

# **BRIEFING GUIDE**

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

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**1. PARAGRAPH NUMBER AND TITLE:**

- 1-2-6. ABBREVIATIONS
- 2-1-9. REPORTING ESSENTIAL FLIGHT INFORMATION
- 10-6-4. INFLIGHT CONTINGENCIES
- 10-7-1. INFORMATION RELAY
- 10-7-5. EXTENDED NOTIFICATION

**2. BACKGROUND:** The Federal Women’s Program (FWP) made the determination that the term Notice to Airmen did not represent all aviators. Hence, the term itself is modified to show gender neutrality.

**3. CHANGE:**

**OLD**

**1-2-6. ABBREVIATIONS**

As used in this order, the abbreviations listed below have the following meanings indicated. (See TBL 1-2-1.)

*TBL 1-2-1*

**FAA Order JO 7110.65 Abbreviations**

NOTAM . . . . . Notice to Airmen

**OLD**

**2-1-9. REPORTING ESSENTIAL FLIGHT INFORMATION**

Report as soon as possible to the appropriate FSS, airport manager’s office, ARTCC, approach control facility, operations office, or military operations office any information concerning components of the NAS or any flight conditions which may have an adverse effect on air safety.

**NOTE-**  
*FSSs are responsible for classifying and disseminating Notices to Airmen.*

**REFERENCE-**  
*FAA Order JO 7110.65, Para 3-3-3, Timely Information.  
FAA Order JO 7110.65, Para 5-1-6, Service Limitations.  
FAA Order JO 7210.3, Para 3-1-2, Periodic Maintenance.  
USN, See OPNAVINST 3721.30.*

**OLD**

**10-6-4. INFLIGHT CONTINGENCIES**

**Title through a NOTE**

**b.** In all cases of aircraft ditching, the airspace required for SAR operations must be determined by the RCC. The ACC must block that airspace until the RCC advises the airspace is no longer required. An International Notice to Airmen (NOTAM) must be issued describing the airspace affected.

**NEW**

**1-2-6. ABBREVIATIONS**

No Change

No Change

NOTAM . . . . . Notice to Air Missions

**NEW**

**2-1-9. REPORTING ESSENTIAL FLIGHT INFORMATION**

No Change

**NOTE-**  
*FSSs are responsible for classifying and disseminating Notices to Air Missions.*

No Change

**NEW**

**10-6-4. INFLIGHT CONTINGENCIES**

No Change

**b.** In all cases of aircraft ditching, the airspace required for SAR operations must be determined by the RCC. The ACC must block that airspace until the RCC advises the airspace is no longer required. An International Notice to Air Missions (NOTAM) must be issued describing the airspace affected.

**OLD**

**10-7-1. INFORMATION RELAY**

**Title through b**

c. *TERMINAL*. Relay all information concerning a ground missile emergency to the ARTCC within whose area the emergency exists and disseminate as a NOTAM.

*REFERENCE-*  
*P/CG Term - Notice to Airmen.*

**NEW**

**10-7-1. INFORMATION RELAY**

No Change  
No Change

*REFERENCE-*  
*P/CG Term - Notice to Air Missions.*

**OLD**

**10-7-5. EXTENDED NOTIFICATION**

*EN ROUTE*

When reports indicate that an emergency will exist for an extended period of time, a Notice to Airmen may be issued.

**NEW**

**10-7-5. EXTENDED NOTIFICATION**

No Change

When reports indicate that an emergency will exist for an extended period of time, a Notice to Air Missions may be issued.

**1. PARAGRAPH NUMBER AND TITLE:**

- 1-2-6. ABBREVIATIONS
- 4-2-1. CLEARANCE ITEMS
- 4-3-2. DEPARTURE CLEARANCES
- 4-8-9. MISSED APPROACH
- 5-6-1. APPLICATION
- 5-6-2. METHODS
- 5-6-3. VECTORS BELOW MINIMUM ALTITUDE
- 5-8-1. PROCEDURES
- 5-8-2. INITIAL HEADING

**2. BACKGROUND:** The Flight Standards Service (AFS) is revising its United States Standard for Terminal Instrument Procedures (TERPS) criteria at the request of Air Traffic Services (AJT) to account for a lack of criteria relating to conventional Radar Vector SIDs. In 2016, FAA Order 8260.58, United States Standard for Performance Based Navigation (PBN) Instrument Procedure Design, was amended assuming Air Traffic would be responsible for terrain and obstructions when aircraft are departing on PBN departure procedures by leveraging DVAs and the controller’s use of 7110.65, paragraph 5-6-3, Vectors below Minimum Altitude. Meanwhile, it was found there was no criteria in TERPS that accounted for Radar Vector SIDs that were not sourced as PBN procedures. A request was made to AFS to include criteria for evaluations from the surface of the earth on these procedures rather than depend on the use of DVAs or paragraph 5-6-3. AFS is working to publish this criteria in 2021.

**3. CHANGE:**

**OLD**

**1-2-6. ABBREVIATIONS**

As used in this order, the abbreviations listed below have the following meanings indicated. (See TBL 1-2-1.)

*TBL 1-2-1*

**FAA Order JO 7110.65 Abbreviations**

**NEW**

**1-2-6. ABBREVIATIONS**

No Change  
  
No Change

Add  
 Add  
 Add  
PAR ..... Preferred arrival route  
PDAR ..... Preferential departure arrival route  
PDR ..... Preferential departure route

AAR ..... Adapted arrival route  
ADAR ..... Adapted departure arrival route  
ADR ..... Adapted departure route  
 Delete  
 Delete  
 Delete

**OLD**

**4-2-1. CLEARANCE ITEMS**

**Title through b3 PHRASEOLOGY**

c. Standard Instrument Departure (SID).

d. Route of flight including PDR/PDAR/PAR when applied.

**OLD**

**4-3-2. DEPARTURE CLEARANCES**

**Title through c1(a)(1)**

(2) Diverse Vector Areas (DVA). The assignment of an initial heading using a DVA can be given to the pilot as part of the initial clearance, but must be given no later than with the takeoff clearance. Once airborne, an aircraft assigned headings within the DVA can be vectored below the MVA/MIA. Controllers cannot interrupt an aircraft's climb in the DVA until the aircraft is at or above the MVA/MIA.

**NOTE-**

*It is important for controllers to understand that there can be differences in published climb gradients applicable to individual departure procedures serving the same airport or runway. Assigning a different departure procedure without the pilot being able to re-brief may result in the pilot rejecting the new procedure.*

Add

**REFERENCE-**

AIM, Para 5-2-7. Departure Control.  
AIM, Para 5-2-9. Instrument Departure Procedures (DP) - Obstacle Departure Procedures (ODP) and Standard Instrument Departures (SID).

**NEW**

**4-2-1. CLEARANCE ITEMS**

No Change

c. Standard Instrument Departure (SID) **or vectors, where applicable.**

d. Route of flight including ADR/ADAR/AAR when applied.

**NEW**

**4-3-2. DEPARTURE CLEARANCES**

No Change

No Change

**NOTE-**

**1.** *It is important for controllers to understand that there can be differences in published climb gradients applicable to individual departure procedures serving the same airport or runway. Assigning a different departure procedure without the pilot being able to re-brief may result in the pilot rejecting the new procedure.*

**2.** *When a departure clearance includes a SID, concurrent use of a diverse vector area (DVA) is not permitted.*

No Change

**OLD**

**4-8-9. MISSED APPROACH**

Except in the case of a VFR aircraft practicing an instrument approach, an approach clearance automatically authorizes the aircraft to execute the missed approach procedure depicted for the instrument approach being flown. An alternate missed approach procedure as published on the appropriate FAA Form 8260 or appropriate military form may be assigned when necessary. Once an aircraft commences a missed approach, it may be radar vectored.

**NOTE-**

1. *Alternate missed approach procedures are published on the appropriate FAA Form 8260 or appropriate military form and require a detailed clearance when they are issued to the pilot.*
2. *In the event of a missed approach involving a turn, unless otherwise cleared, the pilot will proceed to the missed approach point before starting that turn.*
3. *Pilots must advise ATC when intending to apply cold temperature compensation and of the amount of compensation required. Pilots will not apply altitude compensation, unless authorized, when assigned an altitude if provided an initial heading to fly or radar vectors in lieu of published missed approach procedures. Consideration should be given to vectoring aircraft at or above the requested compensating altitude if possible.*

**REFERENCE-**

FAA Order JO 7110.65, Para 4-8-11, Practice Approaches.  
 FAA Order JO 7110.65, Para 5-6-3, Vectors Below Minimum Altitude.  
 FAA Order JO 7110.65, Para 5-8-3, Successive or Simultaneous Departures.  
 FAA Order 8260.19, Flight Procedures and Airspace, Para 8-6-6  
 FAA Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS), Para 2-8-1 and Chapter 16.  
 AIM, Para 5-5-5, Missed Approach.

**NEW**

**4-8-9. MISSED APPROACH**

Except in the case of a VFR aircraft practicing an instrument approach, an approach clearance automatically authorizes the aircraft to execute the missed approach procedure depicted for the instrument approach being flown. An alternate missed approach procedure as published on the appropriate FAA Form 8260 or appropriate military form may be assigned when necessary. **After** an aircraft commences a missed approach, it may be vectored **at or above the MVA/MIA, or follow the provisions of paragraph 5-6-3, Vectors Below Minimum Altitude.**

No Change

No Change

No Change

No Change

**OLD**

**5-6-1. APPLICATION**

**Title through b**

**c.** At or above the MVA or the minimum IFR altitude except as authorized for radar approaches, special VFR, VFR operations, or by Paragraph 5-6-3, Vectors Below Minimum Altitude.

**NEW**

**5-6-1. APPLICATION**

No Change

**c.** At or above the MVA or the minimum IFR altitude except as authorized for radar approaches, **radar departures,** special VFR, VFR operations, or by **paragraph 5-6-3, Vectors Below Minimum Altitude.**

**NOTE-**

VFR aircraft not at an altitude assigned by ATC may be vectored at any altitude. It is the responsibility of the pilot to comply with the applicable parts of CFR Title 14.

No Change

**REFERENCE-**

FAA Order JO 7110.65, Para 4-5-6, Minimum En Route Altitudes.  
 FAA Order JO 7110.65, Para 7-5-2, Priority.  
 FAA Order JO 7110.65, Para 7-5-4, Altitude Assignment.  
 FAA Order JO 7110.65, Para 7-7-5, Altitude Assignments. 14 CFR Section 91.119, Minimum Safe Altitudes: General.

No Change

**OLD**

**5-6-2. METHODS**

**Title through c3**

**d.** When vectoring or approving an aircraft to deviate off of a procedure that includes published altitude or speed restrictions, advise the pilot if you intend on clearing the aircraft to resume the procedure.

**PHRASEOLOGY-**

*FLY HEADING (degrees), MAINTAIN (altitude), (if necessary, MAINTAIN (speed)), EXPECT TO RESUME (SID, STAR, etc.).*

*DEVIATION (restrictions if necessary) APPROVED, MAINTAIN (altitude), (if necessary, MAINTAIN (speed)), EXPECT TO RESUME (SID, STAR, etc.) AT (NAVAID, fix, waypoint).*

**NOTE-**

*After a climb via or descend via clearance has been issued, a vector/deviation off of a SID/STAR cancels all published altitude and speed restrictions on the procedure. The aircraft's Flight Management System (FMS) may be unable to process crossing altitude restrictions once the aircraft leaves the SID/STAR lateral path. Without an assigned altitude, the aircraft's FMS may revert to leveling off at the altitude set by the pilot, which may be the SID/STAR published top or bottom altitude.*

No Change

No Change

No Change

**NEW**

**5-6-2. METHODS**

**d.** When vectoring or approving an aircraft to deviate off of a procedure, advise the pilot if you intend on clearing the aircraft to resume the procedure.

**OLD**

**5-6-3. VECTORS BELOW MINIMUM ALTITUDE**

**a.** Except in en route automated environments in areas where more than 3 miles separation minima is required, you may vector a departing IFR aircraft, or one executing a missed approach, within 40 miles of the radar antenna and before it reaches the minimum altitude for IFR operations if separation from prominent obstacles shown on the radar scope is applied in accordance with the following:

**NEW**

**5-6-3. VECTORS BELOW MINIMUM ALTITUDE**

**a. TERMINAL. As described in facility directives, when vectoring a departing IFR aircraft, or one executing a missed approach, when ISR is not displayed in the full data block and before it reaches the minimum altitude for IFR operations if separation from prominent obstacles shown on the radar scope is applied in accordance with one of the following:**



1. If the flight path is 3 miles or more from the obstacle and the aircraft is climbing to an altitude at least 1,000 feet above the obstacle, vector the aircraft to maintain at least 3 miles separation from the obstacle until the aircraft reports leaving an altitude above the obstacle.

2. If the flight path is less than 3 miles from the obstacle and the aircraft is climbing to an altitude at least 1,000 feet above the obstacle, vector the aircraft to increase lateral separation from the obstacle until the 3 mile minimum is achieved or until the aircraft reports leaving an altitude above the obstacle.

Add

Add

Add

Add

Add

**REFERENCE-**  
*P/CG Term – Obstacle.*  
*P/CG Term – Obstruction.*  
*P/CG Term – Prominent Obstacle.*

**b.** At those locations where diverse vector areas (DVA) have been established, radar facilities may vector aircraft below the MVA/MIA within the DVA described in facility directives.

**REFERENCE-**  
*FAA Order JO 7210.3, Para 3-8-5, Establishing Diverse Vector Area/s (DVA).*

Add

1. The flight path is 3 miles or more from the obstacle and the aircraft is climbing to an altitude at least 1,000 feet above the obstacle, vector the aircraft to maintain at least 3 miles separation from the obstacle until the aircraft reports leaving an altitude above the obstacle, **or**;

2. The flight path is less than 3 miles from the obstacle and the aircraft is climbing to an altitude at least 1,000 feet above the obstacle, vector the aircraft to increase lateral separation from the obstacle until the 3 mile minimum is achieved or until the aircraft reports leaving an altitude above the obstacle, **or**;

**3. Radar facilities may vector aircraft below the MVA/MIA, provided:**

**(a) No prominent obstacles are within 10 NM of the departure end of runway (DER).**

**(b) Aircraft must be allowed an uninterrupted climb to meet the MVA/MIA within 10 NM of the DER.**

**NOTE-**  
**ATC assumes responsibility for terrain and obstacle avoidance when IFR aircraft are below the minimum IFR altitude (MVA, MIA, MEA) and are taken off departure/missed approach procedures, or if issued go-around instructions, except after conducting a visual approach. ATC does not assume this responsibility when utilizing a Diverse Vector Area (DVA) or when operating on SIDs with or without a published range of headings in the departure route description.**

**b. After reaching the first MVA/MIA sector, all subsequent MVA/MIA sectors encountered must be met.**

No Change

**c.** At those locations where diverse vector areas (DVA) have been established, radar facilities may vector aircraft below the MVA/MIA within the DVA described in facility directives.

Delete

**d. At those locations using radar SIDs, radar facilities may vector aircraft below the MVA/MIA, in accordance with facility directives.**

Add

**e. At locations that vector aircraft conducting a go-around or missed approach, use authorized headings and display those prominent obstacles stipulated in facility directives until reaching the MVA/MIA.**

Add

*REFERENCE-  
FAA Order JO 7110.65, Para 5-8-1, Procedures.  
FAA Order JO 7210.3, Para 3-8-5, Establishing Diverse Vector Area/s (DVA).  
FAA Order JO 7210.3, Para 10-3-15, Go-Around/Missed Approach.*

**OLD**

**5-8-1. PROCEDURES**

Use standard departure routes and channelized altitudes whenever practical to reduce coordination. Do not, however, assign these routes solely to provide for possible radar or communication failure.

Add

**NEW**

**5-8-1. PROCEDURES**

Delete

Add

**a. When vectoring a departing aircraft on a radar SID, concurrent use of a diverse vector area (DVA) is not permitted.**

Add

**b. When the departure route description on a radar SID contains the phrase, "Fly assigned heading," "as assigned by ATC," or similar phrases, with a published range of headings in the route description, assign headings or vectors as needed not to exceed those headings in the published range until reaching the MVA/MIA.**

*REFERENCE-  
FAA Order JO 7110.65, Para 5-6-3, Vectors Below Minimum Altitude.*

**OLD**

**5-8-2. INITIAL HEADING**

a. Before departure, assign the initial heading to be flown if a departing aircraft is to be vectored immediately after takeoff.

*PHRASEOLOGY-  
FLY RUNWAY HEADING.  
TURN LEFT/RIGHT, HEADING (degrees).*

*NOTE-  
1. TERMINAL. A purpose for the heading is not necessary, since pilots operating in a radar environment associate assigned headings with vectors to their planned route of flight.*

**NEW**

**5-8-2. INITIAL HEADING**

a. Before departure, assign the initial heading **consistent with either a SID being flown or DVA, if applicable, when** a departing aircraft is to be vectored immediately after takeoff. **At locations that have a DVA, concurrent use of both a SID and DVA is not permitted.**

No Change

No Change

2. ATC assumes responsibility for terrain and obstacle avoidance when IFR aircraft are below the minimum IFR altitude (MVA, MIA, MEA) and are taken off departure/missed approach procedures, or are issued go-around instructions, except when utilizing a Diverse Vector Area (DVA) with an aircraft departing from the surface.

2. ATC assumes responsibility for terrain and obstacle avoidance when IFR aircraft are below the minimum IFR altitude (MVA, MIA, MEA) and are taken off departure/missed approach procedures, or if issued go-around instructions, except after conducting a visual approach. **ATC does not assume this responsibility when utilizing a Diverse Vector Area (DVA) or when operating on SIDs with or without a published range of headings in the departure route description.**

REFERENCE-  
FAA Order JO 7110.65, Para 4-3-2, Departure Clearances.  
FAA Order JO 7110.65, Para 5-6-3, Vectors Below Minimum Altitude.

No Change

Add

**b. At locations with both SIDs and DVAs, an amended departure clearance is required to cancel a previously assigned SID and subsequently utilize a DVA or vice versa. The amended clearance must be provided to the pilot in a timely manner so that the pilot may brief the changes in advance of entering the runway.**

**b** and **c**

Re-letter **c** and **d**

**1. PARAGRAPH NUMBER AND TITLE:**

- 2-1-3. PROCEDURAL PREFERENCE
- 11-1-1. DUTY RESPONSIBILITY
- 11-1-2. DUTIES AND RESPONSIBILITIES
- 11-1-3. TIME BASED FLOW MANAGEMENT (TBFM)

**2. BACKGROUND:** Trajectory-Based Operations (TBO) has been identified as the foundational air traffic management method for strategically planning, managing, and optimizing flights throughout the National Airspace System (NAS). TBO will improve NAS throughput, predictability, flight efficiency and flexibility. The increase in throughput is realized using time-based traffic management techniques and enabling the increased use of precise, repeatable Performance-Based Navigation procedures. Improved predictability is achieved through accurate and efficient end-to-end strategic planning and scheduling. Improved flight efficiency is achieved by delivering more efficient flows into and out of major traffic hubs and the increased use of PBN. Finally, increased operational flexibility will be achieved through increased user collaboration on preferred trajectories and priorities to support flight operator business objectives. The current procedures do not adequately convey TBO concepts nor do they have sufficient references or language emphasizing the importance of Time-Based Management (TBM) and the specific use of Time-Based Flow Management (TBFM) in achieving TBO goals.

3. CHANGE:

**OLD**  
**2-1-3. PROCEDURAL PREFERENCE**

**Title through a**  
 Add

**b and c**

**OLD**  
**11-1-1. DUTY RESPONSIBILITY**

**Title through a**

**b.** TBFM must be used to the maximum extent feasible in preference to miles-in-trail initiatives.

**NOTE-**  
*The benefits of TBFM are best realized through the coordinated effort of all facilities supporting Performance Based Navigation procedures or Traffic Management Initiatives (TMIs).*

**c.** It is recognized that the ATCS is integral in the execution of the traffic management mission.

**NOTE-**  
*Complete details of traffic management initiatives and programs can be found in FAA Order JO 7210.3, Facility Operation and Administration.*

**OLD**  
**11-1-2. DUTIES AND RESPONSIBILITIES**

**a.** Supervisory Traffic Management Coordinator-in-Charge (STMCIC) must:

**1.** Ensure an operational briefing is conducted at least once during the day and evening shifts. Participants must include, at a minimum, the STMCIC, Operations Supervisor-in-Charge (OSMIC)/Controller-in-Charge (CIC) and other interested personnel as designated by facility management. Discussions at the meeting should include meteorological conditions (present and forecasted), staffing, equipment status, runways in use, Airport Arrival Rate (AAR)/Metering Parameters and Traffic Management Initiatives (TMIs) (present and anticipated).

**2.** Assume responsibility for TMC duties when not staffed.

**NEW**  
**2-1-3. PROCEDURAL PREFERENCE**

No Change

**b. Use automation procedures that provide closed loop clearances in preference to open loop clearances to promote operational advantage for time-based management (TBM) when workload permits. (e.g., a QU route pick that anticipates length of vector and includes the next fix that ties into the route of flight.)**

Re-letter **c** and **d**

**NEW**  
**11-1-1. DUTY RESPONSIBILITY**

No Change

No Change

Delete

No Change

**NOTE-**  
*Complete details of **TBM**, traffic management initiatives and programs can be found in FAA Order JO 7210.3, Facility Operation and Administration.*

**NEW**  
**11-1-2. DUTIES AND RESPONSIBILITIES**

No Change

**1.** Ensure an operational briefing is conducted at least once during the day and evening shifts. Participants must include, at a minimum, the STMCIC, Operations Supervisor-in-Charge (OSMIC)/Controller-in-Charge (CIC) and other interested personnel as designated by facility management. Discussions at the meeting should include meteorological conditions (present and forecasted), staffing, equipment status, runways in use, Airport Arrival Rate (AAR), **TBM use**, and Traffic Management Initiatives (TMIs) (present and anticipated).

No Change

3. Ensure that TMIs are carried out by personnel providing traffic management services.

**a4 and a5**

6. Ensure changes to restrictions/metering are implemented in a timely manner.

**b. OS/CIC must:**

1. Keep the TMU and affected sectors apprised of situations or circumstances that may cause congestion or delays.

2. Coordinate with the TMU and personnel providing air traffic services to develop appropriate TMIs for sectors and airports in their area of responsibility.

3. Continuously review TMIs affecting their area of responsibility and coordinate with TMU for extensions, revisions, or cancellations.

4. Ensure that TMIs are carried out by personnel providing air traffic services.

**b5 and b6**

7. Ensure changes to TMIs are implemented in a timely manner.

**c. Personnel providing air traffic services must:**

1. Ensure that TMIs are enforced within their area of responsibility. TMIs do not have priority over maintaining:

**c1(a) through c2**

3. Continuously review TMIs affecting their area of responsibility and coordinate with OS/CIC and TMU for extensions, revisions, or cancellations.

**c4 and c5**

**d. ARTCCs, unless otherwise coordinated, must:**

1. Support TBFM operations and monitor TBFM equipment to improve situational awareness for a system approach to TMIs.

2. Monitor arrival flow for potential metering actions/changes and, if necessary, initiate coordination with all facilities to discuss the change to the metering plan.

**e. TRACONS, unless otherwise coordinated, must:**

3. Ensure that TBM operations and TMIs are carried out by personnel providing traffic management services.

No Change

6. Ensure changes to TBM operations and TMIs are implemented in a timely manner.

No Change

No Change

2. Coordinate with the TMU and personnel providing air traffic services to develop appropriate TBM operations or TMIs for sectors and airports in their area of responsibility.

3. Continuously review TBM operations and TMIs affecting their area of responsibility and coordinate with TMU for extensions, revisions, or cancellations.

4. Ensure that TBM operations and TMIs are carried out by personnel providing air traffic services.

No Change

7. Ensure changes to TBM operations and TMIs are implemented in a timely manner.

No Change

1. Ensure that TBM operations and TMIs are enforced within their area of responsibility. TBM operations and TMIs do not have priority over maintaining:

No Change

3. Continuously review TBM operations and TMIs affecting their area of responsibility and coordinate with OS/CIC and TMU for extensions, revisions, or cancellations.

No Change

No Change

1. Support TBFM operations and monitor TBFM equipment to improve situational awareness for a system approach to TBM operations.

No Change

No Change

1. Support TBFM operations and monitor TBFM equipment to improve situational awareness for a system approach to TMIs.

e2 and e3

f. ATCTs, unless otherwise coordinated, must:

1. Monitor TBFM equipment to improve situational awareness for a system approach to TMIs.

Add

2. Release aircraft, when CFR is in effect, so they are airborne within a window that extends from 2 minutes prior and ends 1 minute after the assigned time.

*NOTE—  
Coordination may be verbal, electronic, or written.*

**OLD**

**11-1-3. TIME-BASED FLOW MANAGEMENT (TBFM)**

During periods of metering, personnel providing air traffic services must:

- a. Display TBFM schedule information on the main display monitor (MDM).
- b. Comply with TBFM-generated metering times within +/- 1 minute.

1. If TBFM-generated metering time accuracy within +/- 1 minute cannot be used for specific aircraft due to significant jumps in the delay countdown timer (DCT), other TMI's may be used between those aircraft such as miles-in-trail (MIT) or minutes-in-trail (MINIT) to assist in delay absorption until stability resumes.

1. Support TBFM operations and monitor TBFM equipment to improve situational awareness for a system approach to **TBM operations**.

No Change

No Change

1. Monitor TBFM equipment to improve situational awareness for a system approach to **TBM operations**.

**2. When equipped, and departure scheduling is in effect, use automation to obtain a departure release time from the TBM system.**

**3. When departure scheduling or Call for Release is in effect, release aircraft** so they are airborne within a window that extends from 2 minutes prior and ends 1 minute after the assigned time, **unless otherwise coordinated**.

No Change

**NEW**

**11-1-3. TIME-BASED FLOW MANAGEMENT (TBFM)**

No Change

No Change

No Change

1. If TBFM-generated metering time accuracy within +/- 1 minute cannot be used for specific aircraft due to significant jumps in the delay countdown timer (DCT), **then** TMI's may be used between those aircraft such as miles-in-trail (MIT) or minutes-in-trail (MINIT) to assist in delay absorption until stability resumes.

**1. PARAGRAPH NUMBER AND TITLE: 2-1-26. SUPERVISORY NOTIFICATION**

**2. BACKGROUND:** Suspicious Unmanned Aircraft System (UAS) operations potentially pose the same hazardous conditions as manned aircraft to the safety of flight. Therefore, it is imperative air traffic control personnel report any suspicious aircraft or pilot activity whether it involves manned or unmanned flights.

**3. CHANGE:**

**OLD**

**2-1-26. SUPERVISORY NOTIFICATION**

Title through e

**NEW**

**2-1-26. SUPERVISORY NOTIFICATION**

No Change

f. Possible suspicious aircraft/pilot activity as prescribed in FAA Order JO 7610.4, paragraph 7-3-1.

**f. Aircraft/pilot activity, including unmanned aircraft system (UAS) operation that is considered suspicious, as prescribed in FAA Order JO 7610.4, paragraph 7-3-1, and for information more specific to UAS, FAA Order JO 7210.3, paragraph 2-1-32.**

Add

*REFERENCE-  
P/CG Term - Suspicious UAS.*

**1. PARAGRAPH NUMBER AND TITLE:** 4-3-2. DEPARTURE CLEARANCES

**2. BACKGROUND:** Confusion exists concerning the soliciting of Visual Climb over Airport (VCOA) procedures. Obstacle departure procedures (ODP) are published in the Takeoff Minimums section in the front of the Terminal Procedures Publication. The VCOA is an option to provide an alternative method to depart from a particular runway when the aircraft cannot meet published climb gradients, as long as the published weather minima are met. Where VCOA procedures are published, they typically appear in addition to the textual departure procedure within the ODP. Where both a textual departure procedure and a VCOA are published, ATC is currently not permitted to solicit the pilot’s use of the VCOA, and the pilot is required to inform ATC of their intent to use the VCOA before departure. There are unique circumstances where the VCOA is the only published means to depart from a runway under instrument flight rules.

**3. CHANGE:**

**OLD**

**NEW**

**4-3-2. DEPARTURE CLEARANCES**

**4-3-2. DEPARTURE CLEARANCES**

Title through c1(c)

No Change

2. Where an obstacle departure procedure (ODP) has been published for a location and pilot compliance is necessary to ensure separation, include the procedure as part of the ATC clearance.

2. Where an ODP has been published for a location and pilot compliance is necessary to ensure separation, include the procedure as part of the ATC clearance. **Additionally, when an ODP is included in the clearance and the Visual Climb over Airport (VCOA) is requested by the pilot or assigned by ATC when it is the only procedure published in the ODP, include an instruction to remain within the published visibility of the VCOA.**

***EXAMPLE-***

*“Depart via the (airport name)(runway number) departure procedure.”*

*Or*

*“Depart via the (graphic ODP name) obstacle departure procedure.”*

***EXAMPLE-***

*“Depart via the (airport name)(runway number) **obstacle** departure procedure. **Remain within (number of miles) miles of the (airport name) during visual climb**” **if applicable. Or,***

*“Depart via the (graphic ODP name) obstacle departure procedure. **Remain within (number of miles) miles of the (airport name) during visual climb**” **if applicable.***

Add

***NOTE-***

***1. Pilots will advise ATC of their intent to use the VCOA option when requesting their IFR clearance.***

***2. Some aircraft are required by 14 CFR 91.175 to depart a runway under IFR using the ODP absent other instructions from ATC.***

***NOTE-***

*Some aircraft are required by 14 CFR 91.175 to depart a runway under IFR using the ODP absent other instructions from ATC.*

**NOTE-**

*IFR takeoff minimums and obstacle departure procedures are prescribed for specific airports/runways and published in either a textual, or graphic form with the label (OBSTACLE) in the procedure title, and documented on an appropriate FAA Form 8260. To alert pilots of their existence, instrument approach procedure charts are annotated with a symbol:*



**3. Do not solicit use of the Visual Climb over Airport (VCOA) option.**

**NOTE-**

*Pilots will specifically advise ATC of their intent to use the VCOA option.*

**4.** Compatibility with a procedure issued may be verified by asking the pilot if items obtained/solicited will allow him/her to comply with local traffic pattern, terrain, or obstruction avoidance.

***PHRASEOLOGY-***  
***FLY RUNWAY HEADING.***

*DEPART (direction or runway).*

*TURN LEFT/RIGHT.*

*WHEN ENTERING CONTROLLED AIRSPACE (instruction), FLY HEADING (degrees) UNTIL REACHING (altitude, point, or fix) BEFORE PROCEEDING ON COURSE.*

*FLY A (degree) BEARING/AZIMUTH FROM/TO (fix) UNTIL (time),*

*or*

*UNTIL REACHING (fix or altitude),*

*and if required,*

*BEFORE PROCEEDING ON COURSE.*

***EXAMPLE-***

*“Verify right turn after departure will allow compliance with local traffic pattern,” or “Verify this clearance will allow compliance with terrain or obstruction avoidance.”*

***NOTE-***

*If a published IFR departure procedure is not included in an ATC clearance, compliance with such a procedure is the pilot’s prerogative.*

**5. SIDs:**

**3.** *IFR takeoff minimums and obstacle departure procedures are prescribed for specific airports/runways and published in either a textual, or graphic form with the label (OBSTACLE) in the procedure title, and documented on an appropriate FAA Form 8260. To alert pilots of their existence, instrument approach procedure charts are annotated with a symbol:*



Delete

Delete

**3.** Compatibility with a procedure issued may be verified by asking the pilot if items obtained/solicited will allow him/her to comply with local traffic pattern, terrain, or obstruction avoidance.

No Change

No Change

No Change

**4. SIDs:**



(a) Assign a SID (including transition if necessary). Assign a PDR or the route filed by the pilot, only when a SID is not established for the departure route to be flown, or the pilot has indicated that he/she does not wish to use a SID.

(a) Assign a SID (including transition if necessary). Assign an ADR/ADAR, when applicable or the route filed by the pilot, when a SID is not established for the departure route to be flown, or the pilot has indicated that he/she does not wish to use a SID.

**NOTE-**

*Departure procedure descriptive text contained within parentheses (for example, “Jimmy One (RNAV) Departure”) is not included in departure clearance phraseology.*

No Change

**PHRASEOLOGY-**

*(SID name and number) DEPARTURE.*

No Change

*(SID name and number) DEPARTURE, (transition name) TRANSITION.*

**EXAMPLE-**

*“Stroudsburg One Departure.”*

*“Stroudsburg One Departure, Sparta Transition.”*

No Change

**NOTE-**

*If a pilot does not wish to use a SID issued in an ATC clearance, or any other SID published for that location, he/she is expected to advise ATC.*

No Change

**1. PARAGRAPH NUMBER AND TITLE:**

- 5-1-1. PRESENTATION AND EQUIPMENT PERFORMANCE
- 5-1-2. ALIGNMENT ACCURACY CHECK
- 5-1-3. ATC SURVEILLANCE SOURCE USE
- 5-1-4. BEACON RANGE ACCURACY
- 5-1-6. SERVICE LIMITATIONS
- 5-1-7. ELECTRONIC CURSOR
- 5-1-11. RADAR FIX POSTING
- 5-5-6. EXCEPTIONS

**2. BACKGROUND:** In all FAA radar facilities, radar mapping is always available, and “electronic cursors” are no longer used. In addition, alignment accuracy and beacon range accuracy are now assured by all FAA automation systems, and direct controller actions are no longer necessary. These manual alignment checks are still performed by some Air National Guard units that utilize legacy analog equipment for mobile deployments; however, the U.S. Air Force will publish appropriate procedures in their own air traffic manuals until that equipment is decommissioned.

**3. CHANGE:**

**OLD**

**5-1-1. PRESENTATION AND EQUIPMENT PERFORMANCE**

Provide radar service only if you are personally satisfied that the radar presentation and equipment performance is adequate for the service being provided.

**NEW**

**5-1-1. PRESENTATION AND EQUIPMENT PERFORMANCE**

**a.** Provide radar services only if you are personally satisfied that the radar presentation and equipment performance is adequate for the service being provided.

**NOTE-**

The provision of radar service is not limited to the distance and altitude parameters obtained during the commissioning flight check. FAA Order 8200.1, United States Standard Flight Inspection Manual, Chapter 14, Surveillance, describes the surveillance flight inspection procedures.

Add

Add

**OLD**

**5-1-2. ALIGNMENT ACCURACY CHECK**

**TERMINAL**

**a.** At locations not equipped with Digital Terminal Automation Systems (DTAS), during relief briefing, or as soon as possible after assuming responsibility for a control position, check the operating equipment for alignment accuracy and display acceptability. Recheck periodically throughout the watch.

**REFERENCE-**

FAA Order JO 7210.3, Chapter 3, Chapter 8, Chapter 9, Chapter 10, and Chapter 11. Comparable Military Directives.

**1.** Check the alignment of the radar video display by assuring that the video/digital map or overlay is properly aligned with a permanent target of known range and azimuth on the radar display. Where possible, check one permanent target per quadrant.

**2.** Accuracy of the radar video display must be verified for digitized radar systems by using the moving target indicator (MTI) reflectors, fixed location beacon transponders (Parrots), beacon real-time quality control (RTQC) symbols or calibration performance monitor equipment (CPME) beacon targets.

**REFERENCE-**

FAA Order JO 7210.3, Para 3-7-1, Tolerance for Radar Fix Accuracy.

**3.** Digital Terminal Automation Systems (DTAS) conduct continuous self-monitoring of alignment accuracy; therefore, controller alignment checks are not required.

**OLD**

**5-1-3. ATC SURVEILLANCE SOURCE USE**

Title through a2 NOTE 2

**NOTE-**

The provision of radar services is not limited to the distance and altitude parameters obtained during the commissioning flight check. FAA Order 8200.1, United States Standard Flight Inspection Manual, Chapter 14, Surveillance, describes the surveillance flight inspection procedures.

**b. Notify the OS/CIC of any radar malfunctions or unexpected outages. Advise adjacent facilities when appropriate.**

**REFERENCE-**

FAA Order JO 7110.65, Para 2-1-9, Reporting Essential Flight Information. FAA Order JO 7210.3, Chapter 3, Chapter 7, Chapter 10 Section 5, and Chapter 12 Section 6.

**NEW**

Delete

Delete

Delete

Delete

Delete

Delete

Delete

Delete

**NEW**

**5-1-2. ATC SURVEILLANCE SOURCE USE**

No Change

(c) A secondary radar system is the only source of radar data for the area of service. When the system is used for separation, beacon range accuracy is assured, as provided in paragraph 5-1-4, Beacon Range Accuracy. TERMINAL. Advise pilots when these conditions exist.

(c) A secondary radar system is the only source of radar data for the area of service. *TERMINAL.* Advise pilots when these conditions exist.

**NOTE-**

*Advisory may be omitted when provided on ATIS or by other appropriate notice to pilots.*

No Change

**OLD**

**5-1-4. BEACON RANGE ACCURACY**

**NEW**

a. You may use beacon targets for separation purposes if beacon range accuracy is verified by one of the following methods:

Delete

Delete

**NOTE-**

Delete

1. The check for verification of beacon range accuracy accomplished by correlation of beacon and primary radar targets of the same aircraft is not a check of display accuracy. Therefore, it is not necessary that it be done using the same display with which separation is being provided, nor the same targets being separated.

2. Narrowband and Full Digital Automation Systems: Technical operations personnel verify beacon range accuracy for automated narrowband display equipment and Full Digital Terminal Automation Systems. Consequently, further verification by the controller is unnecessary.

Delete

1. Correlate beacon and primary targets of the same aircraft (not necessarily the one being provided separation) to assure that they coincide.

Delete

2. When beacon and primary targets of the same aircraft do not coincide, correlate them to assure that any beacon displacement agrees with the specified distance and direction for that particular radar system.

Delete

3. Refer to beacon range monitoring equipment where so installed.

Delete

b. If beacon range accuracy cannot be verified, you may use beacon targets only for traffic information.

Delete

**REFERENCE-**

*FAA Order JO 7110.65, Para 5-1-3, Radar Use.*

Delete

**5-1-5**

Renumber **5-1-3**

**OLD**

**5-1-6. SERVICE LIMITATIONS**

**NEW**

a. When radar mapping is not available, limit radar services to:

Delete

Delete

1. Separating identified aircraft targets.

Delete

2. Vectoring aircraft to intercept a PAR final approach course.

Delete

3. Providing radar service in areas that ensure no conflict with traffic on airways, other ATC areas of jurisdiction, restricted or prohibited areas, terrain, etc.

Delete

b. EN ROUTE. When the position symbol associated with the data block falls more than one history behind the actual aircraft target or there is no target symbol displayed, the Mode C information in the data block must not be used for the purpose of determining separation.

Delete

c. Report radar malfunctions immediately for corrective action and for dispatch of a Notice to Airmen. Advise adjacent ATC facilities when appropriate.

Delete

REFERENCE-  
FAA Order JO 7110.65, Para 2-1-9, Reporting Essential Flight Information.  
FAA Order JO 7210.3, Chapter 3, Chapter 7, Chapter 10 Section 5, and Chapter 11 Section 2.

Delete

**OLD**

**5-1-7. ELECTRONIC CURSOR**

**NEW**

**TERMINAL**

Delete

a. An electronic cursor may be used to aid in identifying and vectoring an aircraft and to give finer delineation to a video map. Do not use it as a substitute for a video map or map overlay; e.g., to form intersections, airway boundaries, final approach courses, etc.

Delete

b. Fixed electronic cursors may be used to form the final approach course for surveillance approaches conducted by military operated mobile radar facilities.

Delete

Delete

**5-1-8** through **5-1-10**

Renumber **5-1-4** through **5-1-6**

**OLD**

**5-1-11. RADAR FIX POSTING**

**EN ROUTE**

A controller is required to manually record at least once the observed or reported time over a fix for each controlled aircraft in their sector of responsibility only when the flight progress recording components of the EAS FDP are not operational.

REFERENCE-  
FAA Order JO 7210.3, Para 6-1-6, Flight Progress Strip Usage.  
FAA Order JO 7210.3, Para 10-1-8, Flight Progress Strip Usage.

**5-1-12** and **5-1-13**

**NEW**

**5-1-7. MANUAL FIX POSTING**

No Change

Manually record the observed or reported time over a fix at least once for each controlled aircraft in your sector of responsibility when the flight progress recording components of the EAS FDP are not operational.

REFERENCE-  
FAA Order JO 7210.3, Para 6-1-6, Flight Progress Strip Usage.

Renumber **5-1-8** and **5-1-9**

**OLD**  
**5-5-6. EXCEPTIONS**  
 Title through **b3**  
 Add

**NEW**  
**5-5-6. EXCEPTIONS**  
 No Change  
**c. EN ROUTE. When the position symbol associated with the data block falls more than one history behind the actual aircraft target or there is no target symbol displayed, the Mode C information in the data block must not be used for the purpose of determining separation.**

**1. PARAGRAPH NUMBER AND TITLE:**

- 5-2-1. ASSIGNMENT CRITERIA
- 5-2-2. DISCRETE ENVIRONMENT
- 5-2-3. NONDISCRETE ENVIRONMENT
- 5-2-4. MIXED ENVIRONMENT
- 5-2-5. HIJACK/UNLAWFUL INTERFERENCE
- 5-2-6. FUNCTION CODE ASSIGNMENTS
- 5-2-7. EMERGENCY CODE ASSIGNMENT
- 5-2-8. RADIO FAILURE
- 5-2-9. UNMANNED AIRCRAFT SYSTEMS (UAS) LOST LINK
- 5-2-10. VFR CODE ASSIGNMENTS
- 5-2-11. BEACON CODE FOR PRESSURE SUIT FLIGHTS AND FLIGHTS ABOVE FL 600
- 5-2-14. CODE MONITOR

**2. BACKGROUND:** In the process of revising FAA Order JO 7110.66, National Beacon Code Allocation Plan, it was observed that there were references in that order to certain beacon code practices that have not been used for many years. The earliest secondary radar systems used two-digit ground interrogators and aircraft transponders, which only allowed for 64 radar beacon codes. Once the current four-digit, 4096-code systems became fully deployed across the NAS, the concepts of “function code assignments,” which were used to coordinate the assigned altitude stratum or other operational status of a flight; and “discrete,” “nondiscrete,” and “mixed” environments, which described whether a facility was using two-digit or four-digit beacon decoding equipment, became obsolete.

All current FAA ATC automation platforms are equipped with fully automatic beacon decoders, and will always force a target to appear on controllers’ displays when an aircraft transmits code 7500 (Hijack) or 7600 (Communication Failure). Those two codes, along with 7400 (UAS Lost Link) and 7700 (Emergency), are adapted in FAA ATC automation systems to display special characters in the data block instead of showing the beacon code itself. In ERAM, those characters are “LLNK” for 7400, “HIJK” for 7500, “RDOF” for 7600, and “EMRG” for 7700; and in STARS and MEARTS, those characters are “LL,” “HJ,” “RF,” and “EM,” respectively.

In response to a request from FAA System Operations Security, to keep potentially sensitive flight information from public exposure, the specific beacon code allocations for certain high-altitude flights have been moved to FAA Order JO 7610.4, Special Operations.

**3. CHANGE:**

**OLD**  
**5-2-1. ASSIGNMENT CRITERIA**  
 Title through **a1**

**NEW**  
**5-2-1. ASSIGNMENT CRITERIA**  
 No Change

2. Make beacon code assignments to only ADS-B and/or transponder-equipped aircraft.

No Change

**NOTE-**

*Aircraft equipped with ADS-B are also still required to have an operable transponder. The ATC-assigned code is one of the required message elements of ADS-B Out.*

**NOTE-**

*Aircraft equipped with ADS-B are also still required to have an operable transponder. The ATC-assigned **beacon** code is one of the required message elements of ADS-B Out.*

b. Unless otherwise specified in a directive or a letter of agreement, make code assignments to departing, en route, and arriving aircraft in accordance with the procedures specified in this section for the code environment in which you are providing ATC service. Give first preference to the use of discrete codes.

b. Unless otherwise specified in **this section**, a **facility** directive, or a letter of agreement, **issue beacon codes assigned by the computer. Computer-assigned codes may be modified as required.**

Add

**NOTE-**

*The computer will assign only discrete beacon codes unless all the discrete codes allocated to a facility are in use.*

Add

**1. TERMINAL. Aircraft that will remain within the terminal facility's delegated airspace must be assigned a code from the code subset allocated to the terminal facility.**

Add

**2. TERMINAL. Unless otherwise specified in a facility directive or a letter of agreement, aircraft that will enter an adjacent facility's delegated airspace must be assigned a beacon code assigned by the ARTCC computer.**

Add

**NOTE-**

*This will provide the adjacent facility advance information on the aircraft and will cause auto-acquisition of the aircraft prior to handoff. When an airborne aircraft that has been assigned a beacon code by the ARTCC computer and whose flight plan will terminate in another facility's area cancels ATC service, appropriate action should be taken to remove flight plan information on that aircraft.*

**PHRASEOLOGY-**

*SQUAWK THREE/ALFA (code),*

No Change

*or*

*SQUAWK (code).*

**NOTE-**

*A code environment is determined by an operating position's/sector's equipment capability to decode radar beacon targets using either the first and second or all four digits of a beacon code.*

Delete

**REFERENCE-**

*FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.*

**REFERENCE-**

*FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.  
**FAA Order JO 7110.65, Para 5-3-4, Terminal Automation Systems Identification Methods.***

Add

**c. Code 4000 should be assigned when aircraft are operating on a flight plan specifying frequent or rapid changes in assigned altitude in more than one stratum or other category of flight not compatible with a discrete code assignment.**

Add

**NOTE-**  
**1. Categories of flight that can be assigned Code 4000 include certain flight test aircraft, MTR missions, aerial refueling operation requiring descent involving more than one stratum, ALTRVs where continuous monitoring of ATC frequencies is not required and frequent altitude changes are approved, and other flights requiring special handling by ATC.**

Add

**2. Military aircraft operating in restricted/warning areas or on VR routes will squawk 4000 unless another code has been assigned or coordinated with ATC.**

**OLD**

**NEW**

**5-2-2. DISCRETE ENVIRONMENT**

**a. Issue discrete beacon codes assigned by the computer. Computer-assigned codes may be modified as required.**

Delete

Delete

**1. TERMINAL. Aircraft that will remain within the terminal facility's delegated airspace must be assigned a code from the code subset allocated to the terminal facility.**

Delete

**2. TERMINAL. Unless otherwise specified in a facility directive or a letter of agreement, aircraft that will enter an adjacent STARS facility's delegated airspace must be assigned a beacon code assigned by the ARTCC computer.**

Delete

**NOTE-**

Delete

**1. This will provide the adjacent facility advance information on the aircraft and will cause auto-acquisition of the aircraft prior to handoff.**

**2. When an IFR aircraft, or a VFR aircraft that has been assigned a beacon code by the ARTCC computer and whose flight plan will terminate in another facility's area, cancels ATC service or does not activate the flight plan, ensure that appropriate action is taken to remove strips (RS message) on that aircraft.**

Delete

**b. Make handoffs to other positions/sectors on the computer-assigned code.**

Delete

c. Coastal facilities accepting “over” traffic that will subsequently be handed-off to an oceanic ARTCC must reassign a new discrete beacon code to an aircraft when it first enters the receiving facility’s airspace. The code reassignment must be accomplished by inputting an appropriate message into the computer and issued to the pilot while operating in the first sector/position in the receiving facility’s airspace.

Delete

**NOTE-**

Per an agreement between FAA and the Department of Defense, 17 Code subsets in the NBCAP have been reserved for exclusive military use outside NBCAP airspace. To maximize the use of these subsets, they have been allocated to ARTCC’s underlying NBCAP airspace that do not abut an oceanic ARTCC’s area. To preclude a potential situation where two aircraft might be in the same airspace at the same time on the same discrete code, it is necessary to reassign an aircraft another code as specified in subparagraph c.

Delete

**REFERENCE-**

FAA Order JO 7110.65, Para 5-2-4, Mixed Environment.  
FAA Order JO 7110.65, Para 5-2-10, VFR Code Assignments.  
FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

Delete

**OLD**

**5-2-3. NONDISCRETE ENVIRONMENT**

**NEW**

a. Assign appropriate nondiscrete beacon codes from the function codes specified in paragraph 5-2-6, Function Code Assignments.

Delete

b. Unless otherwise coordinated at the time of handoff, make handoffs to other positions/sectors on an appropriate nondiscrete function code.

Delete

Delete

**REFERENCE-**

FAA Order JO 7110.65, Para 5-2-4, Mixed Environment.  
FAA Order JO 7110.65, Para 5-2-10, VFR Code Assignments.  
FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

Delete

**OLD**

**5-2-4. MIXED ENVIRONMENT**

**NEW**

a. When discrete beacon code capability does not exist in your area of responsibility, comply with the procedures specified in paragraph 5-2-3, Nondiscrete Environment.

Delete

**NOTE-**

In a mixed code environment, a situation may exist where a discrete-equipped position/sector exchanges control of aircraft with nondiscrete-equipped facilities or vice versa.

Delete

Delete

b. When discrete beacon code capability exists in your area of responsibility:

Delete



1. Comply with the procedures specified in paragraph 5-2-2, Discrete Environment, and

Delete

2. Unless otherwise coordinated at the time of handoff, assign aircraft that will enter the area of responsibility of a nondiscrete-equipped position/sector an appropriate nondiscrete function code from the codes specified in paragraph 5-2-6, Function Code Assignments, prior to initiating a handoff.

Delete

**REFERENCE-**

FAA Order JO 7110.65, Para 4-2-8, IFR-VFR and VFR-IFR Flights.

FAA Order JO 7110.65, Para 5-2-10, VFR Code Assignments.

FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

Delete

**5-2-5**

Renumber **5-2-2**

**OLD**

**5-2-6. FUNCTION CODE ASSIGNMENTS**

**NEW**

Unless otherwise specified by a directive or a letter of agreement, make nondiscrete code assignments from the following categories:

Delete

Delete

a. Assign codes to departing IFR aircraft as follows:

Delete

1. Code 2000 to an aircraft which will climb to FL 240 or above or to an aircraft which will climb to FL 180 or above where the base of Class A airspace and the base of the operating sector are at FL 180, and for interfacility handoff the receiving sector is also stratified at FL 180. The en route code must not be assigned until the aircraft is established in the high altitude sector.

Delete

2. Code 1100 to an aircraft which will remain below FL 240 or below FL 180 as above.

Delete

3. For handoffs from terminal facilities when so specified in a letter of agreement as follows:

Delete

(a) Within NBCAP airspace- Code 0100 to Code 0400 inclusive or any other code authorized by the appropriate service area office.

Delete

(b) Outside NBCAP airspace- Code 1000 or one of the codes from 0100 to 0700 inclusive or any other code authorized by the appropriate service area office.

Delete

b. Assign codes to en route IFR aircraft as follows:

Delete

**NOTE-**

Delete

1. FL 180 may be used in lieu of FL 240 where the base of Class A airspace and the base of the operating sector are at FL 180, and for interfacility handoff the receiving sector is also stratified at FL 180.

2. The provisions of subparagraphs b2(b) and (c) may be modified by facility directive or letter of agreement when operational complexities or simplified sectorization indicate. Letters of agreement are mandatory when the operating sectors of two facilities are not stratified at identical levels. The general concept of utilizing Codes 2100 through 2500 within Class A airspace should be adhered to. Delete

1. Aircraft operating below FL 240 or when control is transferred to a controller whose area includes the stratum involved. Delete

(a) Code 1000 may be assigned to aircraft changing altitudes. Delete

(b) Code 1100 to an aircraft operating at an assigned altitude below FL 240. Should an additional code be operationally desirable, Code 1300 must be assigned. Delete

2. Aircraft operating at or above FL 240 or when control is transferred to a controller whose area includes the stratum involved. Delete

(a) Code 2300 may be assigned to aircraft changing altitudes. Delete

(b) Code 2100 to an aircraft operating at an assigned altitude from FL 240 to FL 330 inclusive. Should an additional code be operationally desirable, Code 2200 must be assigned. Delete

(c) Code 2400 to an aircraft operating at an assigned altitude from FL 350 to FL 600 inclusive. Should an additional code be operationally desirable, Code 2500 must be assigned. Delete

3. Code 4000 when aircraft are operating on a flight plan specifying frequent or rapid changes in assigned altitude in more than one stratum or other conditions of flight not compatible with a stratified code assignment. Delete

NOTE- Delete

1. Categories of flight that can be assigned Code 4000 include certain flight test aircraft, MTR missions, aerial refueling operation requiring descent involving more than one stratum, ALTRVs where continuous monitoring of ATC communications facilities is not required and frequent altitude changes are approved, and other aircraft operating on flight plans requiring special handling by ATC.

2. Military aircraft operating VFR or IFR in restricted/warning areas or VFR on VR routes will adjust their transponders to reply on Code 4000 unless another code has been assigned by ATC or coordinated, if possible, with ATC. Delete

**c. Assign the following codes to arriving IFR aircraft, except military turbojet aircraft as specified in paragraph 4-7-4, Radio Frequency and Radar Beacon Changes for Military Aircraft:**

Delete

**NOTE-**

FL 180 may be used in lieu of FL 240 where the base of Class A airspace and the base of the operating sector are at FL 180, and for interfacility handoff the receiving sector is also stratified at FL 180.

Delete

**1. Code 2300 may be assigned for descents while above FL 240.**

Delete

**2. Code 1500 may be assigned for descents into and while within the strata below FL 240, or with prior coordination the specific code utilized by the destination controller, or the code currently assigned when descent clearance is issued.**

Delete

**3. The applicable en route code for the holding altitude if holding is necessary before entering the terminal area and the appropriate code in subparagraphs 1 or 2.**

Delete

**REFERENCE-**

- FAA Order JO 7110.65, Para 4-2-8, IFR-VFR and VFR-IFR Flights.
- FAA Order JO 7110.65, Para 5-2-3, Nondiscrete Environment.
- FAA Order JO 7110.65, Para 5-2-4, Mixed Environment.
- FAA Order JO 7110.65, Para 5-2-10, VFR Code Assignments.
- FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

Delete

**OLD**

**5-2-7. EMERGENCY CODE ASSIGNMENT**

Assign codes to emergency aircraft as follows:

**a. Code 7700** when the pilot declares an emergency and the aircraft is not radar identified.

**PHRASEOLOGY-**

SQUAWK MAYDAY ON 7700.

Add

**b. After radio and radar contact have been established, you may request other than single-piloted helicopters and single-piloted turbojet aircraft to change from **Code 7700** to another code appropriate for your radar beacon code environment.**

**NOTE-**

**1. The code change, based on pilot concurrence, the nature of the emergency, and current flight conditions will signify to other radar facilities that the aircraft in distress is identified and under ATC control.**

**NEW**

**5-2-3. EMERGENCY CODE ASSIGNMENT**

No Change

No Change

No Change

**NOTE-**

Instead of displaying “7700” in the data block, **ER-AM** will display “EMRG,” and **STARS/MEARTS** will display “EM.”

**b. After radio and radar contact have been established, you may request other than single-piloted helicopters and single-piloted turbojet aircraft to change from **Code 7700** to a computer-assigned discrete code.**

**NOTE-**

**1. The code change, based on pilot concurrence, the nature of the emergency, and current flight conditions, will signify to other ATC facilities that the aircraft in distress is identified and under ATC control.**

2. Pilots of single-piloted helicopters and single-piloted turbojet aircraft may be unable to reposition transponder controls during the emergency.

**PHRASEOLOGY-**

**RADAR CONTACT** (position). **IF FEASIBLE**, **SQUAWK** (code).

**REFERENCE-**

FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

**OLD**

**5-2-8. RADIO FAILURE**

When you observe a **Code 7600** display, apply the procedures in paragraph 10-4-4, Communications Failure.

**NOTE-**

Should a transponder-equipped aircraft experience a loss of two-way radio communications capability, the pilot can be expected to adjust his/her transponder to Code 7600.

Add

**REFERENCE-**

FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

**OLD**

Add

Add

Add

Add

**OLD**

**5-2-9. UNMANNED AIRCRAFT SYSTEMS (UAS) LOST LINK**

**Code 7400** may be displayed by unmanned aircraft systems (UAS) when the control link between the aircraft and the pilot is lost. Lost link procedures are programmed into the flight management system and associated with the flight plan being flown.

2. Pilots of single-piloted helicopters and single-piloted turbojet aircraft may be unable to change transponder settings during an emergency.

No Change

No Change

**NEW**

**5-2-4. RADIO FAILURE**

No Change

**NOTE-**

1. An aircraft experiencing a loss of two-way radio communications capability can be expected to squawk Code 7600.

2. Instead of displaying "7600" in the data block, ERAM will display "RDOF," and STARS/MEARTS will display "RF."

No Change

**NEW**

**5-2-5. HIJACK/UNLAWFUL INTERFERENCE**

When you observe a Code 7500 display, apply the procedures in paragraph 10-2-6, Hijacked Aircraft.

**NOTE-**

Instead of displaying "7500" in the data block, ERAM will display "HLIK," and STARS/MEARTS will display "HJ."

**REFERENCE-**

FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

**NEW**

**5-2-6. UNMANNED AIRCRAFT SYSTEMS (UAS) LOST LINK**

**Code 7400** may be transmitted by unmanned aircraft systems (UAS) when the control link between the aircraft and the pilot is lost. Lost link procedures are programmed into the flight management system and associated with the flight plan being flown.

When you observe a **Code 7400** display, do the following:

No Change

Add

NOTE-

Instead of displaying “7400” in the data block, ERAM will display “LLNK,” and STARS/MEARTS will display “LL.”

**OLD**

**NEW**

**5-2-10. VFR CODE ASSIGNMENTS**

**5-2-7. VFR CODE ASSIGNMENTS**

a. For VFR aircraft receiving radar advisories, assign an appropriate function code or computer-assigned code for the code environment in which you are providing service.

a. For VFR aircraft receiving radar advisories, issue a computer-assigned beacon code.

NOTE-

Delete

1. Paragraph 5-2-2, Discrete Environment; paragraph 5-2-3, Nondiscrete Environment, and paragraph 5-2-4, Mixed Environment, specify code assignment procedures to follow for the three code environments.

2. Paragraph 5-2-6, Function Code Assignments, specifies the function code allocation from which an appropriate code for the aircraft indicated in subparagraph a should be selected. In the terminal environment, additional function codes may be authorized by the appropriate service area office.

Delete

**a1 through a1(b) NOTE**

No Change

b. Instruct IFR aircraft which cancel an IFR flight plan and are not requesting radar advisory service and VFR aircraft for which radar advisory service is being terminated to squawk the VFR code.

b. Instruct an IFR aircraft that cancels its IFR flight plan and is not requesting radar advisory service, or a VFR aircraft for which radar advisory service is being terminated, to squawk VFR.

**PHRASEOLOGY-**  
**SQUAWK VFR.**

No Change

or

SQUAWK 1200.

NOTE-

NOTE-

1. Aircraft not in contact with an ATC facility may squawk 1255 in lieu of 1200 while en route to/from or within the designated firefighting area(s).

1. Aircraft not in contact with ATC may squawk 1255 in lieu of 1200 while en route to/from or within designated firefighting areas.

2. VFR aircraft which fly authorized SAR missions for the USAF or USCG may be advised to squawk 1277 in lieu of 1200 while en route to/from or within the designated search area.

2. VFR aircraft that fly authorized SAR missions for the USAF or USCG may be advised to squawk 1277 in lieu of 1200 while en route to/from or within the designated search area.

3. Gliders not in contact with an ATC facility should squawk 1202 in lieu of 1200. Gliders operate under some flight and maneuvering limitations. They may go from essentially stationary targets while climbing and thermaling to moving targets very quickly. They can be expected to make radical changes in flight direction to find lift and cannot hold altitude in a response to an ATC request. Gliders may congregate together for short periods of time to climb together in thermals and may cruise together in loose formations while traveling between thermals.

**REFERENCE-**  
 FAA Order JO 7110.66, National Beacon Code Allocation Plan.

c. When an aircraft changes from VFR to IFR, the controller must assign a beacon code to Mode C equipped aircraft that will allow MSAW alarms.

**REFERENCE-**  
 FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

**OLD**

**5-2-11. BEACON CODE FOR PRESSURE SUIT FLIGHTS AND FLIGHTS ABOVE FL 600**

a. Mode 3/A, Code 4400, and discrete Codes 4440 through 4465 are reserved for use by R-71, F-12, U-2, B-57, pressure suit flights, and aircraft operations above FL 600.

**NOTE-**  
The specific allocation of the special use codes in subset 4400 is in FAA Order JO 7110.66, National Beacon Code Allocation Plan (NBCAP).

b. Ensure that aircraft remain on Code 4400 or one of the special use discrete codes in the 4400 subset if filed as part of the flight plan. Except when unforeseen events, such as weather deviations, equipment failure, etc., cause more than one aircraft with same Mode 3/A discrete beacon codes to be in the same or adjacent ARTCC's airspace at the same time, a controller may request the pilot to make a code change, squawk standby, or to stop squawk as appropriate.

**NOTE-**  
Due to the inaccessibility of certain equipment to the flight crews, Code 4400 or a discrete code from the 4400 subset is preset on the ground and will be used throughout the flight profile including operations below FL 600. Controllers should be cognizant that not all aircraft may be able to accept the transponder changes identified in the exception. Emergency Code 7700, however, can be activated.

3. VFR gliders should squawk 1202 in lieu of 1200. Gliders operate under some flight and maneuvering limitations. They may go from essentially stationary targets while climbing and thermaling to moving targets very quickly. They can be expected to make radical changes in flight direction to find lift and cannot hold altitude in a response to an ATC request. Gliders may congregate together for short periods of time to climb together in thermals and may cruise together in loose formations while traveling between thermals.

No Change

c. When an aircraft changes from VFR to IFR, assign a beacon code to Mode C equipped aircraft that will allow MSAW alarms.

No Change

**NEW**

**5-2-8. BEACON CODES FOR PRESSURE SUIT FLIGHTS AND FLIGHTS ABOVE FL 600**

Special use Mode 3/A codes are reserved for certain pressure suit flights and aircraft operations above FL 600 in accordance with FAA Order JO 7610.4, Special Operations.

Delete

a. Ensure that these flights remain on one of the special use codes if filed in the flight plan, **except:**

Delete

REFERENCE-  
FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

Delete

Add

**b. When unforeseen events cause more than one aircraft to be in the same or adjacent ARTCC’s airspace at the same time on the same special use discrete code, if necessary, you may request the pilot to make a code change, squawk standby, or stop squawk as appropriate.**

Add

NOTE-  
**1. Current FAA automation systems track multiple targets on the same beacon code with much greater reliability than their predecessors, and a code change may not be necessary for such flights.**

Add

**2. The beacon code is often preset on the ground for such flights and is used throughout the flight profile, including operations below FL 600. Due to equipment inaccessibility, the flight crew may not be able to accept transponder changes identified in this subparagraph.**

Add

**3. In case of emergency, Code 7700 can still be activated. Instead of displaying “7700” in the data block, ERAM will display “EMRG,” and STARS/MEARTS will display “EM.”**

Add

REFERENCE-  
FAA Order JO 7110.65, Para 5-3-3, Beacon/ADS-B Identification Methods.

**5-2-12 and 5-2-13**

Renumber **5-2-9** and **5-2-10**

**OLD**

**5-2-14. CODE MONITOR**

Continuously monitor the Mode 3/A radar beacon codes assigned for use by aircraft operating within your area of responsibility when non-automated beacon decoding equipment (e.g., 10-channel decoder) is used to display the target symbol.

REFERENCE-  
FAA Order JO 7110.65, Para 5-2-6, Function Code Assignments.

NOTE-  
In addition to alphanumeric and control symbology processing enhancements, the MEARTS and STARS systems are equipped with automatic beacon decoders. Therefore, in facilities where the automatic beacon decoders are providing the control slash video, there is no requirement to have the non-automated decoding equipment operating simultaneously.

REFERENCE-  
FAA Order JO 7210.3, Para 3-6-4, Monitoring of Mode 3/A Radar Beacon Codes.

**NEW**

**5-2-11. CODE MONITOR**

Delete

Delete

Delete

Delete

a. This includes the appropriate IFR code actually assigned and, additionally, Code 1200, Code 1202, Code 1255, and Code 1277 unless your area of responsibility includes only Class A airspace. During periods when ring-around or excessive VFR target presentations derogate the separation of IFR traffic, the monitoring of VFR Code 1200, Code 1202, Code 1255, and Code 1277 may be temporarily discontinued.

b. Positions of operation which contain or are immediately adjacent to a restricted area, warning area, VR route, or other categories where Code 4000 can be assigned must monitor Code 4000 and any other code used in lieu of 4000. If by local coordination with the restricted/warning area or VR route user a code other than 4000 is to be exclusively used, then this code must be monitored.

*REFERENCE-  
FAA Order JO 7110.65, Para 5-2-6, Function Code Assignments.*

c. If a normally assigned beacon code disappears, check for a response on the following codes in the order listed and take appropriate action:

NOTE-  
When Codes 7500 and/or 7600 have been preselected, it will be necessary for the ID-SEL-OFF switches for these codes to be left in the off position so that beacon target for an aircraft changing to one of these codes will disappear, thereby alerting the controller to make the check. This check will not be required if automatic alerting capability exists.

1. Code 7500 (hijack code).

*REFERENCE-  
FAA Order JO 7110.65, Para 10-2-6, Hijacked Aircraft.*

2. Code 7600 (loss of radio communications code).

5-2-15 through 5-2-27

a. Continuously monitor the codes assigned to aircraft operating within your area of responsibility. Additionally, monitor Code 1200, Code 1202, Code 1255, and Code 1277 unless your area of responsibility includes only Class A airspace. During periods when ring-around or excessive VFR target presentations derogate the separation of IFR traffic, the monitoring of VFR Code 1200, Code 1202, Code 1255, and Code 1277 may be temporarily discontinued.

b. When your area of responsibility contains or is immediately adjacent to a restricted area, warning area, VR route, or other category where Code 4000 is appropriate, monitor Code 4000 and any other code used in lieu of 4000.

*REFERENCE-  
FAA Order JO 7210.3, Para 3-6-3, Monitoring of Mode 3/A Radar Beacon Codes.*

Delete

Delete

Delete

Delete

Delete

Renumber 5-2-12 through 5-2-24

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**1. PARAGRAPH NUMBER AND TITLE:** 5-3-3. BEACON/ADS-B IDENTIFICATION METHODS

**2. BACKGROUND:** When FAA Order JO 7110.65 migrated from version “H” to version “J”, many formatting changes occurred throughout the publication. During this process, the phraseology example in subparagraph 5-3-3d was captured incorrectly resulting in verbiage that was intended as a note of instruction to controllers being shown as phraseology to be issued to pilots. That change created an incorrect phraseology requirement when issuing a discrete beacon code for the purpose of surveillance identification.



**3. CHANGE:**

**OLD**

**5-3-3. BEACON/ADS-B IDENTIFICATION METHODS**

**Title through c *PHRASEOLOGY***

**d. *EN ROUTE.*** An aircraft may be considered identified when the full data block is automatically associated with the target symbol of an aircraft that is squawking a discrete code assigned by the computer.

***NOTE-***  
*Paired LDBs in ERAM do not display a beacon code.*

***PHRASEOLOGY-***  
*SQUAWK (4 digit discrete code), AND IF YOUR ALTITUDE REPORTING EQUIPMENT IS TURNED OFF, SQUAWK ALTITUDE.*

***NOTE-***  
*The AIM informs pilots to adjust Mode C transponders and ADS-B with altitude reporting capability activated unless deactivation is requested by ATC. "Squawk altitude" is included here to provide applicable phraseology.*

***REFERENCE-***  
*FAA Order JO 7110.65, Para 3-1-9, Use of Tower Radar Displays.*  
*FAA Order JO 7110.65, Para 5-3-6, Position Information.*

**NEW**

**5-3-3. BEACON/ADS-B IDENTIFICATION METHODS**

No Change

No Change

No Change

***PHRASEOLOGY-***  
*SQUAWK (4 digit discrete code),*  
  
*or, if aircraft's altitude reporting capability is turned off.*

***SQUAWK (4 digit discrete code), SQUAWK ALTITUDE.***

No Change

No Change

**1. PARAGRAPH NUMBER AND TITLE: 9-2-13. MILITARY AERIAL REFUELING**

**2. BACKGROUND:** In accordance with FAA Order JO 7610.4, Special Operations, paragraph 10-5-6, Flight Plan Requirements, military aerial refueling requires a block of consecutive altitudes to conduct these operations. These altitudes are normally requested as part of the refueling aircraft flight plan.

**3. CHANGE:**

**OLD**

**9-2-13. MILITARY AERIAL REFUELING**

Authorize aircraft to conduct aerial refueling along published or special tracks at their flight plan altitude, unless otherwise requested.

**NEW**

**9-2-13. MILITARY AERIAL REFUELING**

Authorize aircraft to conduct aerial refueling along published or special tracks at their flight plan **altitudes**, unless otherwise requested.

**PHRASEOLOGY–**  
 CLEARED TO CONDUCT REFUELING ALONG  
 (number) TRACK,

or

FROM (fix) TO (fix),

and

MAINTAIN REFUELING LEVEL (altitude).

or

MAINTAIN (altitude).

or

COMMENCING AT (altitude), DESCENDING TO  
 (altitude).

**NOTE–**

1. During aerial refueling, tanker aircraft are responsible for receiver aircraft communication with ATC and for their navigation along the track.
2. Aerial refueling airspace is not sterilized airspace and other aircraft may transit this airspace provided vertical or lateral separation is provided from refueling aircraft.
3. MARSAs begins between the tanker and receiver when the tanker and receiver(s) have entered the air refueling airspace and the tanker advises ATC that he/she is accepting MARSAs.
4. MARSAs ends between the tanker and receiver when the tanker advises ATC that the tanker and receiver aircraft are vertically positioned within the air refueling airspace and ATC advises MARSAs is terminated.

**REFERENCE–**

FAA Order JO 7110.65, Para 2–1–11, Use of MARSAs.  
 FAA Order JO 7110.65, Para 5–5–8, Additional Separation for Formation Flights.  
 FAA Order JO 7610.4, Chapter 10, Aerial Refueling.

**PHRASEOLOGY–**  
 CLEARED TO CONDUCT REFUELING ALONG  
 (number) TRACK,

or

FROM (fix) TO (fix),

and

MAINTAIN **BLOCK (altitude) THROUGH (altitude).**

or

COMMENCING AT (altitude), DESCENDING TO  
 (altitude).

No Change

No Change

No Change

No Change

No Change