NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Traffic Organization Policy

N JO 7110.683

Effective Date:
January 29, 2015

Cancellation Date:
January 28, 2016

SUBJ: Guidance for the Implementation of FUSION/Automatic Dependent Surveillance-Broadcast (ADS-B) within Common Automated Terminal System Model IIIE (CARTS) and Standard Automation Replacement System (STARS)

1. Purpose of This Notice. The purpose of this notice is to prescribe guidance for the use of ADS-B surveillance when operating in FUSION display mode only, and retain certain provisions from FAA Notice N JO 7110.676 until they can be incorporated into the FAA Order JO 7110.65. Additionally, provisions related to TPX-42, Programmable Indicator Data Processor (PIDP), and Direct Altitude and Identity Readout (DAIR) are obsolete. Consistent with United States Navy and United States Air Force concurrences, these items are being removed from this order and the Pilot/Controller Glossary (PCG). The change also re-indexes Paragraph 5-5-2 sub-paragraphs appropriately.

2. Audience. This notice applies to the Air Traffic Organization (ATO) service units: Air Traffic Services, Mission Support, and System Operations; and all associated terminal air traffic control facilities.

3. Where Can I Find This Notice? This notice is available on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices/ and on the air traffic publications Web site at http://www.faa.gov/air_traffic/publications/.

4. Background. FUSION utilizes all available surveillance sources (airport surveillance radar (ASR), air route surveillance radar (ARSR), ADS-B, etc.) into the display of a single tracked target for air traffic control separation services. FUSION is the equivalent of the current single-sensor radar display. FUSION performance is characteristic of a single-sensor radar display system. Terminal areas use mono-pulse secondary surveillance radar (ASR-9, Mode S and ASR-11 Beacon System). The performance of this system will be used as the baseline radar system to ensure minimal degradation of current separation operations within the NAS.

A recently signed Safety Risk Management Document (SRMD) addendum supports and authorizes 3NM ADS-B to ADS-B and ADS-B to Radar separation when operating in Fusion mode for Air Traffic operations. The Surveillance and Broadcast Services Air Traffic CHI Workgroup was established to ensure functional standardization and usability of multiple surveillance sources integration in both the terminal and en route domains.

Facilities can determine whether an operational advantage exists in using the ADS-B CHI by considering the volume of airspace where the only surveillance is being provided by ADS-B as well as the frequency of ADS-B equipped aircraft operations.

During the process to finalize this Notice, references to PIDP/DAIR and TPX-42 were noted. After coordinating with the US Navy and US Air Force, they concur that the provisions containing TPX-42 and PIDP /DAIR have outlived their usefulness, are covered in service directives where applicable, and are no longer required in FAA Order JO 7110.65 or the PCG.

5.   **Cancellation.** This notice cancels and replaces FAA Notice N JO 7110.676.

6.   **Procedures**.

a. Amend the following paragraphs to read as follows:

5-2-13 CODE MONITOR

<div align="center">Title through Reference, No Change</div>

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.

<div align="center">No further changes to this paragraph</div>

5-2-17. VALIDATION OF MODE C READOUT

Ensure that Mode C altitude readouts are valid after accepting an interfacility handoff, initial track start, track start from coast/suspend tabular list, missing, or unreasonable Mode C readouts. (TCDD−/BANS−equipped tower cabs are not required to validate Mode C readouts after receiving interfacility handoffs from TRACONs according to the procedures in para 5−4−3, Methods, subpara a4.)

<div align="center">No further changes to this paragraph</div>

5-4-6. RECEIVING CONTROLLER HANDOFF

<div align="center">Title through paragraph f., No Change</div>

1. When an automated interfacility handoff action is initiated and "AMB" or "AM" is displayed in the full data block, advise the other facility that a disparity exists between the position declared by their computer and that declared by your system.

<div align="center">No further changes to this paragraph</div>

5-5-2. TARGET SEPARATION

Apply radar separation:

a. Between the centers of primary radar targets; however, do not allow a primary target to touch another primary target or a beacon control slash.

b. Between the ends of beacon control slashes.

<div align="center">Delete Note</div>

c. Between the end of a beacon control slash and the center of a primary target.

d. All-digital displays. Between the centers of digitized targets. Do not allow digitized targets to touch.

REFERENCE-
FAAO JO 7110.65, Para 5-9-7 Simultaneous Independent Approaches – Dual & Triple.

<div align="center">No further changes to this paragraph</div>

5-5-4. MINIMA

Title through paragraph b2., No Change

NOTE-
In the event of an unexpected ISR on one or more aircraft, the ATCS working that aircraft must transition from 3-mile to 5-mile separation, or establish some other form of approved separation (visual or vertical) as soon as feasible. This action must be timely, but taken in a reasonable fashion, using the controller's best judgment, as not to reduce safety or the integrity of the traffic situation. For example, if ISR appears when an aircraft is established on final with another aircraft on short final, it would be beneficial from a safety perspective to allow the trailing aircraft to continue the approach and land rather than terminate a stabilized approach.

Paragraph b3., No Change

4. ADS-B may be integrated as an additional surveillance source when operating in FUSION mode. The display of ADS-B targets is permitted and does not require radar reinforcement.

NOTE-
ADS-B surveillance must only be used when operating in FUSION.

5. The use of ADS-B only information may be used to support all radar requirements associated with any published instrument procedure that is annotated "Radar Required".

6. The ADS-B Computer Human Interface (CHI) may be implemented by facilities on a sector by sector or facility wide basis when the determination is made that utilization of the ADS-B CHI provides an operational advantage to the controller.

No further changes to this paragraph

Re-title Section 15 to read Common Automated Radar Terminal Systems (CARTS) & Standard Terminal Automation Replacement System (STARS) - Terminal

5-15-1. APPLICATION

CARTS/STARS may be used for identifying aircraft assigned a discrete beacon code, maintaining identity of targets, and performing handoffs of these targets between controllers. All procedures for the terminal domain related to air traffic control services using CARTS or STARS apply to the FUSION target.

Delete Note

No further changes to this paragraph

5-16. TPX-42

Title through 5-16-6, Remove entirely

7-6-1. BASIC RADAR SERVICE TO VFR AIRCRAFT-TERMINAL

Title through 7-6-1b Reference, No Change

Delete Paragraph 7-6-1c

No further changes to this paragraph

7-9-4. SEPARATION

Title through paragraph b1., No Change

NOTE-
When ISR is being displayed, discontinue 1½NM separation.

No further changes to this paragraph

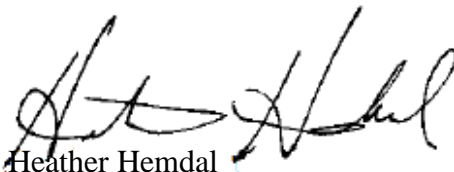b. Remove the following definitions from the Pilot/Controller Glossary (PCG) as follows:

DIRECT ALTITUDE AND IDENTITY READOUT− The DAIR System is a modification to the AN/TPX-42 Interrogator System. The Navy has two adaptations of the DAIR System-Carrier Air Traffic Control Direct Altitude and Identification Readout System for Aircraft Carriers and Radar Air Traffic Control Facility Direct Altitude and Identity Readout System for land-based terminal operations. The DAIR detects, tracks, and predicts secondary radar aircraft targets. Targets are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, altitude, ground speed, and flight plan data. The DAIR System is capable of interfacing with ARTCCs.

PROGRAMMABLE INDICATOR DATA PROCESSOR (PIDP). The PIDP is a modification to the AN/TPX−42 interrogator system currently installed in fixed RAPCONs. The PIDP detects, tracks, and predicts secondary radar aircraft targets. These are displayed by means of computer−generated symbols and alphanumeric characters depicting flight identification, aircraft altitude, ground speed, and flight plan data. Although primary radar targets are not tracked, they are displayed coincident with the secondary radar targets as well as with the other symbols and alphanumerics. The system has the capability of interfacing with ARTCCs.

TPX-42− A numeric beacon decoder equipment/system. It is designed to be added to terminal radar systems for beacon decoding. It provides rapid target identification, reinforcement of the primary radar target, and altitude information from Mode C.

7.   Distribution. This notice is distributed to the following ATO service units: Terminal, En Route and Systems Operations Services; the Office of ATO Safety and Technical Training; the Air Traffic Safety Oversight Service; and the William J. Hughes Technical Center.

8.   Safety Management System. The provisions of this notice are based on the FUSION System Safety Risk Management Document (SRMD), Sub-System Hazard/System Hazard Analysis for CARTS and STARS; and the CARTS and STARS ADS-B Only addendum, prepared by the FAA Surveillance and Broadcast Services Program. These SRMDs supports the procedural guidance contained in this notice.

Heather Hemdal
Director, Air Traffic Procedures
Mission Support Services

1-2-15
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Date Signed