

## **Mine Tour: Part Two, The Southwest**

This is a continuation of the Mine Tour, Part One, The Rocky Mountains. We last saw our tour group of prominent and respected mining and metallurgical engineers as they left our plane in Albuquerque, New Mexico. They are touring mining areas as the economic boom after WW II requires massive amounts of metals, more than those consumed during the war. After a short break and rest, they are back to continue their investigation of active and potential mining properties in the Southwest of the United States, lands once controlled by the Apache, Navajo, and the Spaniards. These charters will take them from Albuquerque to Magdalena, Hatch, and Silver City NM to Morenci, Globe/Miami, Superior, and Phoenix Arizona.

### **Captains Notes:**

The airports in this series of flights are substantially different than those in the first part. Every one of the airports in this portion of the tour are in areas where daytime temperatures can be 90F or higher in the summertime, and many are at elevations higher than 5,000 ft. Density altitude needs to be considered for every landing and takeoff. In addition, many of these "airports" are primitive at best, and may not be ideally suited for an aircraft as large as a DC-3. In addition, two are very narrow paved runways and two are only grass strips. Runways that are marginal are best used in the early hours before daytime heating has much affect. You have 6 passengers and one hostess on board, and a prudent Captain will take on only enough fuel to get him to his next destination and enough extra for a good, solid alternate. Only two airports, Silver City and Phoenix have instrument approaches, and quite often you will be flying below local terrain on approach, so good visibility (5 miles) is essential. I would rate this series of flights as medium difficulty.

Flying in mountainous terrain takes some additional skills to overcome potential problems, although MS FS has not yet included most of them. Winds across the mountains creates considerable updrafts and downdrafts, the reason that the FAR's require 2000 feet terrain clearance vice the 1000 feet used elsewhere. In addition, daytime heating affects are still not modeled to be as rough as they are, especially in the desert regions these flights are in.

As a cultural aside, for those that have never spent much time out here or studied the region in depth, there are 3 main items that caused the settlement of the western United States. These three items are mining, ranching/farming, and the economic lifeline that ties the first two items to civilization, the railroads. Without these three elements, the west would have taken a lot longer to be "settled". Also, remember that in this time frame steam locomotive engines were still common, although rapidly being replaced by the diesel engine.

What follows is a short "travelogue" to give some meat to the bones of this charter.

Our first stop out of Albuquerque is Magdalena, NM. The mountain range to the left on arrival (to the east) is the Magdalena Mountains. On this end of this short chain is the Kelly Mining District, which is why the engineers have come here. The Kelly is an active district at this time, primarily in the production of lead and zinc. Mineralogically, it is unique. Everywhere else in the world, Smithsonite (zinc carbonate) is a white mineral. The Kelly mining district is the only known place where it is a lovely green color.

At the other end of the mountains is a restricted airspace, R-5113. This is over a lightning research area known as Langmuir Labs (or at least was when I was in this area), where rockets are sent into the skies to prompt lightning strikes. During the monsoon season (July-August) this area can see some violent thunderstorms, so be alert. To the west of Magdalena is the VLA, a very large assemblage of radio telescopes.

On leaving Magdalena on the way to Hatch, we will follow the Rio Grande river valley. As you pass over the Florida NDB (FIA) we will fly over a small town, called Socorro. Socorro's claim to fame is that it is the location of the New Mexico School of Mines, now known as the New Mexico Institute of Mining and Technology. The large mountain immediately to its west is known as M Mountain, although Microsoft obviously missed the large M (for Mines) painted on it.

As we progress further south along the Rio Grande, the area to the east is known as the Jornada del Muerto, or the journey of death. This valley presently houses the White Sands Missile Range. If you should fly to the Bingham Airfield and then go south, you would fly over the Trinity site where the first nuclear bomb was tested.

By the way, there is no mining at Hatch NM, although the mountains to the west in this area contain many silver mining districts. We are here to purchase some green chilies, as Hatch green chilies are known through the southwest as the best. If you wonder what they can be used for, next time around just south of Socorro is the small town of San Antonio, which is home to the Owl Bar, which makes the best green chili cheeseburgers I have ever had.

From Hatch we go on to Silver City, a nexus for extensive mining in the southern New Mexico. Tyrone, a large copper mine for Phelps Dodge; Santa Rita, a very large open pit copper mine owned by Kennicott. In the mountains to the north there are many smaller mining areas that mined lead, zinc, copper and silver. The range we passed over to get here is the southern extension of the Black Mountains, which held fabulous values in silver, in some mines so pure it had to be cut out with saws.

From Silver City we go to Morenci, another large copper mine owned by Phelps Dodge. The mountains to the north of here and Safford are Arizona's White Mountains, one of the regions most beautiful areas. As we continue west from here, you can see these mountains as they range across Arizona as a wall, and this wall is called the Mogollon Rim.

Our next stop west is Globe/Miami/Superior, an old but still operational copper mining area during this era. This is where we enter what I would consider true desert for the first time, as both Silver City and Morenci are on the borders of true desert.

NOTE: Very few of these flights are along or even near Victor Airways, so if you wish to fly by chart it may be well to take some time to study the flights. They tend to have interesting doglegs at times, but this was done to insure as complete as possible coverage by radio navigation aids, especially in getting lined up with some of the more "interesting" airports. I also have used "standardized" waypoints in the FSNAV documents, these being RADTU (Radial Turn), DEPTU (Departure Turn), DCBOD (DCA Beginning of Descent), FINTU (Final Turn), and PROTU (Procedure Turn). Also, seeing that VORTAC used by FSNAV need correcting, I will include the correction with the frequency in the introduction to each flight. The correction is applied as  $\text{Mag Heading} + \text{correction} = \text{VORTAC RADIAL}$ . I have not applied the correction in the flight descriptions, I leave this up to pilots discretion, as sometimes they do not appear to be correct corrections.

**Leg 1**

All climbs and descents are at 500 FPM. Flight should be done in visibility of 5 nm or greater until familiar with area. N29 is difficult to see, due to mountains to east right hand pattern is suggested if direct approach and landing not feasible on initial airport sighting.

From – To	<b><u>Flight Description.</u> "Allocated runways and related information may change when flying online or using Real Weather"</b>				Course (Leg) Deg	Distance (Leg) nm	ETE (leg) HH+MM
	Dep. Rwy – 26	Init. Hdg – 259 deg	Init. Alt – 8,000 ft	Apt Elev. – 5,354 ft			
Albuquerque <b>(KABQ)</b> New Mexico, USA  To  Magdalena <b>(N29)</b> New Mexico, USA	<b>Departure:</b> To ABQ VOR/DME, 113.2 (-2). After take off turn direct to VOR/DME and commence climb to 8,000 ft.....				259	11.8	00+05
	<b>Enroute:</b> To ONM VOR/DME, 116.8 (-2). On station passage ABQ turn left to 169 deg and track 349R inbound to ONM.....				169	42.3	00+16
	To waypoint FINTU. On station passage turn right to course 233 deg and track ONM 233R outbound. At ONM DME 20.8 commence descent to 7,700 ft. Waypoint at ONM DME 23.5 on ONM 233R.....				233	23.5	00+10
	<b>Approach:</b> To runway at FINTU turn left to course 200. Magdalena is 4.6 miles away on this heading. This heading is also runway heading.....				Final Hdg 200	4.6	00+02
	Land – N29 Rwy 20                      Length – 5650 ft      Width – 50 ft      Surface – Grass						
<b>Flight No. 729-03-01</b>	<b>Arrival Airport Elev. – 6,725 ft</b>		<b>Estimated totals for this flight&gt;&gt;&gt;</b>			<b>82 nm</b>	<b>00+33</b>

**Leg 2**

All climbs and descents are at 500 FPM. Flight should be done in visibility of 5 nm or greater until familiar with area. EO5 is difficult to see and is sunken in terrain. Left and right hand patterns are acceptable if direct approach and landing not feasible on initial airport sighting.

From – To	<b><u>Flight Description.</u> "Allocated runways and related information may change when flying online or using Real Weather"</b>				Course (Leg) Deg	Distance (Leg) nm	ETE (leg) HH+MM
	Dep. Rwy – 2	Init. Hdg – 20 deg	Init. Alt – 8,000 ft	Apt Elev. – 6,725 ft			
Magdalena <b>(N29)</b> New Mexico, USA  To  Hatch <b>(EO5)</b> New Mexico, USA	<b>Departure:</b> To intersection DEPTU. Take off, maintain runway heading, and climb to 8,000 ft Waypoint DEPTU, ONM VOR/DME 116.8 (-2) 233R 23.5 DME.....				20	5.9	00+02
	<b>Enroute:</b> To waypoint FLATU. Turn right to course 53 deg, tracking inbound on ONM 233R. Waypoint FLATU is ONM 233R 14.0 DME. ....				53	9.5	00+04
	To FIA. From FLATU, turn right to course 122 deg fly course 122 to FIA NDB 329.....				122	11.8	00+04
	To TCS VOR/DME 112.70 (-3). From FIA turn right to 190 deg and track inbound on the 010R of TCS.....				190	52.6	00+20
	To waypoint FINTU. From TCS turn left to course 169 deg tracking the 169R of TCS outbound. At TCS 16.5 DME commence decent to 5000 ft. Waypoint FINTU is TCS 169R 34.7 DME.....				169	34.7	00+13
<b>Approach:</b> To runway turn left to course 110 deg. You are now aligned with runway 11 of EO5, 4.6 miles distant from the threshold.....				110	4.6	00+2	
Land – EO5 Rwy 11                                      Length – 3,900 ft      Width – 40 ft      Surface – Asphalt							
<b>Flight No. 729-03-02</b>	<b>Arrival Airport Elev. – 4,081 ft</b>			<b>Estimated totals for this flight&gt;&gt;&gt;</b>		<b>119 nm</b>	<b>00+45</b>

**Leg 3**

All climbs and descents are at 500 FPM. Flight should be done in visibility of 5 nm or greater until familiar with area. KSVC is an easy airport to find airport and left and right hand patterns are acceptable if direct approach and landing not feasible on initial airport sighting.

From – To	<b>Flight Description. "Allocated runways and related information may change when flying online or using Real Weather"</b>				Course (Leg) Deg	Distance (Leg) nm	ETE (leg) HH+MM
	Dep. Rwy – 29	Init. Hdg – 290 deg	Init. Alt – 8,000ft	Apt Elev. – 4,081 ft			
Hatch <b>(EO5)</b> New Mexico, USA  To  Silver City <b>(KSVC)</b> New Mexico, USA	<b>Departure:</b> To waypoint DEPTU. Take off and maintain runway heading. Climb to 8,000 ft. DEPTU is defined as VOR/DME SVC 110.8(-2) 073R 39.7 DME and is 5.3 nm from EO5 on a course of 290 deg. SV NDB (251.0) will bear 253 degrees at this point. Note that SV may or may not be received by DEPTU so initial turn by dead reckoning may be best.....				290	5.3	00+02
	<b>Enroute:</b> To waypoint ARRTU. Turn left to course 253 deg and track inbound to SVC on 253. waypoint ARRTU is defined as VOR/DME DMN 108.6(-1) 330R at 24.4..... To intersection GOSPO. Turn left to 238 deg. GOSPO is DMN 319R 24.6 DME.....				253 238	24.3 4.6	00+09 00+2
	<b>Approach:</b> To runway. Turn right to 259 deg and track inbound on SV on 259. Commence descent to 7,000 feet. SV is the outer marker for the ILS approach to KSVC so on station passage continue to fly 259 deg until runway is in site. On station passage airport is 4.1 nm ahead...  Land - KSVC Rwy 26                      Length – 6,792 ft      Width – 100 ft      Surface – Asphalt				259	15.1	00+06
<b>Flight No. 729-03-03</b>	<b>Arrival Airport Elev. – 5,446 ft</b>					<b>49 nm</b>	<b>00+19</b>

**Leg 4**

All climbs and descents are at 500 FPM. Flight should be done in visibility of 5 nm or greater until familiar with area. KCFT is a difficult airport to find. It is to the left of the conical hill, across the river you will see on final. Left hand patterns are preferable if direct approach and landing not feasible on initial airport sighting.

From – To	<b>Flight Description. "Allocated runways and related information may change when flying online or using Real Weather"</b>				Course (Leg) Deg	Distance (Leg) nm	ETE (leg) HH+MM
	Dep. Rwy – 26	Init. Hdg – 260 deg	Init. Alt – 9,000 ft	Apt Elev. – 6792 ft			
Silver City <b>(KSVC)</b> New Mexico, USA  To  Morenci <b>(KCFT)</b> Arizona, USA	<b>Departure:</b> To waypoint DEPTU. Takeoff and maintain runway heading and commence climb to 9,000 ft. DEPTU is defined as VOR/DME SVC 255R 4.1DME.....				260	5	00+02
	<b>Enroute:</b> To Waypoint RADTU. At DEPTU turn right to course 272 to intercept 265R of SVC 110.8 (-2) at RADTU. RADTU is defined as SVC 265R 10 DME.....				272	6	00+02
	<b>Enroute:</b> To waypoint ARRTU. At RAADTU turn left to 265 deg and track SVC 265R outbound. At DCBOD commence descent to 5500 ft. DCBOD is defined as VOR/DME SSO 115.4 (-2) 356R 28 DME. ....				265	51.6	00+20
	To waypoint FINTU. At ARRTU turn right to course 338 degrees and track outbound on the 338R of SSO. FINTU is defined as SSO 338R 40.2 DME. ....				338	10.8	00+04
	Approach: At FINTU turn right to course 70 deg. Fly this course 10 miles to airport.....				070	10	00+04
Land – KCFT Rwy 7                      Length – 4,970 ft      Width – 75ft      Surface – Asphalt							
<b>Flight No. 729-03-04</b>	<b>Arrival Airport Elev. – 3,819 ft                      Estimated totals for this flight&gt;&gt;&gt;</b>					<b>83 nm</b>	<b>00+32</b>

**Leg 5**

All climbs and descents are at 500 FPM. Flight should be done in visibility of 5 nm or greater until familiar with area. P13 is an easy airport to find airport (look for the large green patch in the desert) but is a sunken airport. Both and left and right hand patterns are acceptable if direct approach and landing not feasible on initial airport sighting, however, terrain rises on both sides of the airport so be alert.

From – To	<b>Flight Description. "Allocated runways and related information may change when flying online or using Real Weather"</b>				Course (Leg) Deg	Distance (Leg) nm	ETE (leg) HH+MM
	Dep. Rwy – 25	Init. Hdg – 250 deg	Init. Alt – 9,000ft	Apt Elev. – 3,819 ft			
Morenci <b>(KCFT)</b> New Mexico, USA  To  Globe <b>(P13)</b> Arizona, USA	<b>Departure:</b> To waypoint DEPTU. Take off and maintain runway heading. Climb to 9,000 ft. DEPTU is defined as VOR/DME SSO 115.4 (-2) 338R 40.2 DME. ....				070	10.8	00+04
	<b>Enroute:</b> To waypoint RADTU. Turn left to course 158 and track inbound on 338R of VOR/DME SSO. RADTU is defined as SSO 338R 31.0 NM.....				158	9.2	00+03
	To waypoint RADT2. Turn right to course 266. RADT2 is defined as SSO 301R 51.6 DME...				266	32.8	00+13
	To waypoint ARRTU. Turn right to course 301 and track SSO 301R outbound. At SSO 68.3 DME commence descent to 5000 feet. ARRTU is defined as SSO 301R 81.9 DME.....				301	30.5	00+12
	To waypoint FINTU. Turn right to course 344. FINTU is defined as NDB GAZ (255.0) bearing 271 degrees at 10 miles. ....				344	7.4	00+03
<b>Approach:</b> Turn right to course 271 and track inbound to GAZ on 271. Airport is 9.4 miles ahead and you are lined up with runway 27.....				271	9.4	00+04	
Land – P-13 Runway 27                      Length –6,494 ft    Width – 100ft    Surface – Asphalt							
<b>Flight No. 729-03-05</b>	<b>Arrival Airport Elev. – 3,234 ft                      Estimated totals for this flight&gt;&gt;&gt;</b>					<b>100 nm</b>	<b>00+39</b>

**Leg 6**

All climbs and descents are at 500 FPM. This is a contact only flight with no radio navigation aids. Flight should be done in visibility of 5 nm or greater until familiar with area. In addition, the landing at E81, Superior, would be challenging enough as it is a grass field at the head of a valley, but in addition it is sunken with some obstructions on the approach to runway 22. However, with good short field techniques one can easily set the plane down and stop before the end of the runway. If you should decide to fly the pattern, be advised that left pattern for runway 22 is not advised due to rising terrain in that direction.

From – To	<b>Flight Description. "Allocated runways and related information may change when flying online or using Real Weather"</b>				Course (Leg) Deg	Distance (Leg) nm	ETE (leg) HH+MM
	Dep. Rwy – 27	Init. Hdg – 284 deg	Init. Alt – 5,000ft	Apt Elev. – 3,234 ft			
Globe <b>(P13)</b> Arizona, USA  To  Superior <b>(E81)</b> Arizona, USA	<b>Departure:</b> To waypoint Globe. Take off and turn to a course that follows the highway just north of P13 (Arizona Highway 70). The heading of this course is 284. Climb to and maintain 5,000 ft.....				284	6.5	00+02
	<b>Enroute:</b> To waypoint Miami. Maintain 284 and following Arizona 70. At 10 to 11 o'clock a lake at slightly lower elevation than yours but higher than the valley floor will appear. To the south of the lake there is a southwest heading road on the valley floor. This is the road that we will follow at the intersection marked by Miami. This road is Arizona Highway 60.....				284	3.7	00+01
	To waypoint CanyE. Turn left to course 227 at Miami, the intersection of Highway 70 and 60. Follow Highway 60 past the lake and up the valley. As the road enters the canyon you are at CanyE.....				227	5.5	00+02
	To waypoint Pass1. Turn right to course 236 and continue following the road. The road continues uphill until it reaches the pass. Pass1 is located at the highest point of the pass. From here, at approximately 11 o'clock there is a notch in the mountain range with a conical hill that can be seen behind it. Arry1 is the head of that valley and E81 is at the base of the conical hill. ....				236	4.3	00+02
	To waypoint Arry1. At Pass1 turn left to course 226. Commence landing preparations as the final descent begins at Arry1 down the arroyo that leads to E81. As the descent is rather steep gear and ½ flaps at Arry1 are recommended. Also, try to cross Arry1 at 4500 ft.....				226	3.5	00+01
	<b>Approach:</b> Turn left to course 224 at Arry1 and commence descent to E81, which is visible as the green area at the base of the conical mountain ahead.....				224	3.8	00+01
Land – P-81 Runway 22                      Length –3,500 ft      Width – 75 ft      Surface – Dirt							
<b>Flight No. 729-03-06</b>	<b>Arrival Airport Elev. – 2,647 ft</b>			<b>Estimated totals for this flight&gt;&gt;&gt;</b>		<b>27 nm</b>	<b>00+09</b>

**Leg 7**

All climbs and descents are at 500 FPM. Flight should be done in visibility of 5 nm or greater until familiar with area. DEPTU is defined as 1 mile off the departure end of runway 22 of E81 but it may be wise to commence the turn to the right as soon as you are stable on takeoff, for obvious reasons.

From – To	<b><u>Flight Description.</u> "Allocated runways and related information may change when flying online or using Real Weather"</b>				Course (Leg) Deg	Distance (Leg) nm	ETE (leg) HH+MM
	Dep. Rwy – 22	Init. Hdg – 220 deg	Init. Alt – 5,000ft	Apt Elev. – 2,648 ft			
Superior (E81) Arizona, USA  To  Phoenix (KPHX) Arizona, USA	<b>Departure:</b> To waypoint DEPTU. Take off and maintain runway heading for one mile. DEPTU is defined as 1 mile on runway heading or VOR/DME PXR (115.6) 91R 42.8 DME. Climb and maintain 5,000ft.....				220	1.0	00+01
	<b>Enroute:</b> To waypoint ARRTU. Turn right to course 271 and track inbound to PXR 91R to 18.3 DME. Begin descent to 4,200 ft. ARRTU is defined as PXR 91R 18.3 DME.....				271	24.4	00+09
	To waypoint FINTU. Turn right onto course 302 and track inbound on NDB FFZ (281) on course 302. FINTU is defined as the intersection of IPHX localizer and FFZ 302.....				302	5.8	00+02
	<b>Approach:</b> Turn left to course 258 and follow localizer (IPHX (111.5)) to Rwy 25L. This is a back course approach so no glide slope available, MDA at MAP (IPHX 1.5 DME) is 1,440 ft.....				258	14.9	00+06
Land – KPHX Runway 25R <sup>1</sup> Length–10,288ft    Width – 150 ft    Surface – Asphalt							
<b>Flight No. 729-03-07</b>	<b>Arrival Airport Elev. – 1,133 ft</b>		<b>Estimated totals for this flight&gt;&gt;&gt;</b>			<b>46 nm</b>	<b>00+18</b>

<sup>1</sup> Note that there is a runway 25L. Runway 26 is to the right of 25R.