

DC-3 Airways Lewis & Clark Charter Flight

A group of historians have contracted with DC-3 Airways for a series of flights that will follow the route taken by the Corps of Discovery (the Lewis & Clark Expedition) from their 1803-1804 winter encampment near the mouth of Wood River, Illinois, north of St. Louis, to the mouth of the Columbia River in Oregon. The route will follow the Missouri River to its source, then fly over the Bitterroot Mountains, and follow the Columbia River to the Pacific Ocean. One of the two rivers will remain in sight during each flight except those over mountains. The historians in the cabin will be heard by the pilot, first officer, and crew as they discuss landmarks and significant Lewis & Clark details along the route.

1. St. Louis Regional, MO to Jefferson City Memorial, MO; KALN to KJEF
Across the Mississippi and Up the Missouri

519-01-01.fsn flight plan

Historians: *The runway is only a few miles north of the expedition's winter encampment, which was on the Illinois shore, across the Mississippi River from the mouth of the Missouri River. The French, who occupied what later became the State of Missouri, would not let the expedition cross the Mississippi River; they had not yet learned of the Louisiana Purchase. The mouth of the Missouri will be seen from the plane's left-side windows shortly after takeoff.*

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KALN	LM NDB	338.0	253E	21.7	Depart Rwy 29. turn to 253° and climb to 4500 ft. To LM NDB 338.0.
LM NDB	SU NDB	326.0	233E	16.8	To SU NDB 326.0
SU NDB	JE NDB	397.0	262E	61.4	At SU NDB set ADF to JE NDB 397.0, and follow course of river until JE NDB received, which will be near the Ultra Flight Airport 3MO2, located on the south bank of the river. Then fly direct to JE NDB. Begin descent as you pass Eu-Wish airport MU68.
JE NDB	Rwy 30		301E	4.2	Land Rwy 30 unless otherwise directed by ATC. Field elevation: 547 ft.
		Leg distance:		104.1 NM	

2. Jefferson City Memorial, MO to Riverside, Kansas City, MO; KJEF to KMKC
Past Boonville to Kansas City

519-01-02.fsn flight plan

Historians: *On this leg we'll pass Boonville [near VER NDB], where Daniel Boone and his family lived at the time that Lewis & Clark*

passed. (The historians erupt into a spirited argument over whether the explorers met Boone, and about Boone's height. Gun ports in his three-story home were at an elevation to be used by a man five feet tall. They quit arguing only after Trixie threatened to stop bringing them coffee.) The destination airport [KMKC] is at the mouth of the Kansas River. The expedition, traveling upstream and making about seventeen miles per day, took forty-three days to reach this point, the future site of Kansas City. They rested four days before proceeding on.

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KJEF	VER NDB	347.0	308E	32.3	Depart Rwy 30. Climb to 4500 ft.
VER NDB	MK NDB	344.0		100.6	Turn on ADF Morse ident. Follow river until MK NDB is received.. Track to MK NDB. Begin descent approx. 3 miles after passing 4MO4 Apt. KMKC will be visible to the southwest.
MK NDB	KMKC	Rwy 19	188E	6.5	Land Kansas City Downtown Apt., Rwy. 17 unless otherwise directed by ATC. Field elevation: 757 ft.
Leg distance: 140.3 NM					

3. Kansas City, MO to Sioux City, IO; KMKC to SUX.
The Great Plains

519-01-03.fsn flight plan

Historians: Along this leg of the flight, the Corps of Discovery entered the eastern end of the Great Plains, which they considered the Garden of Eden because of its abundant plant and animal life. The discoverers became the first Americans to see a Coyote, which they called a Prairie Wolf. Other wildlife observed include White Pelicans, Least Terns, and the expedition's first Buffalo. Buffalo tongue became a favored meal among the men, who consumed an average of six pounds of meat per day. Along the northern portion of this leg, the expedition made their first contact with Indians, a party of Otos and a few Missouris, just north of the Platt River. The captains, Lewis & Clark, gave the Indians tobacco, and they reciprocated by sending the expedition watermelons. The next day, the captains visited the Indians' village, a community of 250 people, at Council Bluffs [north of OVR VOR and the site of the present City of Council Bluffs, visible to the west of the flight line].

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KMKC	RN NDB	416.0	308E	16.3	Depart Kansas City Downtown Apt., Rwy. 1. Climb to 4500 ft.
RN NDB	ST NDB	260.0	348E	22.6	To ST NDB 260.0.
ST NDB	AYB NDB	430.0	312E	61.5	Follow the river until AYB NDB is received, which will be about six miles after passing 6MO1 Apt., and with a semicircular lake to the right of the flight path. Turn on Morse ident.

AYB NDB	PMV NDB	329.0	345E	31.4	To PMV NDB 329.0.
PMV NDB	OM NDB	320.0	350E	25.0	To OM NDB 320.0.
OM NDB	TQE VOR	108.4	332E	25.5	To TQE VOR 108.4.
TQE VOR	SU NDB	414.0	346E	34.5	Begin descent after passing B-8 Farms's grass air strip (north-south alignment) near two ox-bows, one U-shaped, and the other resembling the letter S.
SU NDB	KSUX	Rwy 31	310E	5.4	Land Sioux Gateway Apt., Rwy. 31 unless otherwise directed by ATC. Field elevation: 1095 ft

Leg distance: 218.3 NM

4. Sioux City, IO to Pierre, SD; SUX to KPIR Sioux Territory

519-01-04.fsn flight plan

Historians: *Incredibly, the only casualty of the expedition occurred near where this leg takes off. Sergeant Charles Floyd had been ill for some time and died of what was probably appendicitis. He was buried atop a rounded hill overlooking the Missouri River and an unnamed river that flowed in from the east, which the captains named the Floyd River in his honor. The burial site is on the right (east) side of the river, visible shortly after takeoff. Sgt. Floyd's position in the expedition was replaced by Patrick Gass, who almost 60 years later, while in his 90s, volunteered to serve in the Union Army during the Civil War. This leg took the expedition into Sioux territory, where they met, exchanged gifts, and held council with the tribe. Sergeant Pryor became the first American to describe a plains teepee: ". . .made of Buffalow Skins Painted different Colour, all compact & handSomly arranged, their Camps formed of a Conic form Containing about 12 or 15 persons each and 40 in number." Wildlife encounters included a Prairie Dog town, and sightings of Antelope.*

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
SUX	VMR NDB	375.0	306E	31.8	Depart Sioux Gateway Apt., Rwy. 31. Climb to 6500 ft.
VMR NDB	AGZ NDB	392.0	280E	62.3	Follow river—ded. reckoning—until AGZ NDB is received, which will be near KYKN. Turn on Morse ident. Once signal received, track directly to AGZ NDB.
AGZ NDB	PIR VOR	112.5	306E	120.0	Follow river—ded. reckoning for 61 miles—until PIR VOR is received—near 9V9. Turn on Morse ident. Once signal received, track directly to PIR VOR. Begin descent after crossing river for the last time before landing,

PIR VOR KPIR Rwy 25 258E 4.8 with KPIR in sight.
Land Pierre Regional Apt., Rwy. 25 unless otherwise directed by ATC.
Field elevation: 1738 ft.
Leg distance: 214.3 NM

5. Pierre, SD to Bismarck, ND; KPIR to KBIS 519-01-05.fsn flight plan
Scalp Dance

Historians: *Encounters with Indians were numerous along this leg. Most of them were very friendly with the men invited to camps for ceremonies including a "scalp dance," the first ever seen by Americans. Tribes encountered included the Omahas and Teton Sioux. The men experienced an incident with a Sioux party who would not let their keel boat leave without a gift. Since gift items, which had been brought along, were limited, Lewis & Clark refused to hand any over. The encounter came to the brink of violence, with Lewis about to light the fuse of the keel boat's swivel gun, a small cannon. Finally a Sioux chief took the bow line of the boat and tossed it aboard, freeing the expedition.* [When one of the historians launches one of these lectures, Trixie rolls her eyes.]

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KPIR	RVB NDB	407.0	347E	79	Depart Pierre Regional Apt. Rwy. 31. Follow the river north—ded. reckoning—until RVB NDB is received. Turn on Morse ident. Climb to 6500 ft.
RVB NDB	BI NDB	230.0	343E	69.6	Follow river until BI NDB is received. Turn on Morse ident. Begin descent 2 miles past 48ND, a private grass strip on the east side of the flight line after the river takes a curve to the right.
BI NDB	KBIS	Rwy 31	308E	5.5	Land Rwy 31, ILS 110.30, unless otherwise directed by ATC. Field elevation: 1676 ft.
Leg distance:				151.1 NM	

6. Bismarck, ND to Willston, ND; KBIS to KISN 519-01-06.fsn flight plan
Winter at Fort Mandan

Historians: *Right across the river from Bismarck the expedition ran into their first Grizzly Bear for which the men held a healthy respect. Five and a half months after beginning the voyage up the Missouri River, the Corps of Discovery reached the Mandan Indian village, at the point where the river makes a turn from the west to the south (going downstream) between Bismarck and the HZE NDB. They built a fort, Fort Mandan, across the river from the village, where they spent the winter. A well-worn path across the snow- and*

ice-covered river was used by social parties going both directions. It was here at the Mandan Indian village that the expedition hired a guide, Toussaint Charbonneau, a Canadian, but did so in order to obtain the services of his wife, a 16-year-old Shoshone Indian girl. They hoped that she would serve as an interpreter during negotiations for horses with the Shoshone Indians who lived at the foot of the upcoming mountains. Her name was Sacagawea, and she would become one of the most important members of the expedition, serving as a guide, interpreter, and collecting edible plants, roots, and berries that would supplement the heavy meat diet of the men. And she did so with a baby on her back. The expedition remained at Fort Mandan until April 7, 1805. In addition to the Mandans, the expedition encountered the Arikaras and Hidatsa tribes, all of which were friendly.

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KBIS	FIX 01	414.0	308E	5.1	Depart Bismarck Municipal Apt. Rwy. 31. Climb to 6500 ft. Maintain runway heading until reaching the river (FIX 1), which will come in from the left. Follow the river north until HZE NDB received—about ten miles. Turn on Morse ident.
FIX 01	HZE NDB	414.0	302E	41.9	
HZE NDB	PSH NDB	379.0	319E	44.4	Track OB 319 until PSH NDB is received, which will be before reaching the river.
PSH NDB	SF NDB	275.0	269E	56.2	Fly OB 269 until SF NDB signal is received, which will be near the river, the second body of water, after passing O5D, a mile south of the flight path. Begin descent shortly after crossing the river with the river now to the south.
SF NDB	KISN	Rwy. 29 Leg distance:	292E	5.9 153.5 NM	Land Sloulin Int'l Apt, Rwy 29 or as directed by ATC. Field elev: 1981.

7. Williston, ND to Wolf Point, Montana; KISN to KOLF
Past the Yellowstone

519-01-07.fsn flight plan

Historians: *Hey look; there's the Yellowstone River coming in from the south* [shortly after taking off near the EOC]. *John Colter, one of the expedition's members, joined other trappers and left the expedition as they passed this point on their return trip. He became America's first mountain man, and entered history as the discoverer of what later became Yellowstone, the world's first national park. According to plan, the keelboat turned around and headed back to St. Louis as the expedition left Fort Mandan. It carried plant and animal specimens that eventually reached President Thomas Jefferson in Washington. The vessels used by the travelers, now entering territory unknown to white men, now consisted of two piroques and six canoes. They passed immense herds of Bullafo, Elk, and Antelope, and saw a few wolves. Two new bird species, previously unknown to science, were discovered--the Snow Goose, and Willet.*

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KISN	Fix 2	275.0	220E	11.0	Depart Rwy 29. Climb to 6500ft. Tune ADF to 275.0. Turn to 230deg. and when ADF reads 077deg turn to 255deg. Maintain heading while following course of river.
Fix 2	KOLF	404.0	255E	66.0	When ADF signal is lost, tune to the OLF NDB, 404.0, and turn on Morse ident. Begin descent at the ox-bow, about 3 miles before passing 42S Apt., both on the north side of the river. Maintain 255E course until ADF points to 286E, then turn to that heading, 286E, for a straight-in approach to Clayton Apt, Rwy 29, 1.4 miles away, across the river. Field elevation: 1984 ft.

Leg distance: 79.1

8. Wolf Point, MT to Great Falls, MT; KOLF to KGTF

519-01-08.fsn flight plan

Mountains in the Distance

Historians: *The historians are excited; over this stretch of river the explorers first began seeing mountains and were anxious to get to them. Meriwether Lewis wrote in his journal about how dry the air was here. He experimented and discovered that a tablespoon of water would evaporate in 36 hours. During the early part of the flight, the river will be to the south, then we'll fly directly over the river for a short stretch, after which it will be to our north. The portion we will fly over, the Breaks of the Missouri, is the most scenic portion of the trip to date, and remains one of America's most remote areas. The latter half of this stretch, known as the White Cliffs area, was described by Lewis in what one of the historians described as one of the classic pieces of American literature. "The hills and river cliffs which we passed today exhibit a most romantic appearance. The water in the course of time in descending from those hills . . . has trickled down to the soft sand cliffs and worn it into a thousand grotesque figures, which . . . represent elegant ranges of lofty freestone buildings . . . as we passed on it seemed as if those scenes of visionary enchantment would never had and end. . . ."* Trixie examined the view from a window, stared in astonishment at the professor, and resumed filing her nails.

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KOLF	Fix 1	404.0	247E	232.4	Depart Clayton Airport from Rwy. 29. Fly OB 247E from OLF NDB 404.0. Climb to 8500 ft. Fly 182 miles of ded. reckoning, keeping river in sight. Begin descent as you cross the river approx. 5 miles after passing the Peterson Ranch, MT77, on the north side of the flight path. Tune Nav1 to

Fix 1	KGTF	115.10	209E	4.4	GTF VOR, 115.10, and set OBS to 209E. When OBS needle points to 209E, turn to 209E for a straight in approach to Great Falls International Apt., 4.4 miles distant. The turn will be made near a bank of antennae on the south side of the river. ILS approach is available at 111.30. Land Rwy. 21. Field elevation: 3674.
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Leg distance: 237.1 NM

9. Great Falls to Dillon, KGTF to KDLN
From the Great Falls to the Three Forks

519-01-09.fsn flight plan

Historians: *Just to the left (southwest) of the runway are the beginning of the Great Falls of the Missouri. Lewis & Clark knew about them and planned to portage, a feat they thought would take two or three days. In the end, it took a month, with the party making less than a mile per day, and mending their moccasins each night. Later in this flight [near BZ NDB], we'll enter a wide valley in which the river splits into three forks. Lewis & Clark named them the Jefferson; the Madison, who was Secretary of State at the time; and the Gallatin, after Jefferson's Secretary of the Treasury. The expedition took the Jefferson fork. We'll land near the spot where the explorers met a party of Shoshones, including a chief named Cameahwait, with whom they hoped to negotiate for horses to cross the mountains. As the meeting progressed, Sacagawea kept staring at Cameahwait, whom she finally recognized as her brother, and whom she had not seen since she was captured by the Hidatsas. She ran to him and threw her arms around him. Thanks to this incredible coincidence and bit of luck, the explorers got their horses.*

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KFTF	BZ NDB	266.0	180E	115.3	Depart Great Falls International from Rwy. 21. Climb to 8500 ft. Follow the river, which will be seen shortly after takeoff coming in from the left, as it winds through mountains. Tune ADF to HAU NDB, 386.0, to use as a general guide as you follow the river, but don't fly to it. Near HAU NDB, the river becomes a lake (it's been dammed). At the south end of the lake, the river turns into a blue line. At that point, with the river in sight, fly direct to BZ NDB.
BZ NDB	HIA VOR	113.7	253E	36.9	
HIA VOR	Fix 9	113.0	191E	35.4	Fly OB 191E from HIA VOR. After established on course, tune Nav 1 to DLN VOR, 113.0, and tune OBS to 162E, the approach course. Begin descent approx. 10 miles after passing Twin Bridges Apt., 7S1, east of the flight line. Near BOD, the river takes a decisive loop to the west.

Fix 9	KDLN	Rwy 16	162E	4.3	When the OBS needle approaches center, turn to 162E for a straight-in approach to Dillon Apt. Land Rwy. 16. Field elevation: 5239.
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Leg distance: 191.9

10. Dillon, MT to Lemhi Co. Apt; KDLN to KSMN
Over the Continental Divide

519-01-10.fsn flight plan

Historians: Because no food or drink was available at the last stop, the historians placed demands on Trixie to bring them something to eat. She was not amused; the professors received peanut butter and jelly sandwiches. *The explorers had gone as far as their canoes would allow up the river, and walked along the route that this flight follows. It was near here that Sacagawea, who had been captured by the Hidatsas, recognized one of the mountains, which resembled a beaver's head, and knew she was approaching home. Just before landing, we'll fly through a pass, which lies on the Continental Divide. The main objective of the expedition was to find the "Northwest Passage," which Jefferson thought would provide a water route to the Pacific Ocean. It wasn't until Lewis & Clark reached this point and saw endless series of mountain peaks stretching into the distance that they realized that the vision would not be fulfilled.*

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KDLN	Fix 1	113.0	227E	40.2	Depart Rwy. 16. The trees are tall here; be sure to clear them on departure. Climb to 10500 ft. The flight course will lead to a low ridge with mountains on both sides. After passing a low series of hills between the mountains, you'll enter a valley containing agricultural fields. Maintain course, which will lead through a pass in the mountain range on the opposite side of the valley. Tune Nav 1 to LKT VOR, 113.50, and OBS to 260E. Follow the road that leads through the pass.
Fix 1	Fix 2	113.5	263E	9.6	While in the pass, watch the OBS vertical crosshair, and turn to 263E when the crosshair centers. Once through the pass, a second valley will open up extending to the northwest.
Fix 2	Fix 3		303E	15.9	When in the center of the valley, turn right to 303E and fly through the valley. Begin descent shortly after making the turn to 303E. The destination airport is in this valley, and will be in view at the 10 O'Clock position.
Fix 3	KSMN Rwy 17		170E	4.3	Fly up the valley to the north, past the airport a few miles. With Nav 1 still on LKT VOR, 113.5, tune OBS to 209E, and when the vertical crosshair centers, make a left turn to come to 170E and a straight-in approach to Lemhi County Apt., Rwy. 17. A road that becomes visible in the turn forks

with the right fork leading to the airport. Maintain descent while in the turn; it's downhill all the way to the runway. Field elevation: 4041 ft.

Leg distance: 70.1

11. Lemhi County Apt to Missoula, MT; KSMN to KMSO
Following the Valley

519-01-11.fsn flight plan

Historians: *At this point, the explorers had traveled 3000 river miles in 15 months since leaving Camp Wood, north of St. Louis. Cameahwait and his band of Shoshones accompanied and led the expedition along this leg, for the most part, traverses valleys flanked on both sides by mountain ranges. Lewis & Clark, in contemplating the upcoming crossing of the Bitterroot Mountains, logically concluded that if the Indians and their women and children could cross the river, they could too.* [This sentence caused Trixie to stop what she was doing and glare at the professor.]

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KSMN	Fix 1		350E	7.1	Depart straight out from Rwy. 35. Climb to 10500 ft. First part of the leg is ded reckoning. To the front will be a mountain range; the valley makes a turn to the left.
Fix 1	Fix 2		320E	11.9	Follow the valley as it turns to the west at 320E. A river runs through the center of the valley.
Fix 2	Fix 3		344E	13.2	The valley splits, with the river following the fork to the left. Take the valley that leads to the north, leaving the river. A road is visible in the bottom of the valley. Ahead will be a pass with mountains behind it.
Fix 3	Fix 4		360E	7.6	Follow the road as it makes a turn to the right going through the pass.
Fix 4	MT30		304E	14.5	While in the pass, a wide valley will open to the left front. Follow the road that leads over the pass and into the valley. Once in the valley, Trapper Creek Apt, MT30, a grass strip aligned with the length of the valley, that can be difficult to find, is located west of a river. Tune NAV 1 to MSO VOR, 112.80. Missoula, this leg's destination, is within the valley.
MT30	6S5		344E	18.8	Follow the river in the center of the valley to 6S5
6S5	Fix 5	112.80	353E	35.9	Turn to 353E as the valley turns slightly. The flight line will pass over the

Stevensville Apt., 32S, which is near two grass strips. Begin descent approx. 3 miles after passing 32S. Set OBS to 293E. Watch for the 2 antennas on the mountain ridge SW of Missoula.

Fix 5 KMSO Rwy 29 293E 6.2 When the OBS vertical indicator begins to center, turn left to 293E for a Straight-in approach to Rwy. 29, Missoula Intl. Apt. Field elev: 3202 ft.

Leg distance: 115.2 NM

12. Missoula, MT to Lewiston, ID; KMSO to KLWS
Over the Bitterroots

519-01-12.fsn flight plan

Historians: Lewis and Clark wanted to get over the mountains before winter set in. A Shoshone Guide, who they called Old Toby, led them. The route they took is the most disputed section of the entire Corps of Discovery expedition; nobody knows for sure with path they took. The Bitterroots held only a meager supply of game, and the men almost starved. At one point they were reduced to eating candles. [An inspired Trixie jumped up to search for the box of birthday candles she recently spotted in the galley.] Upon finally reaching the other side of the mountains, the party came upon a village of Nez Perce Indians, so named because the expedition members incorrectly assumed that the Indians pierced their noses.

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KMSO	INE NDB	521.0	293E	17.2	Depart Missoula Int'l Apt., Rwy. 29, heading straight out. Climb to 8500 ft.
INE NDB	MQG VOR	108.20	230E	110.3	Fly OB 230E from INE NDB until the MQV VOR is received. Turn on Morse Ident. A few miles north of the flight line, and near a long lake in a canyon, will be ID29, a grass strip. At the southwest tip of the lake is S68 Apt. Begin descent as you cross the Columbia River (blue line in a valley flanked by a road), a few miles after leaving the southwest tip of the lake.
MQG VOR	KLWS	109.7	246E	5.5	The airport is on the opposite side of the city. ILS approach freq. is 109.7. Land at Lewiston-Nez Perce County Apt., Rwy. 26 or as directed by ATC. Field elev: 1437 ft.

Leg Distance: 133

13. Lewiston, ID to The Dalles, OR; KLWS to KDLS

519-01-13.fsn flight plan

Down the Columbia

Historians: *We'll take off near one of the expedition's camps. It was here that they made dugout canoes they would use to get to the ocean. Old Toby, who was frightened by the river's rapids, left without collecting his pay, possibly making him the first government volunteer.* [As the professors chuckled at their joke, Trixie rolled her eyes.] *The expedition had entered a land with an abundance of fish, but little meat, which the men were used to. They bought dogs from the local Indians who came to watch the explorers pass, and dog meat became a favorite meal of most of the men.* [At this pronouncement, Trixie fingered the birthday candles in her pocket and silently vowed to keep them for herself in the event that the professors decided to conduct a re-enactment.] *The men were once again water-borne, and for the first time since leaving St. Louis, the current was with them rather than against them. From here to the Pacific, they made good time, averaging 30 miles per day.*

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KLWS	PUW VOR	109.00	315E	20.3	Depart Lewiston-Nez Perce Co. Apt., Rwy. 29. Tune Nav 1 to the PUW VOR, 109.00. Climb to 4500 ft.
PUW VOR	PSC VOR	108.40 ~	234E	84.7	From the PUW VOR, head 251E toward OOW Apt., about 10 miles distant. Near the airport, a grass strip, the flight path will intersect the river—a blue line at this point--which is in a deep gorge. Turn right and follow the river gorge downstream as it winds its way to the west. Turn on Morse ident., and when the PSC VOR is received, about 25 miles from PUW VOR, track directly to it.
PSC VOR	LTJ VOR	112.30	230E	89.1	Near the PSC VOR, the river takes a turn to the south; another one comes in from the north. The flight path will enter and pass through a dry plain, then enter foothills. As you enter the hills, you'll pass a grass strip, 9P7, about a mile to the north, and a few miles later, an asphalt strip, S20, about 3 miles north of the flight line. Begin descent as you pass S20. Caution: The flight path will take you directly toward a small mountain. Control descent in order to stay above the level of the mountain; the LTJ VOR is near its peak at elev. 3218 ft.
LTJ VOR	KDLS	Rwy 20	185E	6.1	After passing the LTJ VOR, turn left and descend 3000 ft in 6 miles, to land at the Columbia Gorge Regional Apt., Rwy. 20 or as directed by ATC.

Field elev. 246 ft.

Leg distance: 200.2

14. The Dalles, OR to Astoria, OR; KDLS to KAST
To the Pacific

519-01-14.fsn flight plan

Historians: *Along this flight, our explorers entered a new world. As they drew west of the Cascades, visible to the north and south along the flight path, they entered the north Pacific rain forest. Rather than the arid region they had recently traversed, here was lush, green vegetation and huge trees, migrating waterfowl, and more fog than they preferred. On some days they waited hours for the fog to lift so they could see where they were going. Signs of the proximity of the ocean were evident: Indians who traded with white merchants at the mouth of the Columbia possessed items they could have obtained nowhere else; and they encountered tidewater. Finally, on November 5, 1805, 18 months after leaving the Mississippi River, the fog lifted and they were ecstatic to see the Pacific Ocean. Clark wrote, "Ocian in view! O! the joy." Clark, the expedition's cartographer, noted in his journal that they had come 4142 miles since leaving the mouth of the Missouri. Although he computed the entire distance using ded reckoning and metes and bounds, he was off by no more than 30 miles, a remarkable feat by any standards. [Trixie, who was totally fed up with the professors' braggadocio and constant demands for food and drink, flew this last leg in the co-pilot's seat. The first officer slept in the cabin while the professors rummaged to no avail in the galley.]*

<u>From</u>	<u>To</u>	<u>Freq</u>	<u>Hdg</u>	<u>NM</u>	
KDLS	IA NDB	332.0	avg 247E	59.1	Depart Rwy. 30, Columbia Gorge Regional Apt. Climb to 4500 ft. and follow the river, which is in a canyon, until reaching KCZK, which has an asphalt runway lying parallel to the flight path. From KCZK, fly directly to IA NDB. The flight path will cross the river and pass over KTTD Apt. near Portland a few miles before reaching the IA NDB.
IA NDB	LSO NDB	256.0	314E	41.4	The river will be to the left of the flight path until after reaching LSO NDB, which is just past the KKLS Apt.
LSO NDB	PEN NDB	201.0	249E	28.0	Begin descent a few miles before reaching the large island in the river at the point that it widens considerably and takes a turn to the north.
PEN NDB	KAST	114.0	256E	11.7	Land at Astorial Regional Apt., Rwy. 26. Field elevation: 13 ft.
Leg distance: 140.4					

