

An excursion from Chicago, Illinois to the west coast and back. All airports are within the continental United States – except for one. Designed to be flown using the DCA DC-4. This is an exercise in using ADF for navigation and low ceiling/visibility approaches.

May be flown IFR using included instrument approach plates. Descend in the designated holding pattern (30 second legs) to initial approach altitude. These are timed approaches from Initial Approach Fix to runway threshold.

There are FSNavigator (FSN) flight plans for each leg of the charter (324-15-01.fsn, 324-15-02.fsn, etc.) They are saved in Version 3.0.

FS9 (FS2004) used for flight planning. It has not been verified for earlier versions of Microsoft Flight Simulator.

Routes and instrument approaches are for NDB navigational aids only.

The approach plates may not be in accordance with all the latest and greatest procedures, but they will get you from point A to point B without busting your posterior or running into solid objects hiding in clouds ☺

If you are setting weather yourself, a ceiling down to 600 (with at least one 1,000' exception) feet will allow you to use the approach plates and make a safe landing. If flying “real weather,” ceilings below 600 feet may make the approach unusable. Many of the runways do have an ILS approach for those cases.

A word about the instrument approach plates.

Since these may not follow the rules for creating them, I'll provide my logic and “how to” use them on the following page.

Enjoy the flights

John Achor :-)>

DC3-0324 __x_x_ (“ “) _x_x__

The figures (numbers) in bold, are actual MSL (Mean Sea Level) altitudes; e.g., below they are 3000 feet, 2500 feet and 1297 feet. The figures in parentheses immediately below are AGL (Above Ground Level).

In this example you are cleared to 3000' MSL approaching the NDB on your initial approach. The arrows, in this case slanting down to the right and then level back to the left (to the NDB) represent the published holding pattern as published in the top portion (vertical view of approach) of the approach plate. Arriving at the NDB at 3000' MSL, you are cleared to descent to 2500' MSL in the holding pattern. This is the minimum approved altitude until you begin the final approach. Since the amount of these descents vary (one approach to the next), more than one circuit in the pattern may be required.

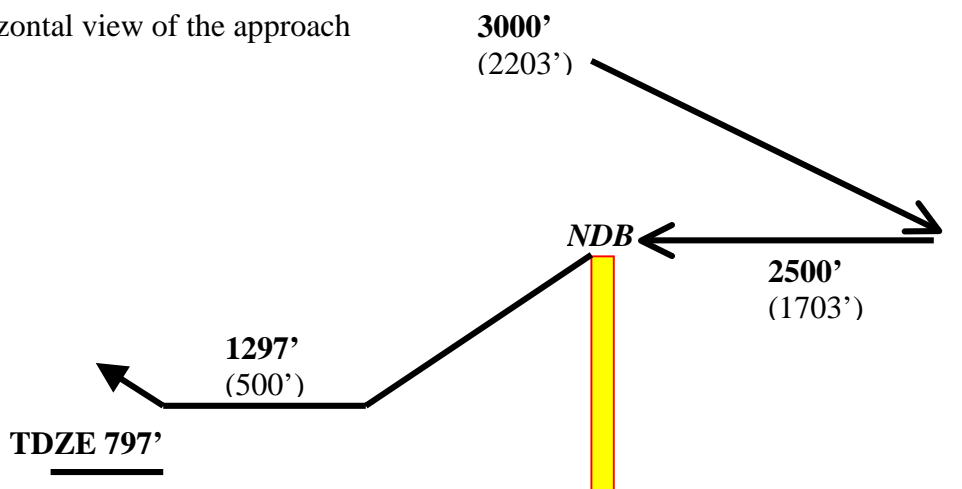
Inbound to the NDB (in this case) at 2500' MSL you are cleared from the approach. On station passage at the NDB FAF (Final Approach Fix), you are cleared to MDA (Minimum Descent Altitude), which in this case is 1297' MSL or 500' AGL (note the TDZE figure represents the field elevation).

I suggest using at least 1200 FPM (feet per minute) rate of descent for FAF to MDA. Maintain a constant airspeed. Holding a constant airspeed will allow you to measure (time) the approach from the NDB to the runway threshold. Example: if the distance from FAF to threshold is 6 miles and you hold 120 knots throughout, the no-wind time would be 3:00 minutes. These figures are shown in the table just below the horizontal view of the approach.

You should reach MDA well before the runway threshold. When the runway is in sight, you are cleared to complete your descent to landing. If the runway is not in sight after the published time from FAF to runway threshold, execute the published missed approach.

Distances from the FAF to the runway threshold vary depending on the destination from 0.6 miles to 13 miles. Ceilings vary from 500 feet to 600 feet and in one case 1,000 feet. In the 0.6 mile one, there is a double step-down in the holding pattern.

Horizontal view of the approach



324-15-01**Chicago-Midway, IL (elev 620') to Indianapolis, IN (elev 797')****Initial Altitude – 7,000 MSL****Arrival Weather Minimums: 500' – 2 mile visibility**

Location	ID	Freq	Course	Distance
Chicago-Midway	KMDW			
Garie (Gary)	GY	236.0	126	23
White County	MCX	377.0	155	58
Frankfort	FKR	278.0	162	28
Larez (Indianapolis)	FV	349.0	152	33
Indianapolis	KIND	RWY 23L		6.1

Total Miles: 148

Begin descent to 3,000 MSL at FKR; execute FV 349.0 NDB 23L instrument approach

324-15-02**Indianapolis, IN (elev 797') to St. Louis, MO (elev 604')****Initial Altitude – 8,000 MSL****Arrival Weather Minimums: 500' – 2 mile visibility**

Location	ID	Freq	Course	Distance
Indianapolis	KIND			
Pully (Indianapolis)	IN	266.0	229	8
Yinno (Terra Haute)	HU	245.0	254	48
Casey	CZB	359.0	260	29
Alpos (Alton-St Louis)	AL	218.0	253	94
Zumay (St Louis)	ST	404.0	255	16
Lambert-St Louis	KSTL	RWY 24	241	4.1

Total Miles: 199

Begin descent to 3,000 MSL at AL; execute ST 404.0 NDB 24 instrument approach

324-15-03**St. Louis, MO (elev 604') to Kansas City, MO (elev 1027')****Initial Altitude – 8,000 MSL****Arrival Weather Minimums: 500' – 2 mile visibility**

Location	ID	Freq	Course	Distance
Lambert-St Louis	KSTL			
Eaves (St Louis)	FZ	227.0	242	10
Guthrie (Fulton)	FTT	317.0	276	69
Marshall	PUR	371.0	279	57
Kenzy (Kansas City)	MK	344.0	275	65
Dotte (Kansas City)	DO	359.0	265	9
Huggy (Kansas City)	RN	416.0	311	7
Kansas City Intl	KMCI	RWY 09		5.8

Total Miles: 223

Begin descent to 3,000 MSL at MK; execute RN 416.0 NDB 09 instrument approach

324-15-04**Kansas City, MO (elev 1027') to Front Range, CO (elev 5512')****Initial Altitude – 10,000 MSL****Arrival Weather Minimums: 500' – 2 mile visibility**

Location	ID	Freq	Course	Distance
Kansas City Intl	KMCI			
Huggy (Kansas City)	RN	416.0	267	6
McDowell Creek	MQD	391.0	256	83
Clay Center	CYW	362.0	296	29
Concordia	CNK	335.0	287	25
Phillipsburg	PHG	368.0	270	76
Atwood	ADT	365.0	267	81
Saint Francis	SYF	386.0	249	34
Batten (Sterling)	BAJ	392.0	296	83
Skipi (Denver)	FT	321.0	221	71
Front Range	KFTG	RWY 27		4.7

Total Miles: 493

Begin descent to 7,500 MSL at BAJ; execute FT 321.0 NDB 09 instrument approach

324-15-05**Front Range, CO (elev 5512') to Albuquerque, NM (elev 5354')****Initial Altitude – 10,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Front Range	KFTG			
Casse (Denver)	AP	260.0	204	24
Petey (Colorado Springs)	CO	407.0	161	46
Climb to 14,000 MSL				
Monte Vista	MVI	311.0	211	94
Descend to 12,000 MSL				
Ski (Taos)	SKX	414.0	153	67
Doman (Santa Fe)	SG	341.0	192	59
Descend to 10,000 MSL				
Dudle (Albuquerque)	AE	351.0	223	35
Descend to 9,000 MSL				
Isleta (Albuquerque)	ILT	247.0	150	15
Albuquerque Intl Sunport	KABQ	RWY 35		2.6

Total Miles: 343

Begin descent to 5854 MSL established in holding pattern at ILT; execute ILT 247.0 NDB 35 instrument approach

324-15-06**Albuquerque, NM (elev 5354') to Phoenix, AZ (elev 1135')****Initial Altitude – 10,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Albuquerque Intl Sunport	KABQ			
Florida (Socorro)	FIA	329.0	183	58
Climb to 12,000 MSL				
Cozey (Silver City)	SV	251.0	203	106
Globe	GAZ	255.0	277	138
Descend to 10,000				
Falcon Field (Mesa)	FFZ	281.0	265	54
Phoenix Sky Harbor	KPHX	RWY 26		13

Total Miles: 369

Begin descent to 5000 MSL established in holding pattern at FFZ; execute FFZ 281.0

NDB 25 instrument approach

324-15-07**Phoenix, AZ (elev 1135') to San Diego Intl-Lindbergh, CA (elev 13')****Initial Altitude – 10,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Phoenix Sky Harbor	KPHX			
Glendale	GEU	215.0	279	15
Golden Eagle (Yuma)	OEG	413.0	237	115
Descend to 8,000 MSL				
Deoro (San Diego)	MY	210.0	255	131
Boing (San Diego)	AN	245.0	241	9
San Diego Intl-Lindbergh	KSAN	RWY 09		0.6

Total Miles: 271

Begin descent to 2000 MSL at MY; execute AN 246.0 NDB 09 instrument approach

324-15-08**San Diego, CA (Lindbergh, elev 13') to San Francisco, CA (elev 13')****Initial Altitude – 6,000 MSL – Depart RWY 27****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
San Diego, Lindbergh	KSAN			
Boing (San Diego)	AN	245.0	273	1.5
Becca	LG	233.0	311	75
Romen (Los Angeles)	OS	278.0	307	16
Vinee (Burbank)	UR	253.0	326	15
Hunter Liggett	HGT	209.0	293	172
Chualar (Salinas)	UAD	263.0	320	36
Jorge (San Jose)	JC	249.0	322	56
Descend to 2,000 MSL				
Brijj (San Francisco)	SF	379.0	293	21
San Francisco Intl	KSFO	RWY 27L		5.3

Total Miles: 398

Begin descent to 2000 MSL at JC; execute SF 379.0 NDB 27L instrument approach

324-15-09**San Francisco, CA (elev 13') to Klamath Falls, OR (elev 4094')****Initial Altitude – 11,000 MSL****Arrival Weather Minimums: 1,000' – 5 mile visibility**

Location	ID	Freq	Course	Distance
San Francisco Intl	KSFO			
Roray (Oakland)	AK	341.0	038	11
Lanee (Sacramento)	HU	400.0	011	61
Descend to 10,000 MSL				
Oroville	OVE	212.00	343	53
Lassn (Redding)	RD	367.0	314	62
Descend to 9,000 MSL				
Alturas	ARU	215.0	033	102
Descend to 8,000 MSL				
Merrill (Klamath Falls)	LFA	347.0	285	58
Klamath Falls Intl	KLMT	RWY 32		11.0

Total Miles: 358

Begin descent to 8000 MSL at ARU; execute LFA 347.0 NDB 32 instrument approach

324-15-10**Klamath Falls, OR (elev 4094') to Portland, OR (elev 203')****Initial Altitude – 10,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Klamath Falls Intl	KLMT			
Medford	MEF	356.0	268	53
Descend to 8000 MSL				
Frakk (Eugene)	EU	260.0	334	110
Turno (Salem)	SL	266.0	358	40
Minne (McMinnville)	MM	383.0	333	24
Abate (Portland)	HI	356.0	339	23
Portland-Hillsboro	KHIO	RWY 12		5.6

Total Miles: 256

Begin descent to 4000 MSL at MM; execute HI 356.0 NDB 32 instrument approach

324-15-11**Portland, OR (elev 203') to Seattle-Tacoma Intl (elev 430')****Initial Altitude – 10,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Portland-Hillsboro	KHIO			
Kelso	LSO	256.0	343	37
Toledo	TDO	219.0	352	20
Lacomas (Ft Lewis)	LAC	328.0	359	34
Dondo	ODD	224.0	005	24
Seattle-Tacoma Intl	KSEA	RWY 34R		4.0

Total Miles: 119

Begin descent to 4000 MSL at LAC; execute ODD 224.0 NDB 34R instrument approach

324-15-12**Seattle-Tacoma Intl (elev 430') to Spokane, WA (elev 2372')****Initial Altitude – 9,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Seattle-Tacoma Intl	KSEA			
Renton	RNT	353.0	034	5
Donny (Yakima)	YK	371.0	108	95
Pelly (Moses Lake)	MW	408.0	032	57
Phort (Spokane)	GE	388.0	046	81
Spokane Intl	KGEG	RWY 21		3.9

Total Miles: 242

Begin descent to 6000 MSL at MW; execute GE 388.0 NDB 21 instrument approach

324-15-13**Spokane, WA (elev 2372') to Helena, MT (elev 3875')****Initial Altitude – 9,000 MSL****Arrival Weather Minimums: 600' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Spokane Intl	KGEG			
Leeny (Coeur D'Alene)	CO	347.0	053	24
Konna (Missoula)	INE	521.0	092	111
Capitol (Helena)	CVP	335.0	089	105
Hauser (Helena)	HAU	386.0	090	8
Helena Regional	KHLN	RWY 27		8.7

Total Miles: 257

Begin descent to 8000 MSL at CVP; execute HAU 386.0 NDB 27 instrument approach

324-15-14**Helena, MT (elev 3875') to Wiley, MT (elev 2631')****Initial Altitude – 11,000 MSL****Arrival Weather Minimums: 900' – 10 mile visibility**

Location	ID	Freq	Course	Distance
Helena Regional	KHLN			
Hauser (Helena)	HAU	386.0	087	10
Lewiston	LWT	353.0	055	96
Descend to 9000 MSL				
Roundup	RPX	362.0	116	53
Forsyth	FOR	236.0	084	86
Horton (Miles City)	HTN	320.0	057	25
Wiley Airport	KMLS	RWY 04		1.8

Total Miles: 272

Begin descent to 5000 MSL at HTN; execute HTN 320.0 NDB 04 instrument approach

324-15-15**Wiley, MT (elev 2631') to Bismarck, ND (elev 1660')****Initial Altitude – 9,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Wiley Airport	KMLS			
Timber (Baker)	BKU	344.0	082	68
Noson (Dickinson)	DI	353.0	060	67
Hazen	HZE	414.0	041	59
Jadan (Bismarck)	BI	230.0	123	53
Bismarck Muni	KBIS	RWY 31		5.5

Total Miles: 253

Begin descent to 6000 MSL at HZN; execute BI 230.0 NDB 31 instrument approach

324-15-16**Bismarck, ND (elev 1660') to Grand Forks, ND (elev 846')****Initial Altitude – 9,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Bismarck Muni	KBIS			
Jadan (Bismarck)	BI	230.0	128	6
Sabon (Jamestown)	JM	395.0	074	86
Valley City	VCY	382.0	081	27
Hiser (Grand Forks)	GF	345.0	020	65
Grand Forks Intl	KGFK	RWY 35L		5.6

Total Miles: 190

Begin descent to 6000 MSL at VCY; execute GF 345.0 NDB 35L instrument approach

324-15-17**Grand Forks, ND (elev 846') to Duluth, MN (elev 1427')****Initial Altitude – 9,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Grand Forks Intl	KGFK			
Crookston	CKN	400.0	100	24
Fosston	FSE	224.0	108	37
Bunan (Bemidji)	MD	371.0	098	39
Galex (Grand Rapids)	GP	272.0	106	58
Pykla (Duluth)	DL	379.0	108	49
Duluth Intl	KDLH	RWY 09		5.5

Total Miles: 212

Begin descent to 5000 MSL at GP; execute DL 379.0 NDB 09 instrument approach

324-15-18**Duluth, MN (elev 1427') to Minneapolis-St Paul, MN (elev 840')****Initial Altitude – 8,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Duluth Intl	KDLH			
Cloquet	COQ	335.0	233	15
Rush City	ROS	282.0	195	63
Narco (Minneapolis)	MS	266.0	183	53
Minneapolis-St Paul Intl	KMSP	RWY 30L		5.5

Total Miles: 136

Begin descent to 5000 MSL at ROS; execute MS 266.0 NDB 30L instrument approach

324-15-19**Minneapolis-St Paul, MN (elev 840') to Dubuque, IA (elev 1076')****Initial Altitude – 9,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Minneapolis-St Paul Intl	KMSP			
Narco (Minneapolis)	MS	266.0	118	6
Mingo (Rochester)	RS	329.0	151	65
Decorah	DEH	236.0	137	46
Zilom (Dubuque)	DB	341.0	137	76
Dubuque Regl	KDBQ	RWY 31		6.3

Total Miles: 199

Begin descent to 5000 MSL at DEH; execute DB 341.0 NDB 31 instrument approach

324-15-20**Dubuque, IA (elev 1076') to Sault Ste Marie, Ontario, Canada (elev 630')****Initial Altitude – 9,000 MSL****Arrival Weather Minimums: 500' – 3 mile visibility**

Location	ID	Freq	Course	Distance
Dubuque Regl	KDBQ			
Platteville	PVB	203.0	034	21
Monah (Madison)	MS	400.0	065	53
Pober (Oshkosh)	OS	395.0	035	60
Depre (Green Bay)	SG	332.0	032	36
Fichy (Sturgeon Bay)	II	224.0	056	36
Pikle (Escanaba)	ES	344.0	012	59
Saint James (Beaver Island)	SJX	382.0	095	70
Gros Cap (Sault Ste Marie)	A	286.0	044	63
Sault Ste Marie	CYAM	RWY 12		4.2

Total Miles: 402

Begin descent to 5000 MSL at DEH; execute A 286.0 NDB 12 instrument approach

324-15-21

Sault Ste Marie, Ontario, Canada (elev 630') to Chicago, IL (elev 620')

Initial Altitude – 8,000 MSL

Arrival Weather Minimums: 500' – 3 mile visibility

Location	ID	Freq	Course	Distance
Sault Ste Marie	CYAM			
Koloe (Sault Ste Marie)	CI	400.0	194	9
Charlevoix	CVX	392.0	211	69
Gwenn (Traverse City)	TV	365.0	197	35
Ludington	LDM	341.0	226	63
Shebb (Sheboygan)	HE	338.0	265	59
Yanks (Milwaukee)	BL	260.0	187	48
Descend to 7000 MSL				
Wauke (Chicago/Waukegan)	UG	379.0	176	36
Kedzi (Chicago)	MX	248.0	174	44
Chicago-Midway	KMDW	RWY 31C		3.3

Total Miles: 366

Begin descent to 4000 MSL at UG; execute MX 248.0 NDB 31C instrument approach