LOS ANGELES POLICE DEPARTMENT
Aircrew Course
1850-23550 (40 Hour)

Instructional Goals: Introduce the student to Airborne Law Enforcement and preparation for a Tactical Flight Officer candidate. Provide students with an overview of the evolution of Airborne Law Enforcement including technical advances in available equipment for the Tactical Flight Officer. Expose the student to challenges of the Tactical Flight Officer position, crew resource management, risk management, emergency procedures and hazards. The student will receive information in handling pursuits, surveillance, mobile field force, Aerial Platform Tactics, K9 resources and suspect tactics in addition to Air Support to Regular Operations (ASTRO).

Performance Objectives:

- Overview of course and safety guidelines
- Student understands safety briefs and fire watch
- Student understands benefit of Airborne Law Enforcement
- Student has an understanding of how to prepare for the Tactical Flight Officer position and the challenges of the unique position
- Student will understand responsibilities of a crew member, crew resource management and situational awareness
- Student will become familiar with hazards of flight including lasers, fire and emergency procedures
- Student will gain an understanding of microwave downlink, thermal imaging and other available technologies
- Student will become familiar with suspect tactics, pursuit policy and tactics, surveillance, K9 operations, Mobile Field Force procedures/policies and aerial platform tactics.

Day-1

I. ORIENTATION/OPENING REMARKS/SAFETY BRIEFING 0700-0800 (60 Min)

A. Welcoming Remarks
B. Introduction of Students
C. Introduction of Instructors
    1. Name, assignment
    2. Experience
D. Overview of Course
E. Safety Guidelines
    1. Provide Safety Policy to Students
    2. Response to Injury
    3. Review of Safety Policy

II. Facility Tour 0800-0900 (60 Min)

A. Learning Activity - Tour- This tour will be used to acclimate students to the Heliport. Students will be continuously monitored throughout tour. Students will be shown the following equipment and locations:

1. Safety Equipment (Brief overview only. Additional detail regarding safety equipment later in the course)
    a. Exits
    b. Fire Extinguishers
    c. Fire Fighting Systems
    d. First Aid Stations
    e. Automated External Defibrillator (**AED**)
    f. Eyewash Stations
2. Designated Areas

B. Tour ends at hanger

1. Questions and Answers

III. Passenger Safety Brief / Fire Watch 0900-1100 (120 Min)

A. Fire-watch Safety (This will take place in the hanger. During this section, Instructors will utilize a static aircraft as a visual aid to reinforce the following topics. Students will not enter the aircraft. Students will return to the classroom after the Safety Briefing).

1. Situational Awareness
    a. Ensure no immediate hazards exist around the aircraft
    b. Environment is in a safe condition to start aircraft
2. The aircraft is in a safe condition for flight
    a. Equipment is properly secured
    b. No leaks are detected on start-up
    c. Inspect condition of ground around the aircraft
    d. There is no fire or excessive smoke on start-up
    e. Seat belts are secured and not dangling outside aircraft
3. Discuss how to address problems on start-up
    a. What to do in the event of fire
    b. How to respond to leaks
4. Fire-watch Portion Complete. Students will be escorted back to class.

B. **Passenger Safety Briefing**

1. Importance of Release of Liability Form (Provided to Students)
2. Review Air Support Passenger Safety Briefing Form[1] (Provided to Students)
    a. Introduction of Crewmembers
    b. Flight Data
    c. Hearing Protection provided
        1) Foam ear-plugs
        2) Headset for communications once inside the aircraft
    d. Sick Sack provided (open before needed)
    e. Explain the normal operation of the aircraft door latches to the passengers
    f. Aircraft Seating – where each person will sit
        1) Proper use of seatbelts
        2) Explanation of the different types of movement that occur during flight
    g. Equipment security during flight
    h. No Smoking in or around aircraft
    i. Weapons and Firearms Safety
    j. How to safely enter the aircraft
        1) Tail rotor area prohibited
    k. Internal Communication Systems (**ICS**) in aircraft
    l. What to do in the event of an emergency landing or hard landing
        1) Fire
            a) Follow the instructions of the crew
            b) If personnel must evacuate the aircraft due to fire, maintain rotor awareness
        2) Meeting Location upon emergency evacuation
    m. Location of the onboard Emergency Equipment
3. Answer any questions that may remain.

1100-1200 Lunch

[1] Air Support Passenger Safety Briefing Form

IV. History of Airborne Law Enforcement 1200-1300 (60 Min)

A. LEARNING ACTIVITY: A video[2] will be played that shows a historical summary of the evolution of Airborne Law Enforcement (**ALE**) and the advancements that have been made in the field of Air support operations.

B. Airborne Law Enforcement
   1. History
      a. Began in the late 1940's with the New York City Police Department
      b. The LAPD began an experimental Police Helicopter program in 1956 to assist with traffic enforcement support
   2. Evolution of Air Support
      a. Multi-purpose use
         1) Officers recognized the variable capabilities of Air Support operations
         2) Officers began to use Air support for other law enforcement activities besides traffic enforcement
      b. Two additional Helicopters were acquired
      c. Additional Officers were assigned in support of the new concept
   3. 1965 Watt's riots
      a. Air Support proved its value again reinforcing the need for Air Support
      b. Air Support improved efficiency of Law Enforcement Operations
         1) Improved community safety
         2) Improved officer safety

C. Air Support to Regular Operations (ASTRO)
   1. In 1969 the ASTRO program began
   2. Jet Propulsion Laboratory (JPL) completed a study to determine the effectiveness of the ASTRO program
      a. On July 27th, 1970 "The Effective Analysis of Helicopter Patrols[3]" was released by JPL.
      b. ASTRO was considered a huge success in support of impacting public safety.
   3. Expansion of the Helicopter Section

[2] This video (12 min) was created by Reserve Officer Glenn Grossman, Air Support Division (**ASD**) in July 2001 for and to be used by Los Angeles Police Department Air Support Division for training purposes. The video is property of the Los Angeles Police Department.
[3] JPL Document 650-89 (NASA-CR-164740)

a. In 1974 the Helicopter Section was renamed “Air Support Division” (**ASD**)
b. Ten helicopters (10) were added to the fleet now consisting of (15) helicopters (1974)

4. Helicopter “Observers” were permanently assigned to ASD
5. Special Flight Sections (SFS) was added in1976

D. Hooper Memorial Heliport
1. In 1983 ASD moved to Hooper Memorial Heliport, located at the Piper Technical Building
2. Largest rooftop heliport in the world

E. Helicopter Observer’s evolution to Tactical Flight Officer (TFO)

F. Technological advances

G. Observer Position
1. Observer position was re-named Tactical Flight Officer (TFO) as a result of the study

H. Tactical Flight Officer

I. Closing
1. Tactical Flight Officer position is extremely demanding
2. Assignment has evolved into one of the most complex assignments in Law Enforcement
3. There have been many technological advances during the nearly 60-year evolution of Air Support Division
4. Well trained Police Officers in a Helicopter are the most important component of Air Support operations

V. Tactical Flight Officer (TFO) Loan Preparation 1300-1400 (60 Min)

A. Preparing for a TFO loan

B. Map preparation prior to a loan as a TFO

C. Logistical development skills
1. Landmark recognition

D. TFO assignment impacts many people
1. Used as support to various law enforcement activities
2. Higher volume of law enforcement activity in comparison to other assignments within the Police Department
3. Field Officer Safety
4. Community Safety

E. TFO workload management
    1. The Tactical Flight Officer has multiple responsibilities
    2. Cock-pit organization is important
F. Learning activity: *Map book Set-up* – Students will learn the importance of a well-organized map. Students will then be given an example of an organized map page that is highlighted and asked to compare.
    1. Organized map can provide quicker location discovery
    2. Effective Navigation
    3. Condensing map by removing un-necessary pages can make map more efficient
G. Map Skills (Thomas Brothers Guide Map Book[4])
    1. Map book Orientation
        a. Review the street index
        b. Symbol interpretation (Legend) - Direct students to the legend in the book
    2. Page finder
    3. Airport map
    4. Abbreviation Page (list of abbreviations)
    5. Grid Coordinates
H. Learning activity: Students will be broken into groups of 5. The group will be asked to look up a location.
I. Learning Activity: Students will be asked to look up location.
    1. Instructor will demonstrate
    2. Debrief Activity
    3. Questions and Answers
J. Case Studies: Los Angeles Police Department events will be debriefed with the group to further demonstrate how map skills and understanding of your City can impact safety, save lives and lead to arrests by aircrews.
K. Radio Channel Orientation
L. Closing: Some of the TFO skills can best be learned before entering the airborne environment.

VI. Tactical Flight Officer Ground School 1400-1600 (120 Min)

A. TFO Ground School overview
    1. Safety Equipment

[4] 2006 Los Angeles County Thomas Brothers/ Rand McNally Guide

2. Situational Awareness
3. Radio Set-ups and Usage
4. Workload Management
5. Map Discipline
6. Navigation
7. Topography
8. Documentation

B. Learning Activity: Students will be shown a visual aid of the following safety equipment:
    1. Nomex flight suit and gloves
        a. Authorized Flight Boots
        b. Helmet
        c. Skull cap
    2. Proper use and wear will be demonstrated by an instructor
    3. Care and Instruction for equipment
    4. On duty gear
    5. Oleoresin Capsicum (OC) in the aircraft
C. Situational awareness
    1. Flight deck hazards
        a. Foreign Objects and Debris (**FOD**)
        b. Fuel storage and operations
    2. Maintenance activity refers to the proactive effort that takes place by the TFO to ensure that any surrounding area they come in contact with is safe.
    3. In flight emergencies
D. Radio set up and usage. Reinforce necessity to have knowledge of various frequencies.
    1. “Indexing radios”- Correctly setting up radios for efficiency so that switch radio frequencies more seamlessly
E. Workload management
F. Map discipline
    1. Update map page to the area they are flying over
G. Pictures are provided of examples of what needs to be documented on the knee board
    1. Tracking log of incidents that will go on the Daily Field Activity Reports (**DFAR**)
    2. Tactical
H. Navigation (Each one of these uses photographs to reinforce the concepts)
    1. The value of landmarks
    2. “The count” technique is used during communication with the pilot

3. The techniques referenced are tools that TFOs have available for navigation assistance. One or all may be combined to assist in navigation.
4. Proficiency in navigation assists with workload management.

I. Communications
1. Descriptive efficient communication allows the pilot to visualize the area they need to fly to
2. By "Painting the picture" a TFO can communicate more clearly
3. Clear concise communication is important and allows for safe and effective teamwork between pilot and TFO
4. Tactical communication

J. Closing - As a TFO your Aircrew has the ability to improve various situations.

Day-2

VII. Laser Threats **0700-0800 (60 Min)**

A. Laser background
1. Research
a. On 1/19/11 the Federal Aviation Administration (**FAA**) Announces Record Number of Laser Events in 2010
b. "Pointing Lasers at Aircraft Poses a Serious Safety Issue"
c. The FAA is actively warning people not to point high-powered lasers at aircraft because they can damage a pilot's eyes or cause temporary blindness
2. Strikes on The Rise
a. Nationwide, laser event reports have steadily increased since the FAA created a formal reporting system in 2005 to collect information from pilots

B. FAA Publication- "Laser Hazards in Navigable Airspace"[5]
1. According to the FAA brochure, Laser Hazards in Navigable Airspace, "The increase in reports is likely due to a number of factors, including the availability of inexpensive laser devices on the Internet."
2. "The latest reports indicate that aircraft illuminations by handheld lasers are primarily green (91%) in color, as opposed to red (6.3%), which was more common a few years ago."

C. Laser Events

[5] FAA questionnaire that can be located at the following website- http://www.faa.gov/pilots/safety/pilotsafetybrochures/media/laser_hazards_web.pdf

1. Laser events can occur anywhere

D. Light Amplification by Stimulated Emission of Radiation
   1. "Some lasers can reach a range of distance from 500 feet to 2600 feet

E. Laser Law
   1. California Penal Code- Section 247.5- Any person who willfully and maliciously discharges a laser at an aircraft, whether in motion or in flight, while occupied, is guilty of a violation of this section, which shall be punishable as either a misdemeanor by imprisonment in the county jail for not more than one year or by a fine of $1,000 or a felony by imprisonment in the state prison for 16 months, two years, or three years, or by a fine of $2,000.

F. Federal Law
   1. 18 USC 32 - Destruction of aircraft or aircraft facilities (a) Whoever willfully— (5) interferes with or disables, with intent to endanger the safety of any person or with a reckless disregard for the safety of human life, anyone engaged in the authorized operation of such aircraft or any air navigation facility aiding in the navigation of any such aircraft; Shall be fined under this title or imprisoned not more than twenty years or both.

G. Federal Law
   1. 18 United States Code § 39 (a) - *The `Securing Aircraft Cockpits Against Lasers Act of 2011'.* Sec. 39A. Aiming a laser pointer at an aircraft:

H. Reporting procedures

I. Investigative Steps

J. Prosecution

K. www.wickedlasers.com- this website sells many different lasers that have the ability to be seen from outer space, burn holes in material from across the room and, pop balloons.

L. Case Study: Dana Welch Incident - On May 21, 2008: Multiple Laser strikes in Orange County, 7 Miles North of John Wayne Airport (SNA)
   As a result the FAA Tower Contacts "EAGLE" Law Enforcement Helicopter at 10:40 p.m. EAGLE reports laser strike and contacts the Orange Police Department.
   Orange Police Department responded to area of occurrence and made contact with Welch. During the course of the investigation Welch showed that he had intent and consciousness of Guilt. Welch lied to officers and agents several times about shining a laser and about owning a laser. Welch claimed that he had never seen a green laser and hid the laser pointer. According to Welch he "decided to put the laser away because he was concerned about getting into trouble." During this incident the Alaska Air Pilots advised that they: "had

to lower their heads below the windshield…to protect their eyes." The Alaska Captain's left eye "stung for the duration of that evening." The United flight Captain advised that they turned away immediately/was distracted—the beam was "the brightness of the sun." The Flight Officer advised that they had a blind spot in his eye for a few seconds.

VIII. Emergency Flight Training 0800-0900 (60 Min)

A. Purpose of training
    1. Provide Basic information of procedures that may take place if the pilot becomes incapacitated
    2. Provide the TFO with Ground and Flight Training that may
    3. Advise the importance of exposing TFOs to this training prior to flight operations
B. Basic Ground School for Flight Operations (Classroom)
    1. Scope of Training overview
    2. Familiarize the TFO with the functions of the controls inside the helicopter
    3. Familiarize the TFO with basic communication procedures
    4. This incident requires a "sterile cockpit" environment
C. Aircraft Orientation
    1. Inspections
    2. APU/Battery Cart Procedure
    3. Fire Guard Responsibilities
    4. Limitations of Aircraft
    5. Ground handling of the aircraft
D. Flight Training (Not live training, discussion only)
    1. Orientation/Function of Controls
    2. Overview of skills that will be demonstrated during actual flight training
E. Emergency Flight Training – If the pilot becomes incapacitated (Discussion only.)

IX. Aviation FIRE THREATS 0900-1100 (120 Min)

A. Personnel Responsibilities
    1. All personnel in a live fight environment are expected to have knowledge and respond to fire threats.
    2. Watch Commander role
    3. Aircraft and Building Fires at the Heliport
    4. Tower Operator Duties
B. During an Evacuation Plan the following should be considered:

1. Personnel Staging Area
2. Injured Personnel (Triage Area)
3. Selection of areas such as personnel and triage area
4. Staggered Withdrawal- The movement away from an emergency designed to ensure complete personnel evacuation in an efficient manner.

C. Personnel Training (Classroom description of what training is received)
   1. Indoctrination – Students will come to understand the importance of Safety Procedures and the continuous reinforcement of emergency training
   2. Fire/Rescue Drills include all actions incidental to the announcement of a fictitious emergency
      a. Responsibilities for the duration of any drill rest with all Air Support Division Personnel.
      b. Recurrent Training Cycles for drills should be conducted for personnel in active flight environments
   3. Importance of fire safety systems
      a. Documentation
      b. Reinforce the importance of fire system testing

D. Hooper Heliport Fire Fighting System (During this section pictures will be used as visual aids. All of these systems were also shown during the tour)

E. Classifications of Fires
   1. Four Classifications of fires have been established
      a. Class A Fires – Cloth, plastic and rubber
      b. Class B Fires - Flammable Liquids
      c. Class C Fires - Energized electrical equipment
      d. Class D Fires - Combustible metals

F. Firefighting and Rescue
   1. For all aircraft emergencies
   2. Fuel Spills or Fuel Fires
   3. Uninvolved Fuel Tanks
   4. Turbine Engine Compartments
   5. Fuselage Fires Rescue

1100-1200 Lunch

X. Risk Management **1200-1400 (120 Min)**

A. Introduction

1. Risk Management Definition - The process of identifying, assessing, controlling risks and making decisions that balance risk costs with mission benefits
2. Background of Risk Management
    a. Safety vs. Risk

B. Principles of Risk Management

C. Risk Management Process
1. Identify hazards
2. Assess hazards to determine initial risk
3. Make the Decision
4. Implement controls
5. Supervise the mission and evaluate the effectiveness of the controls.

D. Elements of Risk
1. Probability Categories:
    a. A - Frequent
    b. B - Likely
    c. C - Occasional
    d. D - Seldom
    e. E – Unlikely
2. Severity Categories:
    a. I – Catastrophic
    b. II – Critical
    c. III – Marginal
    d. IV – Negligible

E. Risk Matrix

F. Closing: Instructor will provide three risk management examples to reinforce the importance of risk management process

XI. Aircraft Marshalling 1400-1500 (60 Min)

A. Introduction
1. Definition - Aircraft marshalling is visual signaling between ground personnel and pilots on an airport or helipad. Marshalling is one-on-one visual communication and a part of aircraft ground handling. It may be as an alternative to, or additional to, radio communications between the aircraft and air traffic control or ground crew
2. Scope and use of hand signals
3. Sources

a. US Army
b. LAPD 2013 Air Support Manual

B. Fundamentals
1. Understand what each signal means
2. Interpretation of signal by the crew
3. Hand off – relinquishing of signal responsibilities to someone else

C. Hand Signals (demonstrated by the instructor physically)

D. Safety Hazards during hand signals

XII. Suspects Tactics **1500-1600 (60 Min)**

Day-3

Suspect Tactics **0700-1100 (240 Min)**

1100-1200 Lunch

Suspect Tactics **1200-1600 (240 Min)**

a. Suspect Tactics and Perimeter Containment
b. Foot Pursuits
c. Officer's Tactics
i. Foot Pursuits
ii. Perimeter established
iii. Hiding locations for suspects
d. Tactics used by suspects to exit containment
e. Perimeter containment
i. Definition
ii. Law Enforcement
iii. Foot pursuit vs. Perimeter Containment
iv. Communication
v. Determining the size of perimeter
vi. After the perimeter is set
f. Evaluate what resources are required
g. Field Supervisor/Command Post (CP) responsibilities
h. Thermal Equipment
i. Basics of Communication
j. Closing

Day-4

XIII. Microwave Downlink 0700-0900 (120 Min)

a. Air Support Division Microwave downlink program
    i. Historically microwave downlink has been used for pre-planned major events
    ii. Strategy has evolved into utilizing downlink to support spontaneous tactical events
    iii. Downlink can be deployed to provide situational awareness on any event that impacts Public Safety in the City of Los Angeles
b. LAPD's microwave downlink system
    i. Aircraft mounted components
    ii. Receive systems
c. Tactical Considerations and education of Command Staff on how to utilize video downlink
    i. Learning Activity: During this activity, an aircraft with Downlink capabilities will be launched and sent a few miles from the heliport. The Aircrew will transmit video from the aircraft to the classroom. During this activity, the Aircrew will demonstrate the benefits of the Downlink System and how it provides situational awareness to an incident.
    ii. Discussion: The instructor will stimulate a discussion about the following topics:
        1. Benefits of using the downlink system
        2. Lessons students learned about the downlink system

XIV. Crew Resource Management (CRM) 0900-1100 (120 Min)

a. Crew Resource Management (**CRM**)
    i. Working together as a team to improve mission performance and improve safety.
    ii. Synergy (teamwork)
    iii. Background and Concept
    iv. CRM Objectives and Concepts
    v. Training for CRM
    vi. Leadership
    vii. Barriers to CRM
    viii. LEARNING ACTIVITY: Instructor will provide the following scenarios to the class. (Described below). The class will then dissect the scenarios and determine what CRM factors played a role in each scenario.

1. Scenario No. 1 - Wire Strike - Aircrew while flying in a canyon impact with power lines due to over confidence. Aircraft was outside the City limits and not following safety guidelines. A ride along was also on board.
2. Scenario No. 2- Rooftop landing- Pilot begins to land on a roof without completing high and low reconnaissance to look for obstructions on roof. Failed to act on communication from partner who expressed concerns. Pilot nearly caused an accident by ignoring partner almost landing on a roof where people were present.

b. Conclusion
   i. Scenario
   ii. Practicing CRM

1100-1200 Lunch

XV. Thermal Imaging and FLIR Tactics **1200-1400 (120 Min)**

a. History and concept of Electromagnetic Radiation
b. Electromagnetic Spectrum
c. Characteristics of Infra-Red Energy
d. Kirchhoff's Law of EMR
e. Solar Loading
f. IR TACTICS

XVI. Pursuit Policy and Tactics **1400-1600 (120 Min)**

a. Pursuit Policy
b. Pursuit Tactics for Air Support
c. Discontinuing the Pursuit
d. LEARNING ACTIVITY

Day-5

XVII. Surveillance **0700-0900 (120 Min)**

a. Support missions
b. Equipment
c. Aircraft position

XVIII. Mobile Field Force **0900-1000 (60 Min)**

a. Mobile Field Force Operations
   i. Squad Formations

b. The Mobile Field Force Concept

c. Immediate Action Rapid Deployment (IARD)

XIX. K9 Procedures **1000-1100 (60 Min)**

a. Guidelines for K-9 searches

b. K-9 Search Announcement

c. Search by outside agency K-9 teams

d. Perimeter Response by K-9

e. The K-9 search

f. Transportation of K-9 personnel and equipment in Department aircraft

1100-1200 Lunch

XX. Case Law and Courtroom Testimony **1200-1400 (120 Min)**

A. Correctly apply Department policies and procedures

B. Equipment utilized

C. Demonstrate how benches are attached to the helicopter

XXI. Conclusion/Class Review/ POST Test **1400-1600 (120 Min)**

a. Observe an operational flight with a qualified aircrew

b. Questions/Answer Session

c. Test

d. Closing Remarks

i. Certificates

ii. Class dismissal