

NOTICE

U.S. Department of Transportation
Federal Aviation Administration

N 8200.90

05/15/06

Cancellation
Date: 05/15/07

**SUBJ: Low and Medium Frequency Nondirectional Beacons (NDB)(s),
FAA Order 8200.1C, Chapter 12**

- 1. PURPOSE.** This Notice is being issued as interim guidance for Low and Medium Frequency Nondirectional Beacons (NDB)(s).
- 2. DISTRIBUTION.** This Notice is distributed to Air Traffic Technical Operations Service Areas, to the Air Force Flight Standards Agency, to the U.S. Navy Airspace and Air Traffic Control Program, to the U.S. Army Air Traffic Control Center, to all Aviation System Standards Flight Inspection Operations Offices and Crewmembers, and to special addressees.
- 3. BACKGROUND.** This Notice clarifies guidance in FAA Order 8200.1C, United States Standard Flight Inspection Manual, concerning flight inspection requirements for Nondirectional Beacons (NDB). In addition, Aviation System Standards is beginning a project to reformat FAA Order 8200.1, and the NDB chapter was chosen as the first to undergo this change.

The new format reflects an effort to streamline FAA Order 8200.1 to only include flight inspection requirements and tolerances. Flight inspection "Procedures", or the "how-to" directions, will be removed to the maximum extent possible. The flight inspection procedures will be moved to Order VN200 8240.52, Flight Inspection Standard Operating Procedures, which will become an all-encompassing document for FAA flight inspection crews.

- 4. GUIDANCE:** Please insert the attached pages in front of Chapter 12 in FAA Order 8200.1C, United States Standard Flight Inspection Manual, and use them as interim guidance pending publication of Change 1 to FAA Order 8200.1C.

/s/

Thomas C. Accardi
Director of Aviation System Standards

Attachment

Distribution: ATO-W Service Areas; **Initiated By:** Air Traffic Technical Operations (ATO-W)
Air Force Flight Standards Agency; Aviation System Standards
U.S. Navy Airspace and ATC Program; Flight Inspection Policy (AJW-331)
U.S. Army ATC Center; Aviation System Standards
Flight Inspection Operations Offices and Crewmembers

**CHAPTER 12. LOW AND MEDIUM FREQUENCY
NONDIRECTIONAL BEACONS (NDB)**

TABLE OF CONTENTS

<i>Paragraphs</i>	<i>Title</i>	<i>Pages</i>
12.10	INTRODUCTION	12-1
12.11	FLIGHT INSPECTION SPECIFICATIONS	12-1
	a. Checklist	12-1
	b. Detailed Specifications	12-1
	(1) Identification	12-1
	(2) Voice	12-1
	(3) Coverage Orbit	12-1
	(4) Routes and Transitions	12-2
	(5) Standard Instrument Approach Procedure (SIAP)	12-2
	(6) Station Passage	12-2
	(7) Standby Equipment	12-2
	(8) Standby Power	12-2
12.12	TOLERANCES	12-2
	a. Morse Code Identification	12-2
	b. Voice Transmission	12-2
	c. Usable Distance	12-3
	d. NDB Approach	12-3
	e. Bearing Tolerance Deviation	12-3
	f. Station Passage	12-3
	g. Standby Equipment	12-3
	h. Radio Frequencies	12-3

CHAPTER 12. LOW AND MEDIUM FREQUENCY NONDIRECTIONAL BEACONS (NDB)

12.10 INTRODUCTION. A Nondirectional Beacon (NDB) is a low or medium frequency radio beacon that operates in the frequency range 190 to 1,750 kilohertz (kHz). A radio beacon used in conjunction with an Instrument Landing System marker is called a Compass Locator.

12.11 FLIGHT INSPECTION SPECIFICATIONS:

a. Checklist

Type Check	Reference Paragraph	C	P	(3) Antenna/ Transmitter Change	Frequency Change
Identification	12.11b(1)	X	X	X	X
Voice	12.11b(2)	X	X	X	X
Coverage Orbit	12.11b(3)	X		X	X
Routes and Transitions	12.11b(4)	X	(1)	(4)	(1)
SIAP	12.11b(5)	X	(2)	(2)	(2)
Station Passage	12.11b(6)	X	X	X	X
Standby Transmitter	12.11b(7)	X			
Standby Power	12.11b(8) 4.33c(1)	X			

FOOTNOTES:

- (1) Surveillance only incidental to other required checks.
- (2) Final approach segment only.
- (3) Required for change in antenna type, or when modifications are made to the antenna or to the ground plane, or a change in antenna current designed to change coverage area.
- (4) Fly any airways, routes or transitions and reevaluate any associated ESV(s).

b. Detailed Specifications

(1) **Identification.** Monitor the Identification during the evaluation for clarity and interference throughout the intended service volume.

(2) **Voice.** When installed, the voice feature enables the NDB to transmit messages such as weather reports and observations. For commissioning inspections, the flight inspector must ensure the facility complies with the tolerances in Paragraph 12.12. Spot check operation during periodic inspections.

(3) **Coverage Orbit.** Coverage must be evaluated by flying an orbit with the radius equal to the area of intended use as listed in Paragraph 12.12c.

(4) **Routes and Transitions.** Coverage at distances greater than the orbit radius will be certified for specific routes or transitions. For satisfactory performance, the facility must meet the tolerances in Paragraph 12.12. Coverage at greater than the orbital distance for specific routes, airways, or transitions may be evaluated on one transmitter.

(5) **Standard Instrument Approach Procedure (SIAP).** Follow the procedures for inspection of SIAP(s) contained in Chapter 6. Altitudes flown must be the minimum proposed or published for the segment evaluated, except that the final segment must be flown to 100 ft below the lowest published MDA.

(a) **Commissioning Inspection of SIAP.** Evaluate all segments of the proposed procedure, including any holding patterns. Check for excessive needle oscillation, erroneous reversals giving false impression of station passage, or any other unusual condition.

(b) **Periodic Inspection of SIAP.** The evaluation may be limited to the final approach segment only.

(6) **Station Passage.** Evaluate the area over the facility for correct indication of station passage. Needle reversal should occur when the aircraft passes directly over or in very near proximity to the station.

(7) **Standby Equipment.** At facilities where dual transmitters are installed, the flight inspector must check each for a commissioning inspection. The flight inspector must also verify that the control station has transmitter selection capability.

(8) **Standby Power.** Refer to Paragraph 4.33c(1). If Paragraph 4.33c indicates the standby power should be checked, all the flight inspection checks should be repeated with the NDB on standby power.

12.12 TOLERANCES:

a. **Morse Code Identification.** All facilities must have a Morse code identifier that is correct, clear, and identifiable throughout the area of intended use, including any route, airway or transition that may extend beyond the normal service volume. If the Morse identifier is augmented with voice **identification**, the voice **identification** must adhere to the same tolerance as the associated Morse identifier.

b. **Voice Transmission.** Broadcast information should be clear and recognizable for a minimum of two-thirds of the NDB's usable distance.

c. Usable Distance:**(1) The minimum usable distance must be:**

CLASS	COVERAGE
Compass Locator	15 nm
MH Facility	25 nm
H Facility	50 nm
HH Facility	75 nm

(2) Maximum bearing deviation: 20° (± 10°).

d. NDB Approach. Bearing indicator deviation in the final approach segment and holding pattern must not exceed: 10° (± 5°)

e. Bearing Tolerance Deviation. Short duration, out-of-tolerance needle activity (including repetitive events) will be allowed when either:

(1) The duration does not exceed four seconds on an approach (flown at a nominal 130 knot ground speed), or

(2) The duration does not exceed eight seconds for en route and holding pattern use; but only if the out-of-tolerance activity cannot be construed as a station passage, and the activity is not generally one-sided when repetitive.

f. Station Passage. Station passage indications must be unambiguous. Momentary needle hunting while over the station will not be construed as false passage.

g. Standby Equipment. If installed, standby equipment must perform to all tolerances in this chapter.

h. Radio Frequencies. The carrier frequency tolerance applicable to NDB(s) is ± 0.01 percent (± 0.005 percent for antenna power above 200 W using frequencies of 1,606.5 kHz and above).