

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE MANUAL 13-215, Volume 3

6 FEBRUARY 2014



Space, Missile, Command and Control

**AIRFIELD OPERATIONS EQUIPMENT
SYSTEMS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available on the e-Publishing website at www.e-Publishing.af.mil for downloading or ordering.

RELEASABILITY: There are no releasability restrictions on this publication.

OPR: HQ AFFSA/A3A

Certified by: HQ USAF/A3O-B
(Lt Col Robert A. Ricker)

Supersedes: AFMAN 13-215,
16 JANUARY 2002

Pages: 11

This manual implements Air Force Policy Directive (AFPD) 13-2, *Air Traffic, Airfield, Airspace and Range Management*. It applies to all US Air Force (USAF), Air National Guard (ANG) and Air Force Reserve Command (AFRC) organizations (to include contracted locations) that operate or administer functions in facilities in the airfield operations flight (AOF). At joint, shared-use and overseas airfields, this manual applies to the facilities that are controlled and used exclusively by the Department of the Air Force, as outlined in real estate documents or letters of agreement. It provides instruction for utilization and operation of Airfield Operations (AO) equipment systems. This manual may be supplemented at any level, but all supplements that directly implement this publication must be routed to the HQ Air Force Flight Standards Agency, Director of Airfield Operations (HQ AFFSA/A3A) for coordination prior to certification and approval. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional's chain of command. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located in the Air Force Records Information Management System (AFRIMS).

SUMMARY OF CHANGES

This document has been substantially revised and must be reviewed in its entirety. Major changes include: Air Traffic Control recorder system information was extracted from AFI 13-204 Volume 3, *Airfield Operations Procedures and Programs* and inserted into this volume.

Chapter 1

OVERVIEW

1.1. Scope and Purpose of this Manual. This manual provides instructions for utilization and operation of selected AO equipment systems.

1.2. Responsibilities. HQ AFFSA will establish USAF instructions for utilization and operation of AO equipment systems through publication of this Air Force Manual (AFMAN) and associated volumes.

1.3. Waivers and Recommended Changes.

1.3.1. Waiver Authority. HQ AFFSA is the waiver authority for this manual. All waivers will be submitted to HQ AFFSA/A3A (hqaffsa.a3a@us.af.mil) through the appropriate MAJCOM (Major Command) AO OPR for consideration. **Note:** Waivers to this manual will only be considered when deemed necessary for completion of assigned flying mission.

1.3.2. Waiver Process. Use AF IMT 4058, *Airfield Operations Policy Waiver*, to request waivers to this manual. If additional space is required, annotate on plain bond paper and submit along with the form. Number each comment with the corresponding block number. In addition, units must submit an Operational Risk Management (ORM) Assessment in accordance with Air Force Pamphlet (AFPAM) 90-803, *Risk Management (RM) Guidelines and Tools*, or alternate risk mitigation procedures with all waiver requests.

1.3.2.1. The Airfield Operations Flight Commander (AOF/CC) forwards the AF IMT 4058 through the Senior Operational Commander (SOC) (i.e., Operations Group Commander [OG/CC]) to the MAJCOM OPR for AO, who will then coordinate and send to HQ AFFSA/A3A for final resolution. If deemed necessary, submit additional supporting data to substantiate the waiver request.

1.3.2.2. To ensure a periodic revalidation of waiver requirements, HQ AFFSA normally grants AO waivers for two year periods.

1.3.2.3. Waiver renewal requests must reach HQ AFFSA NLT 45 days prior to expiration.

1.3.3. Recommended Changes. Submit recommended changes to this manual through the MAJCOM OPR for AO to HQ AFFSA using AF Form 847.

Chapter 2

RECORDER SYSTEMS

2.1. General. Digital Voice Recorder System (DVRS) and Digital Audio Legal Recorder (DALR).

2.2. DVRS. Where capabilities exist, record by operating position, individual frequency, and landlines as determined by facility managers.

2.2.1. Record operating positions in the following priority:

2.2.1.1. Precision Approach Radar.

2.2.1.2. Local Control.

2.2.1.3. Primary Crash Alarm System.

2.2.1.4. Arrival Control.

2.2.1.5. Departure Control.

2.2.1.6. Approach Control.

2.2.1.7. Coordinator.

2.2.1.8. Flight Data.

2.2.1.9. Approach/Arrival Assistant.

2.2.1.10. Clearance Delivery.

2.2.1.11. Ground Control.

2.2.1.12. Supervisor of Flying (SOF).

2.2.1.13. Land Mobile Radio (LMR) nets.

2.2.1.14. Automatic Terminal Information Service (ATIS).

2.2.1.15. Supervisor.

2.2.1.16. Tower backup radios.

2.2.1.17. Administrative telephones.

2.2.2. Multi-channel recorders/DVRS must have an approved time source installed (i.e. Global Positioning System).

2.2.3. Record pilot-to-dispatch and pilot-to-metro frequencies after meeting the requirements of paragraph 2.2.1. Use remaining channels to record individual frequencies.

2.2.4. Digital Audio Tape (DAT) Administration.

2.2.4.1. CCTLRs must establish schedules, procedures, and checklists for DAT changes/cleaning.

2.2.4.2. CCTLRs must ensure personnel performing DAT changes are trained in the proper methods to be used and task certification is documented in AF Form 623.

2.2.4.3. CCTLRs must consider local conditions and ensure DATs are changed at increments that do not exhaust DAT capacity. **Note:** DAT changing cycles must not exceed 73 hours.

2.2.4.4. CCTLRs must ensure personnel include an entry on the AF IMT 3616, *Daily Record of Facility Operation*, identifying date, time, DAT in use, the initials of the person accomplishing the change, and reason for the change (e.g. periodic, bad tape, etc.).

2.2.4.5. CCTLRs must ensure an identification number is assigned to each DAT and enough are available in the rotation cycle to accommodate 45-day overwrite protection. Protection must be ensured to prevent inadvertent loss of data at facilities using DATs for greater than 24-hour cycles. Locations using a 24-hour rotation cycle must ensure a minimum of 45 days between initial insertion and reuse. Locations using a 48-hour rotation cycle must ensure a minimum of 46 days between initial insertion and reuse.

2.2.4.5.1. Recordings must adhere to the requirements of AFI 13-204 Volume 3, Chapter 5.

2.2.4.5.2. DATs must be replaced after 35 recording cycles.

2.2.4.6. Directly after a DAT insertion (as a standby tape), the DVRS places a “date created” tag on the tape (current Zulu date). DAT software calculates the 45-day overwrite protection based on the “date created” tag, not the last recording on the tape. If the recorded content of the tape exceeds two days from the “date created” stamp, there is a potential to overwrite recorded data too soon (especially for locations using DATs longer than a 24-hour cycle).

2.2.4.7. Validate Nicelog supervision window for alarms and verify normal operations of equipment on DVRS on a daily basis, not to exceed 25 hours.

2.2.4.8. Audio quality checks must be accomplished monthly. If this function is performed by maintenance, include in facility procedures. Annotate Nicelog verification and quality checks on AF IMT 3616 when accomplished.

2.2.4.9. DVRS users must be issued unique log-in passwords (e.g. LOG-IN: RT; PASSWORD: chosen by RT). **Note 1:** Log-in password information must not be shared among users (e.g., LOG-IN: A Crew; PASSWORD: shared by A Crew). **Note 2:** Delete/disable user accounts when a member is reassigned (e.g. Permanent Change of Station [PCS], Permanent Change of Assignment [PCA], etc.).

2.2.4.10. DVRS must only be used for accessing and editing recordings made with the DVRS equipment. The computer workstation and logger must not be used for any other purpose.

2.2.4.11. No other programs and/or software packages are to be loaded and/or executed on any of the DVRS system components.

2.2.4.12. Do not lock channels longer than five hours. Locking channels for extended periods of time will overload the hard-drive and cause system failure. Make an entry on AF IMT 3616 to show locking and unlocking times.

2.3. Digital Audio Legal Recorder (DALR) Administration.

2.3.1. CCTLRs must establish schedules, procedures, and checklists for audio/alarm checks.

2.3.2. CCTLRs must ensure personnel performing DALR recording and alarm checks are trained in the proper methods to be used and task certification is documented in AF Form 623.

2.3.3. Daily Recording/Alarm Checks.

2.3.3.1. Validate Simple Network Messaging Protocol (SNMPc) Management software is operational and verify normal operations of equipment on a daily basis not to exceed 25 hours.

2.3.3.2. CCTLRs must ensure personnel include an entry on the AF IMT 3616 identifying date, time, the initials of the person accomplishing the check, and reason for the check.

2.3.4. Monthly Quality Checks.

2.3.4.1. CCTLRs must establish procedures that ensure DALR recording quality checks are accomplished at least monthly and include a statement on the AF IMT 3616 when such checks are accomplished.

2.3.4.2. The High Density Logger (HDL) establishes a 45-day protection window on recorded data automatically.

2.3.5. Rewriteable CDs (CD-RWs), Digital Video Discs (DVDs), or any type of flash media are not authorized for use on the DALR system. Recordings shall be on a Compact Disc-Recordable (CD-R) or Digital Video Disc-Recordable (DVD-R) only.

2.3.5.1. CD/DVDs shall be marked with date extracted, date/time of incident, facility name, and rank/name of individual accomplishing recording.

2.3.5.2. Recordings must adhere to the requirements of AFI 13-204 Volume 3, Chapter 5.

2.3.5.3. Recordings shall not be emailed.

2.3.6. DALR users must be issued unique log-in passwords (e.g. LOG-IN: RT; PASSWORD: chosen by RT). **Note 1:** Log-in password information must not be shared among users (e.g., LOG-IN: A Crew; PASSWORD: shared by A Crew). **Note 2:** Delete/disable user accounts when a member is reassigned (e.g., PCS, PCA, etc.).

2.3.7. DALR must only be used for accessing and editing recordings made with the DALR equipment. The computer workstations must not be used for any other purpose.

2.3.8. No other programs and/or software packages are to be loaded and/or executed on any of the DALR system components.

2.3.9. Profile access shall be restricted as follows:

2.3.9.1. System Administrator - AO staff and Airfield Systems personnel only.

2.3.9.2. Organizer - 7-level AO personnel or above.

2.3.9.3. Reconstruct - 5-level AO personnel or above.

2.3.9.4. Monitor - All AO personnel.

Chapter 3

PROGRAMMABLE INDICATOR DATA PROCESSOR (PIDP)

3.1. PIDP System Adaptation. All PIDP installations use the same standard PIDP computer software program. Before facility delivery, AFFSA/A4S adds site unique data to the standard software to optimize the program for use at that facility.

3.1.1. PIDP design criteria. The program design criteria for the PIDP provides air traffic controllers the capability to furnish a safe terminal advisory and control service to aircraft arrivals, departures, and over flights. Required items of site unique data ensure achieving this objective. All program magnetic media delivered to each facility include the site unique data, tailoring the standard PIDP software to fit the specific system and area. The following paragraphs detail specific steps for collecting, compiling, recording, and submitting site unique data for the proper functioning of the auto-acquire, terminal-to-terminal hand-off, and reflection discrimination features. For the software to function properly, keep all site unique data accurate. When necessary to change an item of site unique data, request the change from HQ AFFSA/A4S (DSN 884-7004). Address all correspondence concerning PIDP to: HQ AFFSA/A4S, 6500 S. MacArthur Blvd, Oklahoma City, OK 73169. Process change requests at least 30 days before the change takes effect to allow time for data processing and return delivery of the corrected program. Provide the MAJCOM Terminal Instrument Procedures (TERPS) office an information copy of all revisions sent directly to HQ AFFSA/A4S.

3.1.1.1. Facility Data.

3.1.1.1.1. Basic Site information: HQ AFFSA/A4S will provide a work sheet for site unique data with the initial request. Retain a current copy in facility records. The operation of the PIDP software is dependent upon the accuracy of this information. Retain a current copy in facility records. To request a change of site unique data, identify the changed item(s) in a letter or message to HQ AFFSA/A4S.

3.1.1.1.2. Auto-acquire/Conflict Alert. Provide coordinates of the facility's designated airspace boundary to HQ AFFSA/A4S. After processing the data, HQ AFFSA/A4S furnishes a computer-generated map of the airspace, auto-acquire area, and conflict alert boundaries for local review. Auto-acquire is roughly based on a 10 nautical mile (NM) boundary around the designated airspace. The conflict alert boundary is by default 10 NM outside of the auto-acquire boundary. HQ AFFSA/A4S designs these sectors based on magnetic North, as determined by the Airport Surveillance Radar site's magnetic variation. The PIDP computer program prevents the auto-acquire/ conflict alert functions from operating on aircraft outside the defined boundaries. When changing auto-acquire/conflict alert limits, refer to the sector by number (1-36), and give the new requested range value(s).

3.1.1.2. Minimum Safe Altitude Warning (MSAW) Data. Collect MSAW data IAW Air Force Manual 13-215v2, *Airfield Operations Charts and Instrument Procedures Support*.

3.1.1.3. Terminal-to-Terminal Interface Data Collection:

3.1.1.3.1. The PIDP terminal-to-terminal interface function allows interfacing of one facility with up to eight other automated PIDP or Automated Radar Terminal System terminal facilities or non-host centers. Other facilities must interface with the same Air Route Traffic Control Center (ARTCC), share a common airspace boundary, and have the software capability. Terminal Radar Service Area (TRSA) hand-offs are an additional option to the standard terminal-to-terminal interface.

3.1.1.3.2. Use the HQ AFFSA/A4S form in [Attachment 2](#) for submitting terminal-to-terminal interface data. Coordinate the necessary data between the terminal facilities involved. Fill in the required data beginning with Terminal Facility Number 1. The computer program uses the facility number and the TRSA alpha character to identify that facility in hand-off processing. Facility reference IDs are the three letter identifiers that the ARTCC computer uses to identify the facilities. Use two fixes (defined by three letter identifiers) for each entry. The first fix is the entry fix and the second is the exit fix. Indicate the type of fix pair (enroute or arrival) on the form. Use enroute fix pairs for over flight routes through the receiving facility's airspace. Use arrival fix pairs for flights that terminate in the receiving facility's airspace. In the case of an arrival type fix pair, the exit fix is the destination airport. Submit data required for the terminal-to-terminal function directly to HQ AFFSA/A4S at least 30 days in advance of the effective date.

3.1.1.4. Reflection Data Collection:

3.1.1.4.1. Some locations may experience difficulty with false targets caused by radar reflections. With appropriate additions to the basic software, the PIDP is capable of inhibiting the display of many of these false target reflections. Reflection processing is effective only against true radar reflections and cannot reduce the clutter caused by maladjusted equipment gain time constant (GTC). This clutter is often called "ring-around."

3.1.1.4.2. Facility CCTLRs experiencing difficulties with reflections should contact HQ AFFSA/A4S for assistance and the necessary forms. Data required includes the code, altitude, the beginning and ending range and azimuth of real targets and the altitude, beginning and ending range and azimuth, and the number of sweeps for the false targets. Track the real and false targets to determine the azimuth and range where real targets begin picking up reflected signals which produce false targets. Define these false target zones; mark the real and false target zones on the radar indicators in grease pencil when the controllers' observations show a pattern. After the zones are clearly defined, make a sketch of the display showing the real and false target zones. Data must be complete and accurate to minimize the possibility of suppressing true targets. The quality of the reflection suppression depends upon the accuracy of the observations and the size of the sample. One or two observations do not form an adequate sample. Conversely, hundreds of samples are not necessary to define reflections off of a building. Twenty to thirty tracks should reasonably define the individual false target zones. Note also that some real target tracks may have more than one false target zone (two or more false target tracks). Record these also. Collect this data with the AN/TPX-42A Interrogator Set operating in normal low power mode, with Defruit and Bracket Video "ON." Observe data from both

receivers and transmitters. Set video signal processor settings as shown in the most recent Air Traffic Control & Landing Systems Evaluation.

HARRY C. DISBROW, Jr., SES, DAF AF/A3/5
Assoc DCS, Operations, Plans & Requirements

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORT INFORMATION*****References***

AFPD 13-2, *Air Traffic, Airfield, Airspace and Range Management*, 7 August 2007

AFI 13-204 Volume 3, *Airfield Operations Procedures and Programs*, 1 September 2010

AFMAN 33-363, *Management of Records*, 1 March 2008

AFPAM 90-803, *Risk Management (ORM) Guidelines and Tools*, 11 February 2013

Prescribed Forms

None

Adopted Forms

AF Form 623, *On-the-Job Training Record*

AF Form 847, *Recommendation for Change of Publication*

AF IMT 4058, *Airfield Operations Policy Waiver*

AF IMT 3616, *Daily Record of Facility Operation*

Abbreviations and Acronyms

AFMAN—Air Force Manual

AFPAM—Air Force Pamphlet

AFRC—Air Force Reserve Command

ANG—Air National Guard

AO—Airfield Operations

AOF—Airfield Operations Flight

AOF/CC—Airfield Operations Flight Commander

ARTCC—Air Route Traffic Control Center

ATIS—Automatic Terminal Information Service

CCTLR—Chief Controller

CD-R—Compact-Disc Recordable

CD-RW—CD Rewriteable

DALR—Digital Audio Legal Recorder

DAT—Digital Audio Tape

DSS—Data System Specialists

DVD—R—Digital Video Disc-Recordable

DVRS—Digital Voice Recorder System

GTC—Gain Time Constant
HDL—High Density Logger
HQ AFFSA—Headquarters Air Force Flight Standards Agency
IMT—Information Management Tool
LMR—Land Mobile Radio
MAJCOM—Major Command
MSAW—Minimum Safe Altitude Warning
NM—Nautical Mile
OG/CC—Operations Group Commander
OPR—Office of Primary Responsibility
ORM—Operational Risk Management
PCA—Permanent Change of Assignment
PCS—Permanent Change of Station
PIDP—Programmable Indicator Data Processor
RDS—Records Disposition Schedule
SNMPc—Simple Network Messaging Protocol
SOC—Senior Operational Commander
SOF—Supervisor of Flying
TERPS—Terminal Instrument Procedures
TI—Track Initiate
TRSA—Terminal Radar Service Area

Attachment 2

INSTRUCTIONS

We need all information to be updated, verified and then corrected (as needed). This information will remain current in our files until such time that you submit changes to your site data. Please utilize all of your resources to get the most correct information. PIDP allows for up to eight "Terminal Facilities", this data collection sheet will hold six. Please attach another page if you have more facilities than the form allows. TERPS personnel shall provide Latitude/Longitude information. Facility managers shall provide fix pair data and arrival/enroute information. Data System Specialists (DSS) at the ARTS/ARTCC facility should be able to provide adjacent facility terminal information. Should you have trouble obtaining any of this data, please call HQ AFFSA/A4S at DSN 884-5696.

DEFINITION OF TERMS

If you have an adjacent NON-HOST facility, you only have to provide the facility name and PIDP reference identification. All other facility entries must include antenna location and fix pair data (if required).

Facility Name - This should be the terminal facility to which you will make handoff. If the ARTS facility is enhanced to receive field 13 in Track Initiate (TI) messages, then place a large "E" next to the facility name.

PIDP Reference ID - This is an ARTCC defined 3-letter identifier for the terminal facility. You must have this if you interface with an adjacent ARTS/PIDP.

Antenna Location - Geographical location of the adjacent facility radar antenna. Example: 51 24 33.00N 122 34 15.00W

Entry Fix ID - Entry fix for one of up to four routes (A through D).

Exit Fix ID - Exit fix for one of up to four routes (A through D).

Arrival/Enroute - This denotes whether the pair data above is for arrival or enroute routes to or through the adjacent facilities airspace.