and voice recorder clock. (8020.11, par. 70. b. (3))

_____ (3A03) **EMERGENCIES.** (7210.56, par. 4-1-4; 8020.11, pars. 60c and 87)

_____ (3A04) **FAA FORM 8020-3.** Ensure that a notification record is established in the operational quarters. (7210.56, par. 4-1-4a; 8020.11, par. 64b(1) and (2))

_____ (3A05) **FLIGHT ASSIST.** (7210.56, par. 4-1-5)

_____ (3A06) **GENERAL HANDLING PROCEDURES.** (7210.56, par. 4-1-2c and d1)

_____ (3A07) **INVALID MODE C REPORTING.** (7210.56, par. 4-1-9)

_____ (3A08) **NMAC.** (8020.11, par. 79 and app. 2, pp. 53-55 and 59)

_____ (3A09) **PACKAGES/FILES.** Labeled correctly, content, retention. (8020.11, pars. 68, 70b(6), 72, 73, 79, 81l, 82c(4), 83c(4), 84r, 85j, 86j, 87, 88, and app. 2)

_____ (3A10) **PILOT DEVIATION.** (8020.11B, par. 84 and app. 2, pp. 56-59)

_____ (3A11) **RETENTION/HANDLING OF TAPES.** (8020.11, pars. 76 and 78)

_____ (3A12) **SPILL OUT.** (7210.56, par. 4-1-7; 8020.11, par. 84n)

_____ (3A13) **SURFACE INCIDENTS AND RUNWAY INCURSIONS.** (7210.56, par. 4-1-10)

_____ (3A14) **VEHICLE/PEDESTRIAN DEVIATION.** (8020.11, par. 86, app. 2, pp. 61-64)

B. FAMILIARIZATION TRAINING

_____ (3B01) **DUTY STATUS.** (3120.29, par. 2-5)

_____ (3B02) **FORMS COMPLETION/PROCESSING.** FAA Forms 3120-28, 3120-29, and 3120-31 (3120.29, pars. 2-10 and 2-37)

_____ (3B03) **NUMBER OF TRIPS.** (3120.29, par. 2-32; NATCA/FAA Agreement)

_____ (3B04) **REPORT TIMELINESS.** Trip reports completed within one week following return to duty (3120.29, par. 2-34)

_____ (3B05) **TRACKING/ACCOUNTABILITY OF FORMS.** (3120.29, ch. 3)

C. GENERAL TRAINING REQUIREMENTS

_____ (3C01) **CBI RESPONSIBILITIES.** (3120.4, pars. 2-10a(3) and 4-3)

_____ (3C02) **INSTRUCTOR TRAINING COURSE.** Classroom/lesson plans. (3120.4, par. 2-10a(1)(d), (e), and b(10))

_____ (3C03) **TECHNICAL TRAINING RESPONSIBILITIES.** (7210.56, pars. 3-1-3c, d, and 3-1-4)

_____ (3C04) **TMC TRAINING.** (3120.4, app. 7)

_____ (3C05) **TRAINING COURSE MATERIALS.** Developed. (3120.4, par. 2-10b(7) and c, and app. 6)

_____ (3C06) **TRAINING DIRECTIVE.** (3120.4, pars. 2-10a(1)(a) and (b), 2-10a(2)(e), and 3-2)

_____ (3C07) **TRAINING RECORD ENTRIES.** Record entries are timely and complete, appropriate training, certification signatures, initials entered, ASR approach entry etc. (3120.4, pars. 2-10 through 2-15, 2-17d, 3-3b and c, 3-9d, 4-3g, and app. 1; 3120.29, pars. 2-35 and 3-8b(4); 7210.3, pars. 2-2-4 and 2-2-7d3; 7210.56, par. 3-1-3)

_____ (3C08) **TRAINING RECORD RETENTION.** (3120.4, par. 2-17)

_____ (3C09) **WRITTEN REFRESHER TRAINING PROGRAM.** (3120.4, pars. 2-10a(2)(d) and 2-12b)

D. OE/D REQUIREMENTS

_____ (3D01) **OE/D FOLLOWUP SKILL CHECK.** (7210.56, par. 5-1-11)

_____ (3D02) **OE/D INTERVIEW STATEMENT.** Interview statement read or given to employee prior to conducting interviews (7210.56, par. 5-1-5b(1) and app. 9)

_____ (3D03) **OE/D INVESTIGATION FILE.** Labeling/contents/ retention (7210.56, pars. 5-1-3n, 5-1-5c(1), 5-1-7d and 5-1-15a and b)

_____ (3D04) **OE/D TRAINING RECORD ENTRIES/REMOVAL.** Appropriate entries in/removed from the training records (3120.4, par. 2-13a(1) and app. 1, par. 8; 7210.56, pars. 5-1-4, 5-1-14 and 5-1-15c)

E. ON-THE-JOB TRAINING (OJT)

_____ (3E01) **CERTIFICATION SKILL CHECKS.** (3120.4, par. 3-7a, b, c, e, f, and g)

_____ (3E02) **FAA FORMS 3120-25/32/36 PREPARATION.** (3120.4, pars. 2-10e(11), f(3), g(3), h(5), 2-16, 3-6f, 3-7d, 3-8f(5), app. 2, app. 7, sec.4, pars. 2 through 4, and app. 8, sec. 5)

_____ (3E03) **OJT DISCUSSION.** Instructor and developmental evaluation report training discussion (3120.4, par. 2-10e(10) and g(4))

_____ (3E04) **OJT PROGRAM EVALUATION.** Annual written evaluation of the OJT program (3120.4, par. 2-10a(2)(f))

_____ (3E05) **OJTI SELECTION/TRAINING.** (3120.4, par. 3-3)

_____ (3E06) **PERFORMANCE SKILL CHECKS.** Conducted monthly. (3120.4, par. 3-6a through e, g, and h)

_____ (3E07) **SKILL ENHANCEMENT TRAINING FOR DEVELOPMENTALS.** (3120.4, par 3-8)

_____ (3E08) **TRAINING PLAN/TEAM RESPONSIBILITIES.** (3120.4, pars. 3-4 and 3-5)

_____ (3E09) **TRAINING REVIEW PROCESS.** (3120.4, par. 3-10)

F. OPERATIONAL SUPPORT DIRECTIVES/RECORDS AND REPORTS

_____ (3F01) **ADMINISTRATIVE REFERENCE FILES.** Facility master library and staff office reference material (7210.3, par. 2-1-4)

_____ (3F02) **AIR TRAFFIC RECORDS RETENTION.** (1350.15, ch. 10; 3120.29, pars. 2-34f, 2-37, and 3-7c; 7210.3, pars. 4-6-6b, 8-1-3, 11-3-1, and 11-3-2)

_____ (3F03) **AUTOMATIC ACQUISITION DIRECTIVE.** (7210.3, par. 11-2-6)

_____ (3F04) **FACILITY DIRECTIVES/LETTERS TO AIRMEN (LTA).** Directives (Orders, LOA's, LOP's, etc.)/LTA current, formatted and/or revised correctly, reviewed by ATD when necessary, etc. (1320.1; 7210.3, pars. 2-1-4, 4-1-1b, 4-1-3, 4-3-3 through 4-3-7, 4-5-1, 4-5-2 with example)

_____ (3F05) **INFORMATION REQUESTS.** Processing FOIA, NTSB, etc. requests. (7210.3, par. 2-1-5, pars. 4-8-1 through 4-8-4; 8020.11 pars. 380 through 387)

_____ (3F06) **LETTERS TO AIRMEN.** Practice instrument approaches (7210.3, par. 10-1-5, 10-3-3a1, 10-3-3a5(a), and 10-4-5e)

_____ (3F07) **MEDICAL CLEARANCES.** (3930.3, par. 32c; 7210.3, par. 2-8-2)

_____ (3F08) **MILITARY OPERATIONS AREA SCHEDULE.** Changes to published military operations area activity schedules

_____ (3F09) **PREPARATION OF FAA FORM 7230-10.** (7210.3, pars. 4-6-3, 4-6-6, and 4-6-7b)

_____ (3F10) **PREPARATION OF FAA FORM 7230-4.** (7210.3, pars. 4-6-3 through 4-6-5, 11-9-1c, and 11-9-3)

_____ (3F11) **RUNWAY SAFETY PROGRAM.** (7050.1, par. 9 and app. 1; 7210.56, par. 4-1-10;)

_____ (3F12) **T&A RECORDING.** (7210.3, par. 4-6-8)

_____ (3F13) **TIME CHECK.** Time checked each 8 hours (7210.3, par. 2-4-3)

_____ (3F14) **VISIBILITY CHART DEVELOPED/MARKED.** (7210.3, par. 2-9-6)

_____ (3F15) **VOICE RECORDER PROCEDURES.** DVRS/tape recorder: Checks do not exceed 26 hours and are documented/labeled/retained. (7210.3, pars. 3-4-3d and 3-4-4)

APPENDIX #3 - FAA EXAMPLE RESPONSES FOR APPROACH INFORMATION AND ARRIVAL PROCEDURES

Item Title:	APPROACH INFORMATION AND ARRIVAL PROCEDURES	P	Closed
XXX ATCT	Prob Num:	2001-T-XXX-01P	

Problem written:
During position monitoring sessions it was observed that arrival aircraft not reporting receipt of ATIS information were provided current weather information only. Other pertinent NOTAM information (contained on the ATIS) regarding operations in the terminal area was not provided.

Corrective Action	1/14/2002	Y. ME

All personnel were briefed on the requirements of FAAO 7110.65, Section 3, FAAO 7110.65, and paragraph 4-7-10 through 12. Briefings were completed on September 13, 2001.

Follow Up Action	1/14/2002	Y. ME

The Air Traffic Manager, Operations Supervisors, and Staff Support Personnel, and all personnel assigned Quality Assurance Duties monitored compliance through “tape talks” and direct position monitoring, with supervisory on the spot corrections when necessary. Eighteen Tape Talks and Technical Training Discussions were accomplished since the FFE. Focus was placed on pilot receipt of ATIS and Approach information. There was 100% compliance with the requirement to assure the pilot had correct, complete, and timely information. This was documented on all tape talks and TTD's.

Management Control	1/14/2002	Y. ME

Ensuring ATIS receipt was placed on the monthly Quality Assurance Evaluation Checklist. The monthly report has noted compliance for each month September through January. The requirement to ensure pilot receipt of this item has been added to the facility semi-annual refresher training agenda. This item was covered during the semi-annual refresher training conducted in November 2001. It is also on the agenda for the February 2002 semi-annual refresher training. Additionally, this was made an emphasis item during semi-annual tape talks and TTDs. The receipt of ATIS and Approach Information was noted as 100% in the 18 tape talk and TTD's conducted since the evaluation.

Item Title:	PILOT DEVIATION	P	Open
AAA ATCT	Prob Num:	2004-T-AAA-06P	

Problem written:
Pilot deviations did not contain personnel interview statements

Corrective Action	3/12/2004	U. GOOFED

The facility OS and CICs were briefed on the importance of having controller statements completed as soon after the pilot deviation as possible. A facility accident/incident package checklist has been developed to include the requirement for inclusion of controller statements.

Follow Up Action	3/12/2004	U. GOOFED

No accidents or incidents have occurred since the date of the evaluation.

Management Control	3/12/2004	U. GOOFED

ATM to review all incident/deviation packages semi-annually to ensure accuracy and completion.

Item Title:	APPROACH INFORMATION AND ARRIVAL PROCEDURES	P	Closed

ZZZ TRACON	Prob Num:	2001-T-ZZZ-08P

Problem written:
Letters of agreement with Ontario, Rome, and Suez Towers required the issuance of missed approach instructions which were not published on FAA Forms 8260. Additionally, controllers coordinated the issuance of missed approach instructions to be issued by visual flight rule (VFR) towers to aircraft conducting practice instrument approaches which were similarly not published on FAA Forms 8260

Corrective Action	12/13/2001	I. DONEIT

During the supervisor meetings held on 5/15/01 and 5/18/01, Operations Managers briefed all supervisors on the requirements of FAAO 7110.65, par. 4-8-9. During the weeks of 6/20/01 and 6/27/01, all operational personnel were also briefed on these requirements. During the month of July, the Airspace and Procedures Department published the missed approach instructions for the towers Letters of Agreement on FAA Forms 8260.

Follow Up Action	12/13/2001	I. DONEIT

During the months of August and September the Operations Managers monitored the operation and found compliance with FAAO 7110.65, par. 4-8-9.

Management Control	12/13/2001	I. DONEIT

The requirements of FAAO 7110.65, par. 4-8-9 have been added to the annual refresher training program.

肆、心得

一、本次出國為民用航空局年度公派出國進修計劃項目之一，主旨為參加美國聯邦航空總署(FAA)麥克蒙洛尼空中心(MMAC)編號 50052 之飛航服務品質保證(Air Traffic Service Quality Assurance)課程。該課程主旨在於利用 ICAO-CAR/SAM Regional Guidance Material On Air Traffic Services Quality Assurance Programes(附件一)的內容，並局部採取美國聯邦航空總署(FAA)依此發展出來的 Order 7610.56c(附件一)中的資料所編整出的教材，以介紹飛航服務品質保證的定義、指導如何建立飛航服務品質保證計劃，和教習事故通報程度和單位評鑑程序等。

ICAO-CAR/SAM Regional Guidance Material On Air Traffic Services Quality Assurance Programes 原本只是一部僅適用於加勒比海和中南美洲地區的區域性計劃(Regional Plan)，但由於主題獲得各界認同，且計劃實施後成效卓著，因而成為各國推崇與跟進的對象，乃成為此類計劃的先驅和各界取材的範本。其實 ICAO 在 ANNEX-11 第 2.26 節及 Doc4444 第 2 章中要求各會員國所作的 SMS(Safety Management System)計劃，就是這個計劃的擴大與推廣而已。CAR/SAM_QA 計劃裏所有的項目百分之百的全都被搬了過去，所以兩者之間存在著極大的相似性。除了少數的用語方式有點不同外，其主張跟作略完全相同。甚至就拿 ANNEX-11 第 2.26 節及 Doc4444 第 2 章內容來說，與 CAR/SAM 計劃第 10 章第 1~9 節文字一相比對，結果竟然是一模一樣、完全雷同的。所以說 CAR/SAM_QA 計劃是 SMS 計劃的皐始實不為過。另外 CAR/SAM_QA 計劃是一個經過實際應用洗禮過的計劃而 SMS 不是，所以 CAR/SAM_QA 計劃的結構與邏輯自然是比 SMS 完整而又成熟的。所以在學習這個計劃時，你就是可以學到整個計劃的用意和邏輯，以及在實際操作的時候他們所使用的列表的精練性。很多原本在學 SMS 的時候所搞不懂或覺得很破碎的地方，在這裡竟然全都弄懂了、貫通了，這是此行最大的收獲。

二、飛航服務品質保證(ATS_QA)這個名詞從字面上不容易看出是什麼意思，但是把它在 SMS 裡的用語對照一下就很容易明白了。在 SMS 裡它(QA)是被描述為：〝保持可接受的安全水準〞(maintain acceptable level of safety)；也就是如何去保持一個飛航服務單位所提供服務的安全水準。差別的只是 QA 將服務安全的〝水準〞當作是一種〝品質〞來看待而已，所指的是同一件事情。

三、CAR/SAM_QA 計劃最大的特點是，它是以指導手冊(Guidance Material)的方式編寫出來的，連詳細項目和作法都有加以列舉和解釋，且編纂的方式比較有邏輯，所以比較容易掌握其概念和通盤瞭解；而 SMS 的敘述則只是目標性的概述，並沒有具體的項目和指導所以容易令人不知所云。加上 SMS 計劃其實就只是 CAR/SAM_QA 計劃的擴大與推廣而已，所以個人認為想明白 SMS 應該要作些什麼，就應該讀一讀 CAR/SAM_QA 計劃的內容，才會明白到底這是怎麼樣的一回事。

四、有鑑於當初我們在建立 SMS 系統時所用的澳洲教材，其內容編纂的方式相當零亂、破碎，無法產生具體的觀念和理解。所以個人才將這次 MMAC 所提供的教材翻譯成中文版本，旨在提供將來訓練新進查核員時，可作為補充教材或甚至取代澳洲教材之用。關於 MMAC 的這份教材筆者問過，沒有版權的問題(*教師手冊-Instructor Manual 才有版權*)，可以放心使用。

五、QA 把系統的組織分為國家、地區、單位、督導和專員五個層級*(參 P.22)*，職責劃分上記載的相當清楚。並強調執行時必需有充沛的人力*(Sufficient stuffing)*，甚至指明如果是大單

位的時候就應該成立專責的部門，而且即使小單位，也僅在單位層級以下可以使用現有人員兼任。顯然是把 QA 當成是很需要正面投入專門人力來作的工作，其重視的程序不言可喻；這跟國內的現況剛好恰成對比。同時在檢視過他們在計劃的內容和執行方式後，也會明白沒有投入大量人力的話，確實作不到所要求的〝水準〞也就是〝品質〞。但是最令人納悶的是：爲什麼他們這些國家都有辦法造成全面性的共識，不但立法院不會想要去砍他們的預算，乃至於一般公民也都能意識到應該爲飛安付出成本的必要性？不知道這又是什麼洋人的魔術，不過總歸一句話，要馬會跑就要先把牠給餵飽。

六、ICAO 在 CAR/SAM 裡把建立 QA 計劃時的方向分爲四個*(參 P.26)*，其中比較凸出的有三點。一是他們很注重團隊工作(Teamwork)，包括團隊工作的訓練在內；而且團隊工作精神和執行狀況也是個人效能考核項目之一，甚至在民航學院(MMAC)也有專門爲此項目所開設的課程。二是資訊交流，不論是網站的還是研討會的還是印刷品的還是資料庫的，都強調要建立各種交換訊息或討論的機制。三是顧客反應，包括內、外部問卷調查、製作爲駕駛員瞭解 ATS 系統的專門課程、與其它航空事業間的來往等。可見在設計 QA 系統時所放眼的角度應該有多寬廣。

另外，在促使 QA 計劃本身〝品質〞的不斷改善上也提出了五個項目*(參 P.31~P.44)*，其中的英語能力訓練包括 ICAO 標準術語的訓練，以防因不同術語系統所造成的危險；另外比較值得我們學習參考的是最後一項：飛航服務效能檢測系統(ATS performance measurement systems)*(參 P.36)*，作爲檢測一個單位效能時的張本。包括單位的安全水準、航情延誤量、服務可預期性、應變能力、工作效率、服務可獲性、路由可獲性、服務成本、跑道空域運量、跑道運量等。這個系統目前國內還沒有建立，但應該是很值得學習參考的項目，尤其是跑道運量(Runway capacity)部分，它考慮的不是純理論數學因素，而是包括所有實際會影響運量的參數在內的計算方式，包括：離、到場混合情形(Mix of arrival and departures)、機種(Aircraft types)、機尾亂流標準(Wake vortex separation minima)、離場路徑(Departure routes)、到場路徑(Arrival routes)、跑道被佔用時間(Runway occupancy time)、飛航管制程序(ATC procedures)、跑道規格(Runway configuration)、場面格局(Airport layout)、天候狀況(Weather conditions)、噪音管制程序(Noise abatement procedures)等；所計算出來的跑道運量應該比較接近實際所可能達到的數值。而且這個規範已在國際行之有年，應該是一個比較合理的標準。另外對於美國 FAA 在作跑道運量計算時所用的公式可以在這裡找到：
http://faculty.dwc.edu/karlsson/Mathematical_Formulations_of_Delay.pdf
相對的空側需求運量(Air Side Demand Capacity)則是在這裡：
http://www.cabq.gov/airport/pdf/S_06.pdf

七、QA 主計劃在設計時分爲三個部分：飛航事件防範計劃(Incident Prevention programs）、飛航事故通報、調查和編組（ATS Inccident reporting,and investigation teams）、單位評鑑(Evaluations)；各大項之下都還包含許多次項目，其中有很多是可以提供我們改進 SMS 系統參考的。

八、先說飛航事件防範計劃*(參 P.45~P.52)*。飛航事件防範計劃旨在創造零事故的飛航環境，基本上是以下列幾種項目來達成的：

(一)飛航事件防治計劃(ATS Incident Prevention program)；這是一個佈局性的指導書，其中列明各種爲防範飛航事件發生所應作爲的項目，包括概念性的-尋求可再進一步改善系統的因子等，和執行性的-確保持有一份 ATS 事件摘要表等；內容設計的很有系統。

(二)錄音評估(Voice recording evaluation)；這是執行性的項目之一，國內也有在作。但是不同的是在操作方式和處置方式上有點不同。以 FAA 的作法爲例，它們是所有的 ATS 人員每半年就要作過一次，評估時間長達 一個小時，是由 ATS 專員負責執行；而且所執行後的結果可以很嚴重，甚至可以就此直接吊銷被評估人全部或局部執照；所以個人猜想，可能就是因爲如此，所以才能確保大家平時的敬業心態。

(三)飛航管制程序/作業辦法檢視(Review of ATC procedures/practices)；這部份的項目國內沒有，另外它檢視的目的是在尋求促進飛安的建議而不是在檢視程序的本身。

(四)飛航服務事件檢視小組(ATS Inciddent review groups)；這個機制國內也還沒有，這是一組集合各方面人員-包裝航空公司-共同組成的團體，定期檢視各種 ATS 事件以尋求防範措施。

(五)共享網頁(Sharing networks)；這是利用國際、國家建立的網站來共享 ATS 事件資訊的作爲。

(六)跑道入侵防治計劃(Runway incursion prevention plan) *(參 P.49)*;國內的 SMS 計劃裏有這個項目，但截至目前爲止還沒有任何一個單位作出這個計劃來，甚至連該怎麼作都還搞不清楚。正好 QA 這個課程裏有這麼一個課目，講解的也夠詳細，剛好可以作爲參考。其實它們是從三個層面來建立和執行這個計劃的：

第一個是從航空器操作以及輔助設備(Aids)來考量的這屬於民航權責單位和航空業者共同執行的，美國NASA的 Runway Incursion Prevention System 有這一方面的研究報告可以參考：

http://avsp.larc.nasa.gov/pdfs/csrp14.pdf

http://avsp.larc.nasa.gov/pdfs/crp-fd-np14.pdf

http://avsp.larc.nasa.gov/pdfs/crp-fd-np3.pdf

第二個是從 ATS 實作面來考慮的，包括：

a.策略面：不論是全國性 ATS 權責單位*(相當於航管組)*或區域性 ATS 權責單位*(相當於總臺)*都要作成政策計畫。

其中全國性的可參考歐洲的範本：

http://www.eurocontrol.be/runwaysafety/gallery/content/public/docs/Release_1_Action_Plan_prevention_of_Runway_Incursions_final.pdf

區域性的可參考美國 North-West Mountain Region 的範本：

http://www.nw.faa.gov/runwaysafety/Docs/ANM-Plan02.pdf

尤其是歐洲的範本還包括了它們因應於 SMS 的實際作法，很值得參考。

b.執行面：最後才是 ATS 執行單位實際作爲面的計畫，又分爲三個方面來加以考量。

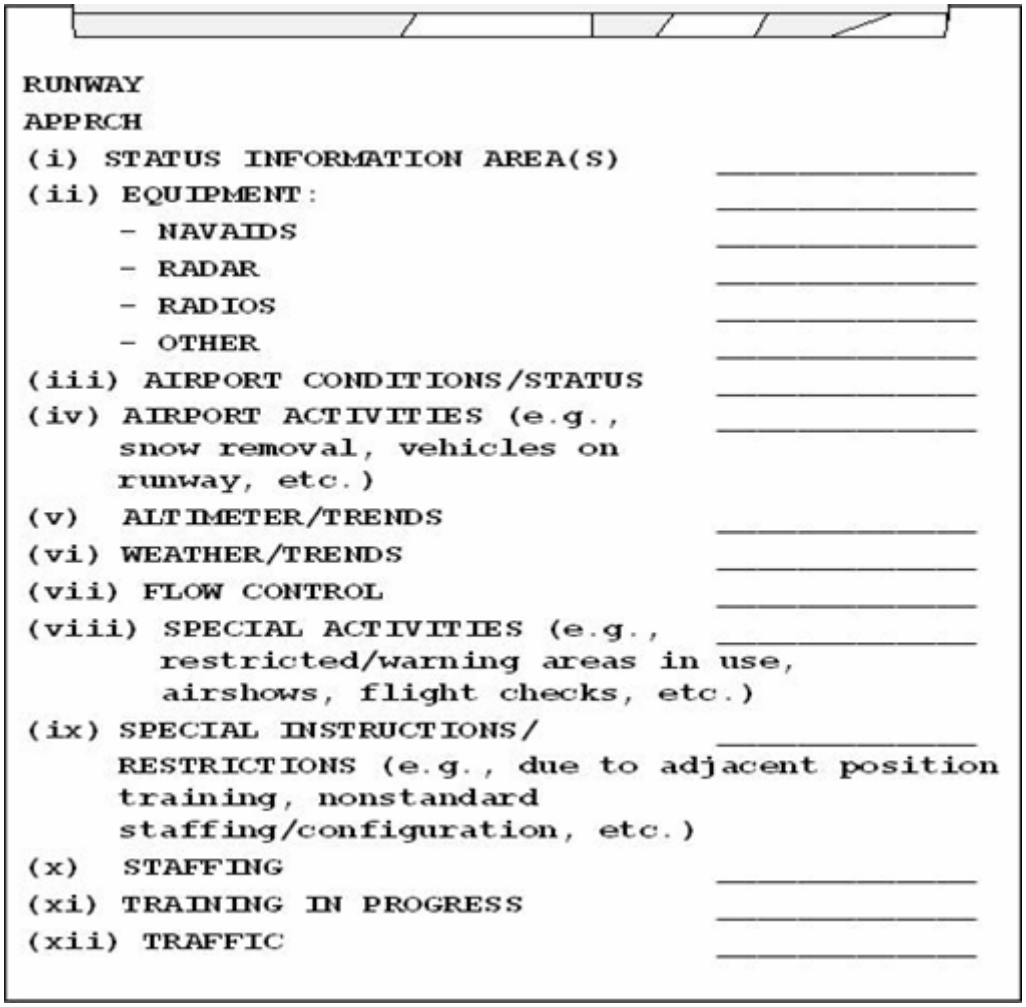
(一)整體面：

A.人員的專精訓練(這個國內有在做，但不得要領)，每年都要就防治跑道入侵的程序以及其變更加以整訓。

B.利用意見調查表或建議表蒐集對所使用之防治跑道入侵程序的有效性的意見。

C.以及完整的席位交接檢述程序(Position relifef briefings)，包括席位交接時應加以錄音、建立並使用席位交接檢述檢查表(Position relief checklist)等*(參下*

圖)。



(二)助憶設施(Memory aids)面：

A.GC 和 LC 席使用的管制條和管制盤上都會加上適當的助憶標示。

B.會使用〝跑道佔用中〞的標示。

C.以及國內所沒有的每〝半年〞就要檢討一次助憶措施或程序等。

(三)程序面：

A.必需律定跑道穿越點(Designate Runway crossing point/s)；將穿越跑道的位置固定起來，不可以任由航機想從那一點穿越就同意它從那一點穿越。

B.並特別關照管理階層應特別重視跑道穿越安全,就是說跑道安全不只是管制員的責任而已。

C.管制員應確保在穿越跑道時使用正確的程序，包括**內線通話程序***(值得建立)*和使用〝跑道佔用中〞號誌-FAA也有採用燈號的。

D.當協調穿越跑道時不得使用條件式許可且不得參照於其它航機。

E.FOC巡視跑道的時間和程序等應明訂於協議書中。

F.車輛之活動應儘可能限制在周邊道路和非活動區內，活動區(Movement areas)內的車輛活動應界定於協議書中，。

G.對車輛駕駛員應予以相關講習訓練；這可以有效的降低入侵事件比率，尤其是外包的施工車輛。

H.建立對**關閉中跑道**的相關作業程序(Closed runway procedures)，包括局部關閉的跑道。

以上就是跑道入侵防治計劃(Runway incursion prevention plan)的大概，希望對建立我們自己的跑道入侵防治計劃有點用處。

(七)品質保證檢視(Quality assurance review; QAR);這是指定管理階層應該要作的事，就是對整個 QA 執行的成效加以檢視*(參 P.51)*。當然包括 ATS 事件、TCAS 事件與管制員改正成效的檢視。但值得我們學習的是：

A.它們的檢視還包括到尚不屬於 ATS 事件範圍的事件，像是媒體的查詢、飛行組員或乘客的來電等。

B.它們也檢視 Go around、Missed approach 的事件，但它們的目的是想知道是什麼因素讓駕駛員作出這樣的決定的，而不是要藉以懲處管制員的。

九、關於填發飛航事件報告的方式ICAO的作法和我們的不同，我們用的是駕駛員專用的不滿意報告，而ICAO CAR/SAM-QA計劃裏用的是飛航事件報告表*(參P.57~P.60)*，內容包括航機當時的高度、狀態、所採取的動作、是否在雲中等一直到是怎麼收到這個報告以及其它牽涉單位的意見等項目。而且是收到駕駛員空中報告或AFTN傳來的報告時管制單位就要先填發的，事後再通知駕駛員第一落地機場的ATS單位向駕駛員追索正式報告，而且如果遇到駕駛員拒填的話還可以具狀告到對方的民航局或告到ICAO去處置，看起來會讓人覺得很有趣。

關於飛航服務事件或事故的通報程序和後續的作爲各國必然都有之，只是參照於CAR/SAM-QA計劃*(參附錄一)*之後就會發現我們自己目前所使用的這些程序實在是很粗糙。就以初報來講，我們目前所使用的就只是一張簡單的表格而已;而CAR/SAM-QA計劃裡所用的初報表格就長達三頁*(參P.67~P.69)*。內容從管制經過報告、有無督導在場、當時情況、裝備狀況等一直到事件摘要爲止，儼然是作有格局的處理。至於後繼的調查和結報動作更是不言可喻，就結報而言，除了事件經過、管制條照相、軌跡圖等資料製作以外，所要填寫的表格就長達十六頁*(參P.84~P.99)*。不知道我們的業務室看到這些之後會作何感想。

至於事件發生之後的調查程序*(參P.61~P.62)*是立即展開的，第一步就是將相關的人員解除任務並立即蒐集管制條，管制錄音和雷情資料，第二步就是找來律師以保障涉嫌人員的權益，第三步才是展開與涉嫌人員的面談和初報。其中有兩點特別凸出的是：

A.在初報表中它們必需把知情但未涉案人員的看法和意見也寫進去。

B.只有確定未涉嫌的人員可以立即返回工作崗位，其餘人等一律繼續解除任務等候正式調查。值得一提的是，FAA本身有制度會給予這些人有給假(Paid-off)，最多45天。在台灣這聽起來真有點像天方夜譚一樣；但這就是之所以FAA可以對它們的管制人員作很嚴厲要求的原因，因爲它們相對給予的保障也很充分。

它們的正式調查程序*(參P.70~P.73)*也是很有規模的，不但要組成調查團還要指派主任調查員(ATS-IIIC)，並且調查過程不公開、資料一律保密等。而且調查角度也不是集中在涉案人員身上而已，就連程序的瑕疵、單位訓練執行的不足、業務督導的不周、工作環境的影響、內外干擾的影響、空域的結構瑕疵等都在調查範圍之內，反正調查的方式和角度跟國內的狀況很不一樣就是了。並且連在發佈消息時都還會顧慮到是否會造成將來沒人願意提報正確資訊的情況

(參P.106)。另外ICAO對事件報告保存期限的建議是兩年半。

十、關於單位評鑑的部份*(參P.131~P.181)*，是跟我們現在SMS的單位查核最相像的一個部份。差別的是在這課程中有把它們所在使用的手段講出來，而我們澳洲的教材中則沒有，另外教材中也採用了部份FAA的評鑑表*(參P.152~P.179)*和問題追蹤單*(參P.180~P.181)*作爲解說範例，可從中看出它們的邏輯和觀念，正值得我們下次整修列表時參考，這也是這個課程最有價值的部份。

ICAO CAR/SAM計劃評鑑的目的和SMS一樣是在要求作業的標準化和藉此機制維持單位的最高品質，也分爲定期、後續與特殊評鑑。但有一樣是國內所沒有的，那就是在空評鑑(In-flight evaluation) 評鑑員坐在駕駛艙裏，從起飛前到落地後對延途的所有ATS單位作無預警評鑑；這可供國內SMS系統的參考。

另外在作法上也還有值得我們參考的地方：

一是它們的評鑑是要對所發現的問題作有足夠深度的調查並定位出問題的層級(Rating A、C、D、I…等)和類別，然後在填表時把應該負責改善的單位層級列上去，所以在單位裏所找到的問題有可能是區域主管(Regional manager)或是FAA應該負責作廣泛改善的，因爲有很多問題是ATS系統性或具有廣泛性的問題並不真的是單位所應該負責解決的，它們有可能只是受害者而已。尤其它們的列等裏面還有一種是〝C〞，就是作的比所要求的還好、值得歌頌的意思。

二是它們在評鑑時如果發現有落在檢查表外的問題，它們也會加以歸類於〝Appended items〞-附掛項目帶回去研究處理，看是否應該修正檢查表或是什麼的。

三是它們特別強調執行評鑑一定要〝Impartial〞-公正，並有 一個具體作法。那就是在到達一個單位時一定要先遞交一份密封的〝Critique〞-評量表給被評鑑單位主管，讓單位主管有機會反過萊將此次評鑑小組的所作所爲加以異議、贊許或發表意見，而且這份評量表是直接寄回給評鑑小組的主管單位的，評鑑小組並不再觸及這份文件，所以才可以杜絕諸如心態不端或知能不足等問題。

四是它們的檢查表有按單位的性質加以分類，像是區域管制或是近場管制、塔臺或是什麼樣的混合編組單位等，所以用起來比較不會有削足適履的感覺。

五是它們的檢查表每一個項目都有標明法源出處和範圍，所以才不會漫無分際、自由延伸；其實就連記載人家缺點時也都會標明出處。

六是它們對問題的列管與追蹤有另外一種表格*(參下圖)*，裏面的項目設計的很實用，尤其是第一列的最右邊兩格，一格是標明問題的性質或應負責處理層級，一格是標明本問題是否已結案問題(若尚未結問題會寫-Open-)，個人覺得應該是很值得採用的作法，提供給SMS作參考。

(接下頁)

Item Title:	APPROACH INFORMATION AND ARRIVAL PROCEDURES	P	Closed
XXX ATCT	Prob Num:	2001-T-XXX-01P	
Problem written: During position monitoring sessions it was observed that arrival aircraft not reporting receipt of ATIS information were provided current weather information only. Other pertinent NOTAM information (contained on the ATIS) regarding operations in the terminal area was not provided.			
Corrective Action	1/14/2002	Y. ME	
All personnel were briefed on the requirements of FAAO 7110.65, Section 3, FAAO 7110.65, and paragraph 4-7-10 through 12. Briefings were completed on September 13, 2001.			
Follow Up Action	1/14/2002	Y. ME	
The Air Traffic Manager, Operations Supervisors, and Staff Support Personnel, and all personnel assigned Quality Assurance Duties monitored compliance through “tape talks” and direct position monitoring, with supervisory on the spot corrections when necessary. Eighteen Tape Talks and Technical Training Discussions were accomplished since the FFE. Focus was placed on pilot receipt of ATIS and Approach information. There was 100% compliance with the requirement to assure the pilot had correct, complete, and timely information. This was documented on all tape talks and TTD's.			
Management Control	1/14/2002	Y. ME	
Ensuring ATIS receipt was placed on the monthly Quality Assurance Evaluation Checklist. The monthly report has noted compliance for each month September through January. The requirement to ensure pilot receipt of this item has been added to the facility semi-annual refresher training agenda. This item was covered during the semi-annual refresher training conducted in November 2001. It is also on the agenda for the February 2002 semi-annual refresher training. Additionally, this was made an emphasis item during semi-annual tape talks and TTDs. The receipt of ATIS and Approach Information was noted as 100% in the 18 tape talk and TTD's conducted since the evaluation.			

十一、另外筆者在課程中也發現，不論是ICAO或FAA在對任何單位或個人作出各種要求之前一定先作好相對的訓練或輔導措施。就說對Team-Work方式的要求，它們就是有一套Team-Work的訓練課程；對個人的要求，就是有一套必需充分告知ATS人員單位對他/她效能(Performance)的期望值(Expectation)的Briefing或 Discussion，尤其是在發生ATS事件之後。所以事情並不光只是知道去要求而已。

十二、有趣的是，在上完課之後個也人發現在CAR/SAM_QA計劃裡並沒有文件管理(Document Management)這一個項目，覺得很奇怪；於是就回頭翻一翻SMS的文件，結果發現所謂的文件管理(Document Management)其實是澳洲人自己加上去的項目(可能是根據ISO9001/ISO9004)，ICAO在SMS裡並沒有作過這樣的要求。只有在歐洲的計畫裡*(參European Action Plan for the prevention of Runway Incursions; Page H.9 of 9 -4.2.4節)*有見到相關於SMS文件管理的簡單敘述，但也僅只於攸關安全的文件而已，提供航管組和總臺修訂文件管理列表和規則使用。

伍、建議事項

因本人自服公職以來都是在最基層的執行單位中任職，對各上級行政或業務單位之所做得到或所做不到的能力狀況並不明瞭，爲避免因信口雌黃而造成各單位無謂困擾起見，本人不擬提出任何建議。

陸、附錄

一、參考書目：

a. ICAO- CAR/SAM Regional Guidance Material On Air Traffic Services Quality Assurance Programes
(http://www.icao.int//nacc/edocs/regionguid_atsqap.pdf)

b. FAA-Order 7120.56c
(http://www.faa.gov/atpubs/ATQ/INDEX.htm)

二、結訓證書：

U.S. DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

This is to certify that

YI-CHENG LI

has satisfactorily completed the

AIR TRAFFIC QUALITY ASSURANCE PROGRAM (INTERNATIONAL) conducted by the

FAA Academy

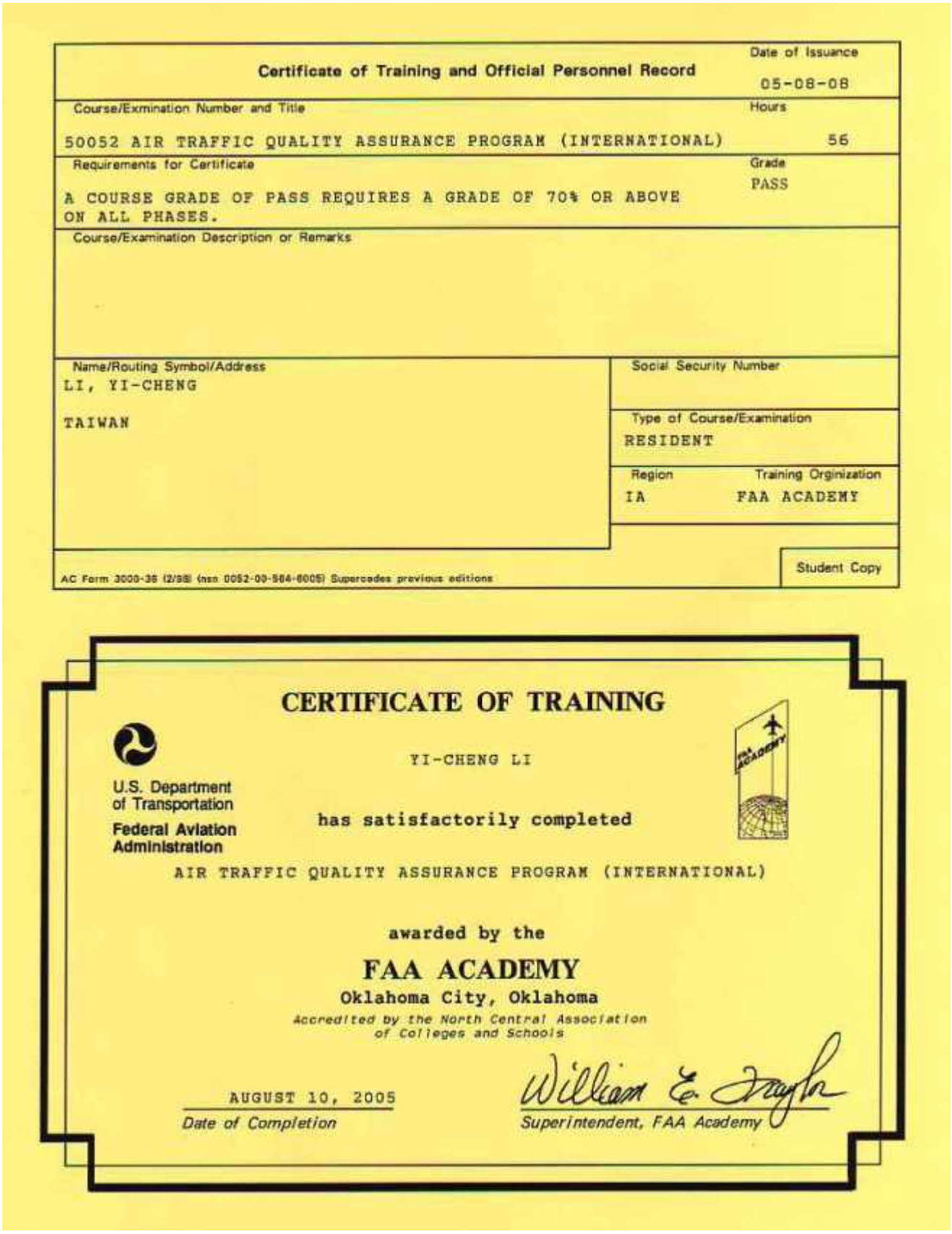
AUGUST 10, 2005

Date

William E. Taylor

Superintendent, FAA Academy

三、學分證書：



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Grade: PASS

Course/Examination Description or Remarks:

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TAIWAN

Social Security Number:

Type of Course/Examination: RESIDENT

Region: IA

Training Orginization: FAA ACADEMY

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Federal Aviation Administration

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Oklahoma City, Oklahoma

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AUGUST 10, 2005
Date of Completion

William E. Taylor
Superintendent, FAA Academy