ORDER

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

7110.100

2/3/88

SUBJ CONFLICT ALERT AND MINIMUM SAFE ALTITUDE WARNING VARIATIONS IN EARTS-M

1. PURPOSE. This order describes the differences between conflict alert (CA) and EARTS minimum safe altitude warning (EMSAW) in EARTS-M en route and terminal regions and the operational effects these parameters have on a terminal sector while using an ARSR as a temporary replacement for an out-of-service ASR.

2. DISTRIBUTION. This order is distributed to selected offices in Washington and regional headquarters, area offices, the Mike Monroney Aeronautical Center, the FAA Technical Center, selected air route traffic control facilities, and selected airway facilities field offices.

3. EFFECTIVE DATE. January 1, 1988

4. BACKGROUND.

a. EARTS software program update, version A4.05, includes both CA and EMSAW. EARTS-M's unique features, however, leads to some complications in using CA and EMSAW not encountered in NAS. CA and EMSAW parameters are smaller in regions adapted for terminal use than in en route regions. The regions' differing parameters affects the time between the first alert displayed and the target's intrusion of protected airspace. This difference in parameters is relevant in terminal regional sectors that switch to an ARSR sensor when its ASR sensor fails.

b. A sector using the terminal regional parameters listed in Attachments 1, 2, and 3, but looking at an ARSR while its ASR is out of service, will have to compensate for a significantly shorter look-ahead time than they are used to. The key linear conflict system parameter waits two scans after detecting a predicted violation before displaying an alert on the scope. This gives the controller a 32-second warning before violation when using an ASR but only gives the controller a 16-second warning when an ARSR is used. Since the system looks ahead only 40 seconds, two scans takes up 24 seconds for an ARSR, leaving only a 16-second alert display before violation.

c. A similar problem exists in EMSAW. Smaller polygons surrounding terrain and obstacles, shorter look-ahead times, and longer scan times in the ARSR means terrain warnings in region 3 airspace are less than 35 seconds and approach path warnings in region 2 airspace can be as little as 7 seconds.

Distribution A-W(AT/TO/TR/TS)-2; A-X(AT/AF) AWP/ASO/AAL only; Honclulu/Anchorage ARTCC's, San Juan AFS, Nellis ATREP; AAP-310; ATR-250; AAC-930

Initiated By ATO-330

5. PROCEDURES.

a. All controllers shall be briefed on the contents of this order, emphasizing the diminished times that alerts will be displayed on their scopes while an ARSR temporarily replaces an out-of-service ASR.

b. Facilities shall determine what part of terminal sectors are affected by reduced CA and EMSAW alert times while using an ARSR and shall distinctly mark these areas on the affected sectors' overhead charts.

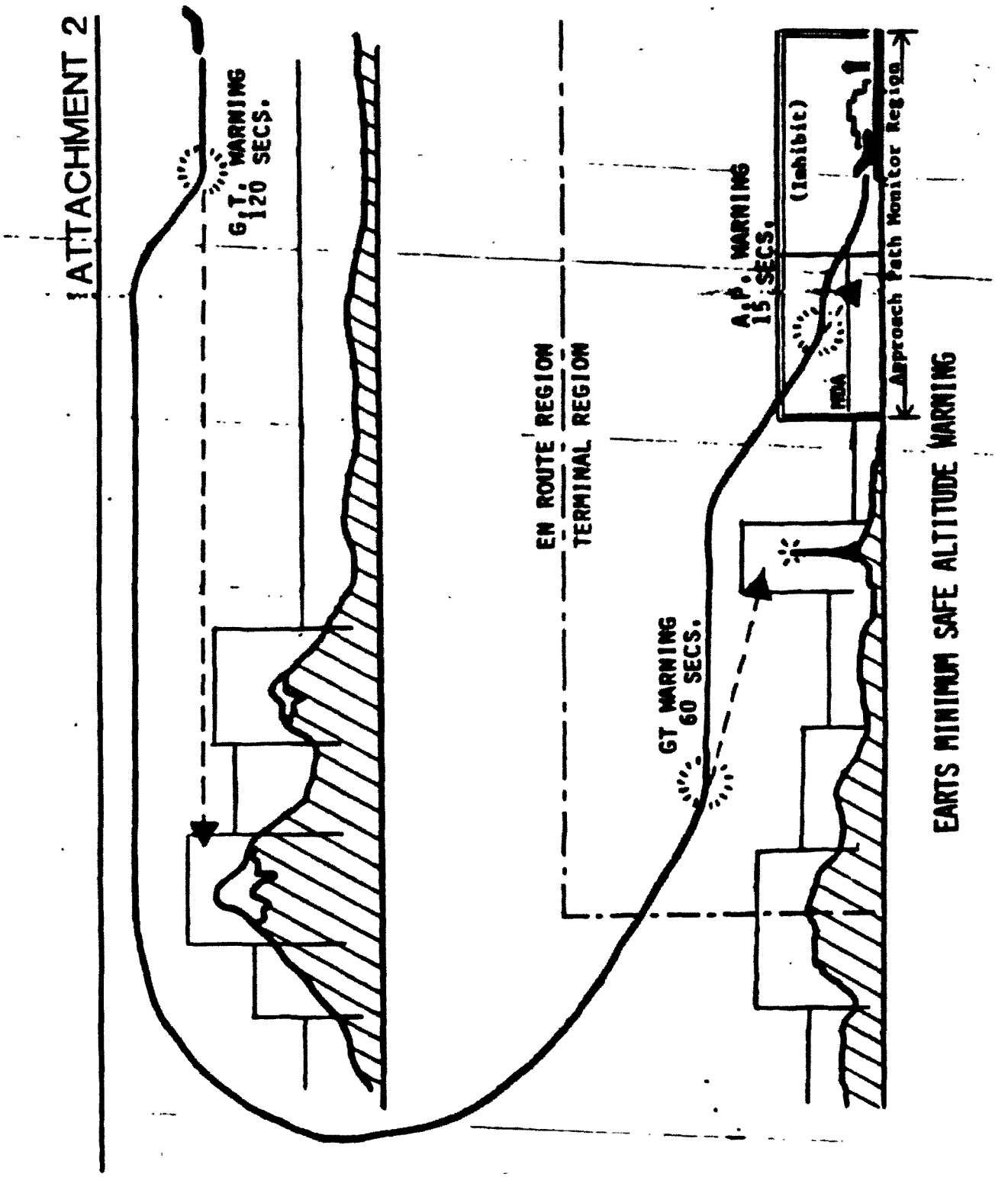
for Walter S. Mitchell
John R. Ryan
Director, Air Traffic
Operations Service, ATO-1

ATTACHMENT 1

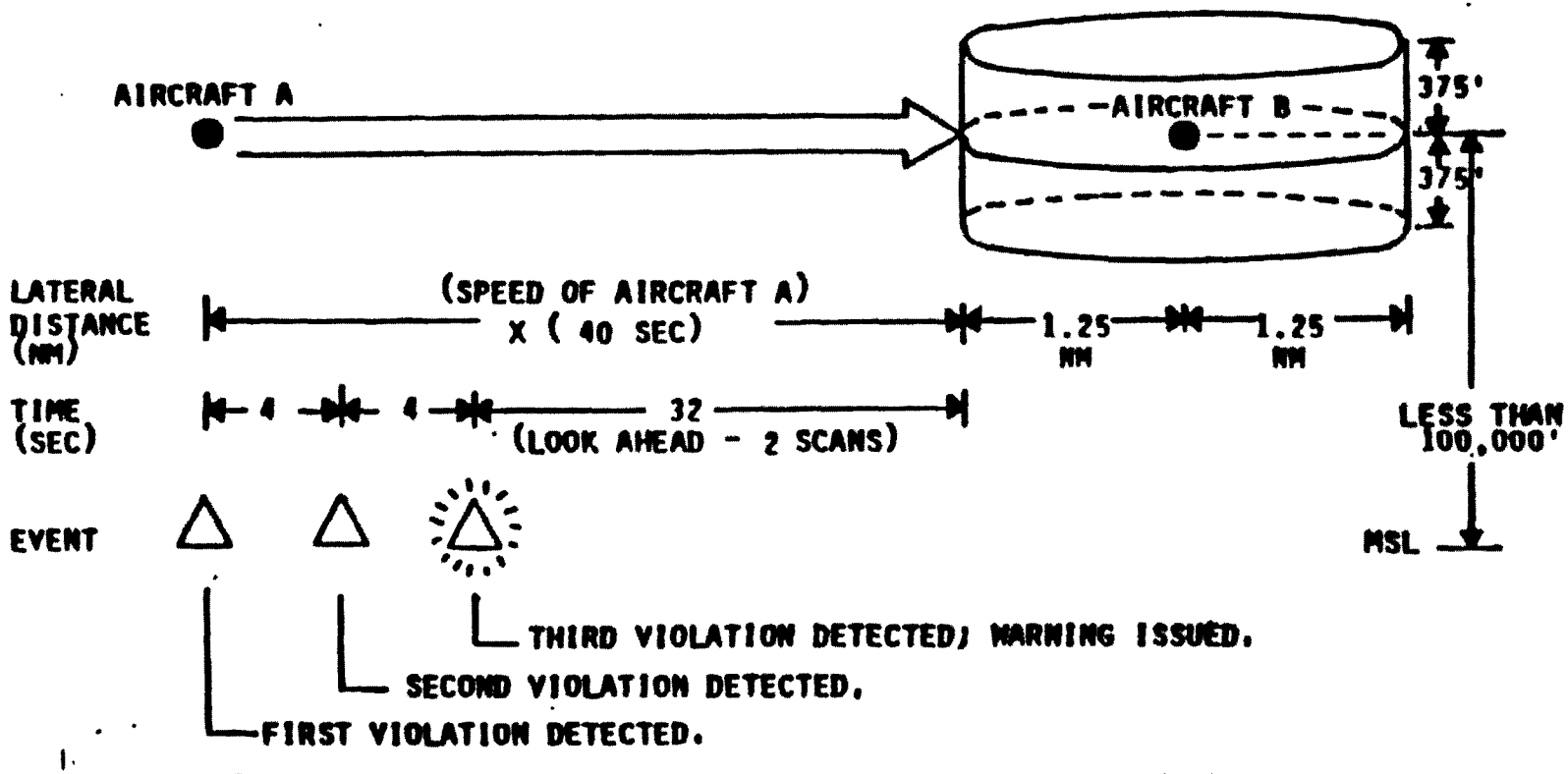
KEY LINEAR CONFLICT (LINCON) SYSTEM PARAMETERS

(AREA TYPE)	EN ROUTE REGION 4	TERMINAL REGION 3	TERMINAL REGION 2*	TERMINAL REGION 1**
• LOOK-AHEAD TIME (SEC)	120	40	40	40
• MINIMUM LATERAL SEPARATION (NM)	2.0	1.25	0.75	0.5
• MINIMUM VERTICAL SEPARATION (FT)	375	375	275	275
• DISPLAY ALERT SLIDING WINDOW M/N CRITERIA (SCANS)***	3 OF 5	3 OF 5	3 OF 5	3 OF 5

* APPROACH/DEPARTURE CORRIDOR
** RUNWAY VICINITY
*** NOT AREA-DEPENDENT


ATTACHMENT 2
GT WARNING 120 SECS.
EN ROUTE REGION
TERMINAL REGION
GT WARNING 60 SECS.
AT WARNING 15 SECS.
(Inhibit)
MSA
Approach Path Monitor Region
EARTS MINIMUM SAFE ALTITUDE WARNING

EXAMPLE: EARLIEST CONFLICT ALERT WARNING - TERMINAL REGION



IN OTHER WORDS, THE EARLIEST WARNING OCCURS 32 SECONDS PRIOR TO THE TIME WHEN AIRCRAFT A IS PREDICTED TO BE WITHIN 1.25 NM AND 375 FT. OF AIRCRAFT B.