

Air Traffic Control Doctrine

4.1 RESPONSIBILITIES

4.1.1 Operations Officer

As defined by Navy regulations, the operations officer shall be responsible for the control of airborne aircraft except when control is assigned to other authority. This control refers to all airborne operations not incidental to the actual launch or recovery of aircraft.

4.1.2 Air Operations Officer

The air operations officer is responsible to the operations officer for coordination of all matters pertaining to flight operations, the proper functioning of the CATCC and shall determine the type of approach and required degree of control.

4.1.3 Air Officer

The air officer determines the case launch and/or recovery. The air officer is also responsible for visual control of all aircraft operating in the carrier control zone. Under Case I and II conditions, this responsibility may be extended beyond the carrier control zone to include all aircraft that have been switched to air officer's control frequency. For special operations such as bombing a sled or air demonstrations, the air officer may exercise control outside of the carrier control zone. Additionally, the air officer is the carrier control zone clearing authority. Agents desiring to operate aircraft within the control zone must obtain the air officer's approval prior to entry. This clearance shall

include the following:

1. Operating instructions as required for avoiding other traffic
2. Information concerning hazardous conditions
3. Altitude and distance limitations to which aircraft may be operated.

4.1.4 Landing Signal Officer

The LSO, under supervision of the air officer, is responsible for the visual control of aircraft in the terminal phase of the approach immediately prior to landing. LSO specific responsibilities are delineated in the LSO NATOPS Manual (NAVAIR 00-80T-104).

4.1.5 Landing Signalman Enlisted

The LSE, under the supervision of the air officer, is to ensure helicopters, on signal, are safely started, engaged, launched, recovered, and shut down. The LSE receives his directions from PriFly via light signals and/or two-way flight deck communications. It is his responsibility to ensure all tiedowns are removed prior to lift-off and that the aircraft is properly secured after landing. All signals given by the LSE are advisory with the exception of the "waveoff" and "hold," which in all cases are mandatory. During vertical replenishment operations, the LSE directs the helicopter over the deck and provides signals for the delivery and hookup of cargo. Ensure LSE and Army aircrews are familiar with engagement/disengagement procedures of rotors, prior to recovery/launch operations.

4.1.6 Pilots

As directed by OPNAVINST 3710.7 series, the pilot is responsible for the safe and orderly conduct of the flight. The success of carrier operations largely depends upon his knowledge of and adherence to the procedures contained herein. Any necessary deviation from these procedures or from control instructions shall be reported to the controlling agency immediately so that allowances can be made.

4.1.7 Combat Direction Center Officer

The CDC officer is responsible for mission control of aircraft assigned to him. This includes providing separation from other aircraft operations in the vicinity of the carrier and ensuring intercept/mission controllers know the basic procedures for air traffic control. Additionally, he shall ensure these controllers know their responsibility for traffic advisories to aircraft operating in visual conditions and for safe separation of aircraft operating in instrument conditions. Upon request, he shall provide information concerning areas of special operations, such as air-to-surface weapon drops and air-to-air missile shoots.

4.2 CONTROL CRITERIA

Weather in the carrier control zone is the most prominent factor affecting the type of departure and/or recovery. There are three types of departure and recovery operations, which are referred to as Case I, Case II, and Case III.

The air officer, unless otherwise specified by higher authority, determines what case launch and/or recovery will be exercised using the following weather minimums:

Case I: When it is anticipated that flights will not encounter instrument conditions during daytime departures, recoveries, and the ceiling and visibility in the carrier control zone are no lower than 3,000 feet and 5 nm respectively.

Case II: When it is anticipated that flights may encounter instrument conditions during a daytime departure or recovery, and the ceiling and visibility in the carrier control zone are no lower than 1,000 feet and 5 nm respectively.

Case III: When it is anticipated that flights will encounter instrument conditions during a departure or recovery

because the ceiling or visibility in the carrier control zone are lower than 1,000 feet and 5 nm respectively; or a nighttime departure or recovery (one-half hour after sunset and one-half hour before sunrise).

4.2.1 Degrees of Control

The four degrees of control are positive, advisory, monitor, and nonradar control.

4.2.1.1 Positive Control

This control shall be utilized under the following conditions:

1. Ceiling of:
 - Less than 1,000 feet for fixed-wing aircraft
 - Less than 500 feet for helicopter operations.
2. Forward flight visibility of:
 - Less than 5 miles for fixed-wing operations
 - One mile or less for helicopter operations.
3. All flight operations between one-half hour after sunset and one-half hour before sunrise except as modified by the OTC or carrier commanding officer.
4. During mandatory letdown in thunderstorm areas.
5. In other situations where supervisory personnel can anticipate weather phenomena that might cause difficulty to pilots.

4.2.1.2 Advisory Control

This control shall be utilized when the traffic density in an operating area requires a higher degree of control for safety of flight than required under visual flight rules. Advisory control is normally limited to VMC and is recommended for all operations in or adjacent to oceanic control areas or routes. Traffic separation is the responsibility of the individual pilot with assistance provided by the controlling agency.

4.2.1.3 Monitor Control

This control shall be utilized only when aircraft are operating VMC outside controlled airspace and the responsibility for separation from other traffic can be safely assumed by the pilot.

4.2.1.4 Nonradar Control

This control shall be used when shipboard radar is inoperative or so degraded as to be inadequate to provide radar separation of air traffic under conditions normally requiring positive control. The decision to attempt control of aircraft at night or in instrument flight conditions must be made with careful consideration of such factors as the following:

1. Actual meteorological conditions
2. Degree of radar degradation
3. Expected duration of radar degradation
4. Fuel states and tanker fuel available for delays
5. Divert field considerations
6. Operational requirement
7. Departure/recovery in progress at the time a nonradar environment develops
8. Availability of other surface or airborne platforms to provide radar traffic separation and approach information.

4.2.2 Electronic Emission Control

The operations officer shall be responsible for EMCON in accordance with NWP 1-10.22 Volume I, NTTP 3-51.1, effective operation orders, and other governing directives. It may be necessary to develop special procedures for performing the following operations during EMCON conditions:

1. Aircraft handling
2. Launch
3. Departure
4. Mission
5. Arrival
6. Recovery
7. Maintenance.

COD aircraft will attempt to establish communications en route prior to arriving on station. If no radio contact is made the COD will return to base.

Detailed briefings covering responsibilities and procedures shall be conducted prior to operating under EMCON conditions. All flight crewmembers, controllers, aircraft handling personnel, and flight deck ordnance coordinators shall attend such briefings and familiarize themselves with all procedures within their area of responsibility. Overhead messages shall include applicable EMCON instructions.

The operations officer shall be responsible for setting the proper HERO conditions for control of radar and radio emissions while handling ordnance susceptible to RF energy. The air officer shall establish procedures for alerting flight deck ordnance personnel when the appropriate HERO conditions have been set.

4.3 SEPARATION CRITERIA

The following separation standards shall be utilized for aircraft under positive control. These restrictions do not apply to tactical maneuvers such as air intercept, rendezvous, and close USW action.

4.3.1 Lateral Separation

1. The following separation standards apply to aircraft controlled by designated air search radars that rotate in excess of 7 rpm.
 - Aircraft operating at 50 miles or more from the monitoring antenna shall be separated by a minimum of 5 miles.
 - Aircraft operating less than 50 miles from the monitoring antenna shall be separated by a minimum of 3 miles.
 - Aircraft on a designated approach or established downwind and inside of 12 miles shall be separated by a minimum of 2 miles. Aircraft established on final within 5 miles shall be separated a minimum of 1-1/2 miles.

2. Aircraft provided positive control with all other radars shall be separated by a minimum of 5 miles.
3. Aircraft provided nonradar control, utilizing a published approach, should be separated by 2 minutes (5 miles separation when using DME).

4.3.2 Vertical Separation

1. Jet and turbopropeller (turboprop) aircraft operating at altitudes up to and including FL 290 shall be separated by 1,000 feet.
2. Vertical separation may be reduced to 800 feet when inside of 12 nm.
 - Receiver aircraft being provided positive control shall be separated by a minimum of 500 feet vertically from tanker aircraft until visual separation between the two aircraft can be maintained.
3. Aircraft operating above FL 290 shall be separated by 2,000 feet.
4. Helicopters shall be separated by 500 feet.

4.4 COMMUNICATION CONTROL

All aircraft are considered under positive communication control while operating at sea unless otherwise directed.

Pilots shall not shift frequencies without notifying and/or obtaining permission from the controlling agency.

Communication procedure during ZIP LIP/EMCON conditions shall be specified during preflight briefing.

4.4.1 Control of Radio Circuits

Control of radio circuits shall be exercised as follows:

4.4.1.1 CATCC

1. Primary control of ship-shore air traffic control administrative frequencies
2. Primary control of assigned CCA frequencies
3. Secondary control of aircraft guard frequencies
4. Secondary control of land/launch frequencies
5. Secondary control of air tactical frequencies.

4.4.1.2 CDC

1. Primary control of all air tactical frequencies
2. Primary control of aircraft guard frequencies
3. Secondary control of ship-shore air traffic control administrative frequencies.

4.4.1.3 PriFly

1. Primary control of land/launch frequencies
2. Secondary control of aircraft guard frequencies
3. Secondary control of departure control and final approach frequencies.

4.4.2 Voice Procedures

Strict radio discipline is mandatory. Voice procedures must be concise and should not vary appreciably from standard

air traffic control phraseology as set forth in the Carrier Air Traffic Control Handbook NAVAIR AE-CVATC-

OPM-000, FAA Order 7110.65 and ACP 165. Ship's call sign shall be used on initial contact with marshal. Squadron

tactical call signs should always be used to prevent confusion.

4.4.3 Recording of Radio Circuits

Radio circuits used for the control of air traffic shall be recorded continuously during hours of operation. CATCC

shall ensure PriFly frequencies are recorded during Case I/Case II operations.

4.4.4 Communication Security

COMSEC is best accomplished by strict adherence to established principles of radio discipline. Additionally, secure

voice radio equipment in naval aircraft and carriers offers a significant COMSEC capability that should be utilized

to the greatest extent practicable. All units with COMSEC capability should develop tactical doctrine

designed to deny SIGINT forces access to vital intelligence. Detailed functional descriptions of COMSEC equipments are found in pertinent classified documents.

All personnel who have access to radio equipment must be briefed that certain restrictions exist on all radio transmissions to prevent disclosure of EEFI to the enemy.

4.5 EMERGENCY CONTROL PROCEDURES

From a control standpoint, aircraft emergencies fall in the following three broad categories:

1. Communication failures
2. NAVAID failures
3. Other aircraft system failures.

The nature of some emergencies requires priority and/or diversionary measures. The ultimate resolution of these emergencies involves a command decision based upon the type of emergency and weather conditions in the recovery area. It is imperative that the controlling agency collect every pertinent detail that might aid in the evaluation of an emergency and keep the command and other interested agencies properly informed.

4.5.1 Initial Control Responsibility

The initial control responsibility for aircraft emergencies rests with the agency exercising control of the aircraft when the emergency occurs. Aircraft in a state of emergency within visual range of the ship will normally be controlled by the air officer. Outside the visual range of the ship, aircraft in an emergency shall be controlled by either CDC or CATCC. Aircraft in distress should not change radio frequencies if satisfactory radio contact is established.

4.5.2 Basic Procedures

The procedures for pilots to follow when experiencing communications and/or navigation equipment failures are listed in Figure 4-1. Controlling agencies shall be familiar with and alert for conditions indicating communication or navigation failures and perform the following as appropriate:

1. Attempt to establish communications with the aircraft.
2. Vector the aircraft as appropriate.

If unable to communicate with the aircraft in difficulty:

1. Identify on radar and maintain a track.
2. Vector available aircraft to join if practical.
3. Alert air operations watch officer and PriFly.
4. Broadcast instructions and essential information on normal control frequencies and guard. Emergency procedures during penetration or letdown are covered in Chapter 6. Emergency procedures for aircraft system failures are covered in the appropriate aircraft NATOPS flight manual. Lost communication emergency squawks are listed in Figure 4-2.

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