

# The X-15 Rocket Plane

Flying the First Wings Into Space

## In the Footsteps of the X-15

Tour Itinerary and Maps

by Michelle Evans



# “The X-15 Rocket Plane, Flying the First Wings Into Space”

by **Michelle Evans**  
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## “In the Footsteps of the X-15”

The primary place associated with the X-15 is Edwards AFB, California. However, there are many other locations where you can directly see the areas the hypersonic rocket planes flew and landed, where they were tracked through the upper atmosphere and beyond, to find the surviving aircraft today, and where you may pay your respects to some of the men who made the world’s first reusable spacecraft possible.

This guide provides information on the disposition of the various aircraft, engines, and mockups, as well as a tour itinerary for those interested in following in the footsteps of the X-15. Beside making an excellent historical multi-day field trip for a group from scouting or as a school project, this tour is perfect for anyone with a bit of adventure and exploration in their soul. The full tour can comfortably take a week or more, depending on how much time is spent at various locations and taking in the surrounding areas. Some sections, such as Palmdale/Lancaster to Cuddeback Dry Lake, then on to the Michael Adams memorial, may be accomplished in a single day for shorter excursions.

## 1. DISPOSITION OF ARTIFACTS

Three X-15s were built by North American Aviation. The plant was at the southeast corner of Los Angeles International Airport, which is now the location of the airport’s cargo terminal, near the intersection of Imperial Highway and Aviation Boulevard.



X-15 No. 1 at the National Air & Space Museum.

Two X-15s survived the research program and can now be viewed by the public. X-15 no. 1 hangs in the Milestones of Flight Gallery of the Smithsonian Institute’s National Air and Space Museum on The National Mall in Washington, D.C. The museum is just west of the U.S. Capitol. The X-15A-2 is at the National Museum of the U.S. Air Force, east of downtown Dayton, Ohio.

There are several X-15 mockups. The one

originally created by NAA, and later used in the filming of the movie, "X-15," is now at the Pima Air and Space Museum in Tucson, Arizona. It has undergone a livery change from X-15 no. 1 to an X-15A-2, complete with external fuel tanks. Also at Pima is the B-52 no. 003 mothership.



At the Armstrong Flight Research Center (part of Edwards AFB) X-15 pilot Milt Thompson was behind the creation of an X-15 no. 3 full-scale mockup which used to sit atop a pedestal in the corner of the parking lot near the public affairs office. Unfortunately, the mockup was damaged by a wind storm in early 2011, and it was removed for refurbishment. On 13 May 2014, the Dryden FRC was renamed the Armstrong Flight Research Center in honor of X-15 pilot Neil Armstrong. Armstrong had announced plans for the X-15 no. 3 mockup to be refurbished, but the timetable has not been set, so it remains languishing away from public view. Citing lack of funds, Armstrong stopped its public tours in late 2011, but check with the facility regularly to see if that situation has changed.

Edwards is also home to the Air Force Flight Test Center Museum. Several artifacts from the X-15 can be seen here, including LR-11 and LR-99 rocket engines, along with several wind tunnel models, and personal items from various pilots such as Bob Rushworth and Milt Thompson. A new museum is planned for construction at the west gate, which will be fully accessible to the public. The current museum requires government ID to access. Additionally, B-52 no. 008 is on display at the Edwards AFB north gate.

A second X-15 no. 3 mockup is now hanging in the main gallery at the Evergreen



X-15 No. 3 mockup when on its pedestal at the Armstrong Flight Research Center.

Aviation and Space Museum in McMinnville, Oregon. For many years, this X-15 mockup was mounted at a severe angle, on a pedestal at the U.S. Space and Rocket Center in Huntsville, Alabama, as the X-15A-2. It was transferred to the control of the Cosmosphere International SciEd Center and Space Museum in Hutchinson, Kansas, who placed it on loan to Evergreen, where it was converted to X-15 no. 3.



## 2. PAYING YOUR RESPECTS

All the people who had a part in the X-15 program deserve a great deal of our appreciation and recognition for what they accomplished during the nine years of X-15 flight test, as well as the many prior years of development. At the time of this writing, there is only one of the twelve X-15 pilots still with us (Joe Engle), and many others involved on the ground and in the air are gone now as well.

If the opportunity presents itself, you may wish to seek out the resting places for these people to pay your respects for their achievements in aerospace history. It is a herculean task to track down everyone who had a part in the program, so I have limited the scope of my list to the pilots and managers at the apex of the X-15 pyramid. They are the most recognizable among the names in my book, but I hope you will also remember so many of the others you met along this journey.

At Joshua Memorial Park in Lancaster, California, at least six people who participated in the X-15 may be found relatively near one another in death as they were in life. Included within the Court of Reverie section are found:

- William H. “Bill” Dana (b. 3 November 1930 — d. 6 May 2014)
- John B. “Jack” McKay (b. 8 December 1922 — d. 27 April 1975)
- Milton O. Thompson (b. 4 May 1926 — d. 6 August 1993)
- Joseph R. Vensel (b. 1911 — d. 1976)
- Joseph A. Walker (b. 20 February 1921 — d. 8 June 1966)
- Walter C. Williams (b. 30 July 1919 — d. 7 October 1995)

A few miles south of Joshua Memorial, at the Desert Lawn Memorial Park in Palmdale, is the final resting place of William J. “Pete” Knight. Heading east and south across the country toward Louisiana, Freida Adams felt the comfort of knowing Michael was going to always be nearby. His burial site is at the Mulhearn Memorial Park in Monroe, Louisiana. Scott Crossfield, Iven Kincheloe, Forrest Petersen, and Robert White were all afforded full military honors with their burials at Arlington National Cemetery outside Washington, D.C. Robert Rushworth, after spending most of his professional aviation career and retirement in California, returned to permanent residence in his home town of Madison, Maine, at the Forest Hill Cemetery. Neil Armstrong was buried at sea.

Mike Adams is honored in two additional places: The Michael Adams Memorial at the location where X-15 no. 3 crashed near Ridgecrest, California, and also on the Space Mirror Memorial at the public visitors’ center at the Kennedy Space Center in Florida.

Both Joe Walker and Pete Knight have schools named in their honor in the Antelope Valley. Joseph A. Walker Middle School is in Quartz Hill, and William J. “Pete” Knight High School in Palmdale. At the Walker school there is a large tile mosaic of various scenes from Joe’s life, created using smaller photographs embedded in the tiles.

Two additional X-15 pilots also have schools dedicated to them. Scott Crossfield was very proud of the elementary school which bears his name in Herndon, Virginia, and Neil Armstrong has numerous schools across the country. Most significant is the Neil Armstrong Hall of Engineering at his alma mater, Purdue University’s College of Engineering.

### 3. X-15 FOOTSTEPS TOUR ITINERARY (Complete Tour is highlighted on Map 1)

#### TOUR PART 1: Lancaster, Palmdale, and Rosamond, California

The Palmdale and Lancaster area of California's Antelope Valley has the most tour stops. Here you can explore the locations where some of the pilots and others associated with the X-15 lived while they were working at Edwards AFB throughout the 1950s and 1960s. In addition there are two schools named after pilots in this area, as well as a bar where they went to let off steam after another exciting day working on a hypersonic research program. This is also the most accessible part of the tour, with **17 Tour Stops**.

I have divided this part into two detailed tour maps (Maps 3 and 4). Map 3 gives an overview of the entire valley area from Palmdale in the south to Rosamond in the north, and from Juniper Hills in the southeast to Quartz Hill in the west. Follow the maps or read the descriptive directions below.

*One important thing to remember when visiting the homes where X-15 people lived is that there are others who reside in these locations today, so always be mindful and respectful of that fact when driving by to take a look. Also, take note that Juanita's no longer goes by that name, but the building is still there, just as a different type of bar.*

#### **Tour Stop 1: Desert Lawn Memorial Park** (Map 3)

2200 E Ave S, Palmdale, CA 93550. Pete Knight's resting place is approximately 65 miles north of Los Angeles International Airport, where the North American Aviation X-15 manufacturing plant was located. Head north on Interstate-405, then merge onto Interstate-5, then Highway 14 to Lancaster. Exit at Ave S and go east 2.5 miles, then take a right on Cemetery Rd. Follow this for approximately 2000 feet to enter the cemetery grounds. A landmark to locate Pete's gravesite is that there is a marble bench that also bears his name right next to the marker.



#### **Tour Stop 2: Neil Armstrong Residence (NASA X-15 Pilot)** (Map 3)

29234 106th St E, Juniper Hills, CA 93543. Neil's home is the most remote to get to in the Antelope Valley, in the far southeast corner, in a community called Juniper Hills. Return to Ave S and continue east 2.5 miles to 47th St E. Make a right, and the street becomes Fort Tejon Rd. Follow this for 4.5 miles to make a right on 82nd St E. After half a mile make a left on Ave V, and follow this as it angles to the right, where it once again becomes Fort Tejon Rd. In 3 miles make a right on 106th St E, following that for 4.3 miles nearly to the end, where you'll make a left. Travel about 600 feet to find what used to be a ranger station until occupied and refurbished by the Armstrong family.

**Tour Stop 3: Pete Knight High School** (Map 3)

37423 70th St E, Palmdale, CA 93552. Return north to Fort Tejon Rd. Make a left and go 2.4 miles to a right on 87th St E. Go 2.8 miles and the road will angle slightly to the right and become 90th St E. Go an additional 2.1 miles to a left on Palmdale Blvd. Follow this for 2 miles to a left on 70th St E. Go south 1.1 miles to the school on your right.

**Tour Stop 4: Pete Knight Residence (USAF X-15 Pilot)** (Map 3)

220 Eagle Ln, Palmdale, CA 93551. Return north on 70th St E to a left on Palmdale Blvd. Go 2.3 miles to a traffic circle. Take the first exit from the circle to go north on 50th St E. After 1.6 miles make a left on Ave P and travel west 5 miles to a right on Division St. Go north 0.7 miles to a left on Agua Santa Dr. Take an immediate left on Villa Moura Dr and follow it until it ends at Becky Ln. Turn left, then an immediate right on Eagle Ln.

\* \* \* \* \*

*At this point we are now going to transfer to Map 4 for a close-up of the Lancaster area, which has 10 stops, all within just a few square miles.*

**Tour Stop 5: Fitz Fulton Residence (USAF/NASA B-52 Pilot)** (Map 4)

1023 E Ave J5, Lancaster, CA 93535. Return north to Ave O and make a right. This dead ends at Sierra Hwy, where you'll take a left and drive 3 miles. Just before the Ave L overpass, take a left, then follow this as it circles to the right to join Ave L. Drive 1.1 miles to the traffic circle, and head north on Challenger Wy for 1.8 miles, then take a right onto Ave J5. The 4th house on the left belonged to Fitz.

**Tour Stop 6: Milt Thompson Residence 1 (NASA X-15 Pilot)** (Map 4)

1058 Lingard St, Lancaster, CA 93535. To arrive at Milt's first of three residences on this tour, return to Challenger Wy and take a right to head north for 0.8 miles. Turn right on Lancaster Blvd, then the next right on 11th St E, then right again on Lingard St. Milt's house is on the corner with 11th and Lingard, and will be on your left.

**Tour Stop 7: Joshua Memorial Park** (Map 4)

44607 Challenger Wy, Lancaster, CA 93535. It's a short trip from Milt's home to the Joshua Memorial Park to pay your respects to several pilots and managers from the program. Continue south on 11th St E to make a right in Nugent St, then a right on Challenger Wy. Joshua Memorial is on your left, and the entrance will be before you reach Lancaster Blvd.



Grave marker for Jack McKay and his wife Shirley.

After entering the park, drive straight to the dead end, then turn right. At the next dead end turn left, then continue to the second street, where you will again turn left. At the first intersection you will see a road angling to your right. Go through this intersection, then park your car.



In the first row on the west side of the road you will see Walt Williams with his wife Helen. Walt was the first director of the X-15 program at NACA and NASA. To the left of Walt is the marker for Milt and Therese Thompson. In the second row, directly behind Milt, is Joe Walker. Go to the third row, then to your left two spots and you will find Jack McKay and his wife Shirley. Finally, continue straight ahead to the eighth row, count sixteen markers to your left to find Joe Vensel, the X-15 Director of Flight Operations, the boss for the NASA pilots during the X-15 era.

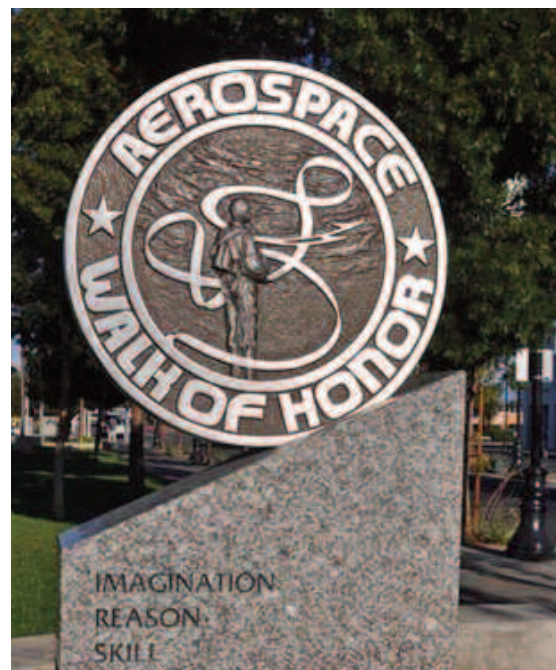
### **Tour Stop 8: Paul Bikle Residence (Flight Research Center Director)** (Map 4)

44926 Raysack Ave, Lancaster, CA 93535. Upon exiting the memorial park, take a left on Challenger Wy to the first left on Lancaster Blvd. Drive 0.8 miles to a right on 3rd St E, then an immediate right on Lightcap St. Follow this until it turns left and becomes Raysack Ave. Paul's home is the second from the end of the street, on your right.

### **Tour Stop 9: Aerospace Walk of Honor** (Map 4)

Lancaster Blvd, from Sierra Hwy to Genoa Ave. Return to Lancaster Blvd and make a right. Drive just 0.2 miles to make a right on Division St, then 0.2 more miles to a left to regain Lancaster Blvd. The perfect signpost that you have arrived is that on the north-east corner of Lancaster Blvd and Sierra Hwy there is a McDonnell F-4 Phantom fighter on display. There is a parking lot off Sierra Hwy, or you can find parking off Lancaster Blvd. The Walk of Honor heads west on this street for several blocks between Sierra Hwy and Genoa Ave. There are usually several inductees at each marker, on both sides of the boulevard. Below is a list of those enshrined on the Walk of Honor from the X-15 program, along with their year of induction:

- Harry Andonian, 2009 (USAF B-52 pilot)
- Neil Armstrong, 1991 (NASA X-15 pilot)
- Charlie Bock, 1994 (USAF B-52 pilot)
- Scott Crossfield, 1990 (NAA X-15 pilot)
- Bill Dana, 1993 (NASA X-15 pilot)
- Joe Engle, 1992 (USAF X-15 pilot)
- Fitz Fulton, 1991 (USAF/NASA B-52 pilot)
- Iven Kincheloe, 1992 (USAF pilot, died prior to X-15 flight)
- Pete Knight, 1990 (USAF X-15 pilot)
- John McKay, 1996 (NASA X-15 pilot)
- Robert Rushworth, 1994 (USAF X-15 pilot)
- Emil Sturmthal, 2006 (USAF B-52 pilot)
- Milt Thompson, 1993 (NASA X-15 pilot)
- Guy Townsend, 1995 (USAF B-52 pilot)
- Joe Walker, 1991 (NASA X-15 pilot)
- Alvin White, 1994 (NAA X-15 backup pilot to Scott Crossfield)
- Robert White, 1992 (USAF X-15 pilot)





**Tour Stop 10: Stan Butchart Residence (NASA Director of Flight Ops)** (Map 4)

44442 Fern Ave, Lancaster, CA 93534.

Continue on Lancaster Blvd to make a left onto 10th St W. Drive 0.5 miles to make a left on Ave J, then another 0.3 miles to another left on Fern Ave. Stan's home was the 7th one on the right.



**Tour Stop 11: John McKay Residence (NASA X-15 Pilot)** (Map 4)

1210 W. Lancaster Blvd, Lancaster, CA 93534. Return to Ave J and make a right to return to 10th St W. Return north to Lancaster Blvd, and make a left. Go 0.3 miles and the McKay residence will be the 4th home on your left after passing 12th St W.

**Tour Stop 12: Milt Thompson Residence 2 (NASA X-15 Pilot)** (Map 4)

44522 Lostwood Ave, Lancaster, CA 93534. Continue west another 0.3 miles on



Lancaster Blvd. Arriving at the traffic circle, use the 3rd exit which will take you south on 15th St W. Travel south 0.3 miles to make a left onto Norberry St. The first street on your right is Lostwood Ave. Make a right on Lostwood Ave and Milt's 2nd home on this tour will be the 7th house on your left.

**Tour Stop 13: Joe Walker Residence (NASA X-15 Pilot)** (Map 4)

1309 W Ave L4, Lancaster, CA 93534. Return to 15th St W and make a left. Travel 0.7 miles south to turn right on Ave J8. Follow the signs to make a righthand circle onto the onramp for Hwy 14 S. Travel 1.7 miles south to Exit 41 for Ave L. Make a right at the end of the offramp to Ave L. Take the first left onto the dirt road of 15th St W. The 2nd cross street is Ave L4. Make a left down this dirt road to the last house on the left. What is now a fairly run down home used to be the beautiful residence of the Walker family when he was NASA's chief test pilot on the X-15.



**Tour Stop 14: Milt Thompson Residence 3 (NASA X-15 Pilot)** (Map 4)

1640 W Ave L12, Lancaster, CA 93534. Return to 15th St W and make a left to continue south for 0.5 miles. Make a right turn on Ave L12, drive approximately 0.2 miles to the 6th residence on the left to arrive at Milt Thompson's 3rd and final home on this tour.

\* \* \* \* \*

*For our remaining destinations within the Antelope Valley, we have to change our scale and return to Map 3 in order to show an overall view of the area.*

**Tour Stop 15: Joe Walker Middle School** (Map 3)

5632 W Ave L8, Quartz Hill, CA 93536. Continue driving west on Ave L12 for 0.3 miles to make a left on 20th St W. Go south 0.3 miles and make a right on Ave M. Drive west 1.5 miles, then make a right to head north on 35th St W. After 0.5 miles you'll be at Ave L8. Make a left and drive west 2.2 miles, and the school named after the man who flew to a height of 354,200 feet (67.1 miles), will be on your left.

**Tour Stop 16: Dave Stoddard Residence (NASA Rocket Shop)** (Map 3)

8120 W Ave C10, Lancaster, CA 93536. To arrive at the last residence on our tour, continue west on Ave L8 for 0.3 miles after leaving Walker's school. Make a right onto 60th St W and drive north 8.6 miles to Ave D, also known as Hwy 138. Make a left to head west 2 miles to reach 80th St W. Turn right and drive 0.4 miles to the corner of Ave C10. Dave's home will be on the southwest corner of 80th and C10, on your left. Dave was not a famous pilot or manager in the X-15 program, but was an essential person that kept the X-15 flying, working in the Rocket Shop. He was also a huge help in the writing of the book "The X-15 Rocket Plane" by opening many doors to others in the trenches who made the program possible, and kept the research program on track for a decade.

**Tour Stop 17: Juanita's Bar** (Map 3)

2764 Sierra Hwy, Rosamond, CA 93560. Now we come to the final stop in the Antelope Valley, a place where those who flew and worked on the X-15 went to let off steam after another successful mission. Juanita's Bar was an easily accessible watering hole on the road home from Edwards, so it became the defacto destination for celebrations and milestones, or just to hunker down with drinks and some food to talk over the events that transpired that day related to the X-15.

To arrive at this unique location, return south on 80th St W to Ave D/Hwy 138 and make a left, driving east for 5.8 miles. You'll pass over Hwy 14, then immediately take a right to circle around and take the northbound freeway entrance toward Mojave. Head straight north for 6 miles to Exit 55 for Rosamond Blvd. Turn right and head west 0.4 miles to Sierra Hwy, then make another right. Go just 0.2 miles, and the old building that housed Juanita's will be on your right. Take note that Juanita's no longer goes by that name, but the building is still there, just as a different type of bar. At the time of this writing it was known as the Zebra Club.

**Special acknowledgement to Erik Reedy  
for his assistance in compiling the list of homes on this tour.**

## **TOUR PART 2: B-52 no. 008, Domingo's, Cuddeback, and Michael Adams (Map 5)**

The X-15 High Range has several areas which are readily accessible, while others take a bit more adventure. These include dry lakes and the old radar sites, all along a general line north and northeast of Edwards AFB in California and into central and eastern Nevada. I'll pick up the route where we last stopped at Juanita's in Rosamond.

### **Tour Stop 18: B-52 no. 008 Mothership (Map 5)**

Return to Highway 14 and proceed north toward Mojave for 12.8 miles. As soon as you enter the town of Mojave, at the intersection of Highways 14 and 58, take a right turn onto Hwy 58 E toward Barstow. (Note: This is a business route for Hwy 58 and will



**B-52 no. 008 at the Edwards AFB North Gate.**

connect with the regular Hwy 58 after traveling 3.8 miles to the east.) After 17 miles, at Exit 186, there will be a right turn on Rosamond Blvd toward the north gate at Edwards AFB. Go 1.1 miles south, and B-52 no. 008 is on the east side of the road, just north of the base entrance. There is a parking area next to the aircraft and you do not need to enter the base itself. Be aware that Edwards is an

active military base, so be sure to have your identification available, if requested. Also be aware that at times of heightened security, you may be asked to not take photographs.

This B-52 was the mothership for 106 of the 199 missions flown by the X-15 rocket plane over a nine year period. Fitz Fulton, whose home you visited earlier on this tour in Lancaster (Map 4), flew a total of 94 B-52 missions, 11 as the B-52's co-pilot, and 39 as pilot on this specific B-52.

### **Tour Stop 19: Domingo's Restaurant, Boron (Map 5)**

Return north and make a right onto Hwy 58, and go 12.6 miles to Exit 199 for Boron Ave. Turn right and go 0.6 miles south to a left turn just before the main street of 20 Mule Team Rd in Boron. This will take you behind the Boron Food Mart. Just past this make a right into the parking lot for Domingo's Mexican and Seafood restaurant. Not only is this a great place for a stop for lunch or dinner on your tour, it is also a favorite place where pilots, astronauts, and others from Edwards like to hang out. X-15 pilot Joe Engle is a good friend of Domingo, and has stopped in many times while visiting. Be sure to order a Boron Rocket Fuel drink! Domingo will make it for you himself right at your table.

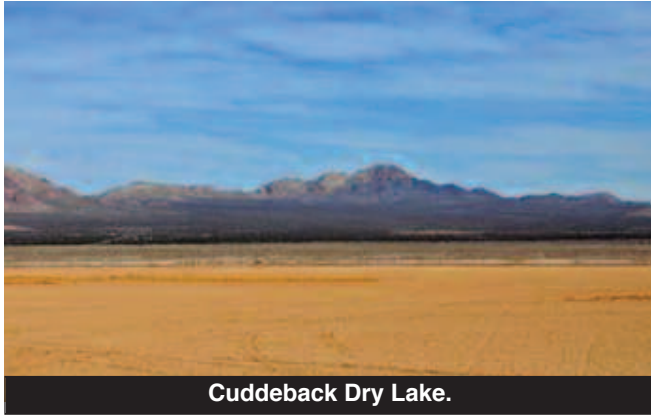


**Domingo making a Boron Rocket Fuel drink.**



### **Tour Stop 20: Cuddeback Dry Lake** (Map 5)

Return north to Hwy 58 and continue east another 6.3 miles to the junction with U.S. Highway 395. Follow Exit 206, then make a right on Hwy 395 to circle around and head north. Continue for 18 miles to Cuddeback Rd. Turn right and follow the dirt road for 8



miles and you will be on the western edge of Cuddeback. This is the closest X-15 emergency lakebed to the local Edwards AFB area of Rogers and Rosamond Dry Lakes.

Cuddeback was used twice for emergency landings of the X-15. The first was on Milt Thompson's fifth flight (3-29-48 on 21 May 1964), and the second was the first flight of Mike Adams (1-69-116 on 6 October 1966).

### **Tour Stop 21: Michael Adams Memorial** (Map 5)

Created by Eagle Scout John Bodylski, and dedicated on 8 May 2004, the Michael Adams Memorial commemorates the location where Mike Adams lost his life on 15 November 1967 in the crash of X-15 no. 3. This was the only fatality of the X-15 program.

To arrive at the memorial, return west to Hwy 395 from Cuddeback, then turn right to head north for 8 miles through the tiny settlement of Red Mountain. Less than a half-mile later will be a right turn on Trona Rd. Proceed exactly 4.1 miles on Trona Rd, then you will see a dirt road on your left. Proceed 0.5 miles west, following the dirt road to the memorial site.



The original monument is the truncated concrete cylinder (seen at left in the above aerial view). Over the years the memorial has been greatly expanded, and now includes log fencing, and a large concrete X, bordered by eight large information panels that explain the X-15 program, the pilots, the accident, and Michael Adams himself. Dedication of the latest iteration of the memorial was on 15 November 2017, the 50th anniversary of the accident that cost Michael Adams his life.



### **TOUR PART 3: The X-15 High Range and The Dry Lakes (Maps 6, 7, 8, and 9)**

We are now ready to travel further afield, and leave California behind. The X-15 High Range has several areas which are readily accessible, while others take a bit more adventure. These include dry lakes and the old radar sites, all along a general line north and northeast of Edwards in California and into central and eastern Nevada.

#### **Tour Stop 22: Beatty, Nevada** (Map 6)

The town of Beatty is the first sojourn into the state of Nevada on this tour, and it is a trek of several hours from the Michael Adams memorial. It will also take you through Death Valley, so be sure to have plenty of water and other provisions.

Return to Trona Rd from the memorial, turn left to head north approximately 17 miles to the junction with Hwy 178, then turn right toward the town of Trona. The road changes names over the next 60 miles: Trona Wildrose Rd to Panamint Valley Rd. This valley has also been known to occasionally attract hot-shot fighter jockeys wanting to get a thrill flying their jets close to the ground, then popping up at the north or south end of the Panamint. It can be your own private air show if you happen to be traveling through at the right time, as happened on one occasion for myself and Cherie.

At literally the end of this road, make a right turn onto Hwy 190 toward Furnace Creek in Death Valley. (Note: An entrance fee may be required for the National Park.) Drive 35 miles on Hwy 190 into the heart of Death Valley National Park to reach the junction with Scotty's Castle Rd. Make a left to head north, but after just 0.6 miles make the right on Daylight Pass Rd. You will follow this route for 26 miles into the town of Beatty, Nevada.

When the road crosses over the border it will become Nevada Hwy 374. About four miles prior to reaching Beatty, there will be a road to your left leading up to the ghost town of Rhyolite. This is a fun stop if you have the time for a small historical detour.

Highway 374 will bring you in through the west side of Beatty, becoming Main St. At the intersection of 2nd St, Hwy 374 ends, and you'll join Hwy 95. This comes up through the town from the south and makes a right turn from 2nd St onto Main St. If you are continuing directly toward the old Beatty High Range radar site, simply go straight through this intersection to join Hwy 95 and continue heading north out of town. However, Beatty is worth a stop itself.

Even though the town is small, it is a fascinating place to explore, and an excellent waypoint for an overnight stop. Walk down the streets and recall the stories related by Beatty High Range Manager TD Barnes, and his time in this area working at the radar station north of town. The echoes of people such as Panamint Annie and Ma Vincent still reverberate in an area which has not seen significant change since the days of the X-15.

#### **Tour Stop 23: Beatty High Range Station** (Map 6)

Now the adventure truly begins. Measuring from the intersection of Highways 374 and 95 in downtown Beatty, travel 14.6 miles north on Hwy 95. There will be a road to your left. This road used to be paved, but that pavement has not been maintained for decades. When I visited the site, I was able to drive 0.7 miles up this rather steep road



Looking back downhill to Highway 95, partway to site.

At the point where the radar site used to sit are the foundations of several buildings, including the main site where the operators monitored the X-15. The flat-topped area is roughly square, and with careful searching, bits and pieces of old equipment may still be found even though the buildings have long since been removed. On my trip, I sat on the foundation, having a snack after my hike. As I sat taking in my surroundings, I saw a small electronic component which made a great souvenir. Be on the lookout for snakes as TD Barnes said they were frequent visitors. The site has been abandoned since the closure of the buildings in 1968.

Coordinates for the Beatty site are:  
Lat. — North 37°, 4 min., 52.83 sec.  
Long. — West 116°, 49 min., 3.23 sec.



Concrete pad for the main building at the Beatty site.

before I had to secure the parking brake and walk the rest of the way. Leaving your vehicle as I did is not recommended, and unless you have a good 4-wheel drive vehicle, it is probably safer to walk from the base of the hill, not far off the main highway.

The total distance is approximately 4,000 feet from Hwy 95 to get to the top of the hill, then the road bends to the left and heads south about 3,000 feet to the end.

At the point where the radar site used to

sit are the foundations of several buildings, including the main site where the operators monitored the X-15. The flat-topped area is roughly square, and with careful searching, bits and pieces of old equipment may still be found even though the buildings have long since been removed. On my trip, I sat on the foundation, having a snack after my hike. As I sat taking in my surroundings, I saw a small electronic component which made a great souvenir. Be on the lookout for snakes as TD Barnes said they were frequent visitors. The site has been abandoned since the closure of the buildings in 1968.

### **Tour Stop 24: Tonopah, Nevada** (Map 7)

Once back on Hwy 95, after your hike up to the old radar site, continue north for approximately 80 miles. At the junction of Highways 95 and 6 is the old silver mining town of Tonopah, the gateway to Mud Dry Lake. Tonopah was the staging area for many High Range personnel supporting X-15 missions out of the nearby Mud Dry Lake area. This town is a great stop for another night's stay along the pathway of the X-15. In fact, I recommend staying two nights so you can have an early run to Mud, then back to Tonopah for a second night before starting the next leg of the trip. This will also give plenty of time for checking out the town and its local history.

In the center of the town is the Mizpah Hotel, which was the place the X-15 team usually stayed when on temporary duty away from Edwards. The hotel was renovated and reopened in 2011, so it is highly recommended as the perfect place to book a room. The hotel itself is a five-story building, the tallest in Nevada when first constructed in 1907. It is the center of many tall tales, including a ghost story or two, such as the famous "Lady in Red" (Evelyn Rose Johnson) who died in the 1920s on the fifth floor, where she reportedly still resides.

Another draw to the Tonopah area is that it is a Dark Sky location, meaning it is known for having some of the best skies in the United States for stargazing, while also being relatively easily to access by highway. If you happen to be a skywatcher, this is a perfect place to bring your telescope or binoculars, or just sidle outside the town limits, unfold a chair after nightfall, and enjoy the thousands of stars which can be seen with the unaided eye from this region. Compare this to the few dozen, or less, from the average city infused with light pollution.



### **Tour Stop 25: Mud Dry Lake** (Map 7)

Time now for some major off-road exploration. I highly recommend a 4-wheel drive vehicle with high clearance for any attempt to get out to Mud, although I admit to making it safely with a standard two-wheel drive compact car. It took me two separate attempts to accomplish the task when a thunderstorm gave me second thoughts after leaving the highway for the first try.

When I returned to Tonopah for another foray, I also made sure the hotel staff was aware of where I was going, and asked them to contact someone in authority if I didn't return by an expected time. I made it out and back with no problem, but it can be an intimidating experience to be on the lakebed alone, especially knowing what I had to traverse to get back to town. When you go, make sure you have many hours of daylight, so as not to get caught in the dark on your way back.



This trek begins at the junction of Hwys 95 and 6 in Tonopah. Highway 6 heads directly east out of town, then up over a hill before descending toward the Tonopah Airport. From the junction, travel 5.7 miles, where there will be a dirt road on your right. (This is 0.1 miles past the Hwy 6 & 376 junction, and about mile before you reach the airport.) You can see the bleached expanse of Mud Dry Lake several miles to the south.

Turn south on the dirt road, then go exactly 6 miles to a "Y." Take the left branch, which is now heading south by southeast. After 3.1 miles the road branches again. I took the left branch on my odyssey because it appeared to be a more direct route toward the lake, although from what I know now, both branches will take you there. The branch I chose brings you out onto the lakebed after an additional 4.2 miles, while the right gets you there in almost exactly 4 miles. I personally prefer the route I took because it takes you to the center of the northern



boundary of Mud, whereas the right branch leaves you near the western end of the lakebed.

The northern half of the lakebed is open territory for anyone who wishes to visit, but you will find a demarcation fence with government warning signs running east/west, cutting the lakebed in two and preventing access to the southern half. This is the northern extremity of the Nevada Test and Training Range where air force jets regularly hold exercises. The range is the largest restricted area in the United States, and encompasses the infamous Area 51, about 120 miles southeast of Tonopah.



The hard-packed surface of Mud Dry Lake.

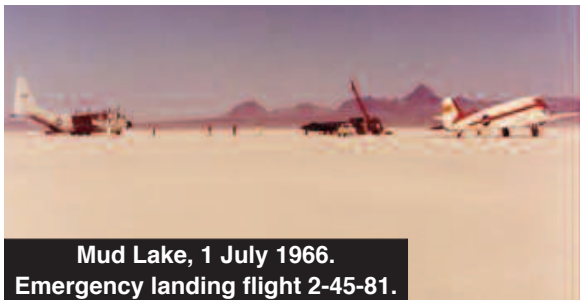
Driving the 13.3 miles from Hwy 6 to Mud took me almost exactly one hour. The lakebed is roughly circular, and about five miles edge-to-edge. Because of the test range, you are limited to an area of exploration about five miles east-to-west, and two miles north-to-south. Be sure to carefully note your landmarks and mileage to find your way back to the road leading north, as it can be very deceptive to find this road in the jumbled transition zone around the edge of the lakebed.

Mud Dry Lake is extremely important to the history of the X-15. While here, recall the four emergency landings that occurred during the rocket plane program, far surpassing any other lakebed. Cuddeback supported two emergencies, while Delamar, Rosamond, Smith Ranch, and Silver provided safe haven one time each during the course of the hypersonic research flights.

The first landing necessitated at Mud occurred on Forrest Petersen's fifth flight (1-25-44 on 10 January 1962). He came down in X-15 no. 1 when the LR-99 rocket engine failed to start after launch from the B-52.

Ten months later, Jack McKay hung on as the X-15 landed heavy and fast at the end of his seventh flight (2-31-52 on 9 November 1962). The gear collapsed, and X-15 no. 2 flipped on its back, causing severe injury to McKay. In rebuilding this aircraft it was transformed into the X-15A-2, complete with external tanks, which eventually ran for the ultimate speed record on 3 October 1967 with Pete Knight at the controls.

The last two emergencies happened within a year of each other, and both involved pilots from the U.S. Air Force. On his 34th and final flight in the program, Bob Rushworth was forced to jettison the tanks from the X-15A-2 on its first test of the rebuilt



Mud Lake, 1 July 1966.  
Emergency landing flight 2-45-81.



The same spot on Mud Dry Lake, 20 December 2004.



aircraft using the full external tanks (2-45-81 on 1 July 1966). The final Mud Dry Lake emergency happened when Pete Knight lost all electrical power in aircraft no. 1 (1-73-26 on 29 June 1967). Due to the time of the incident in flight, most of the search teams thought Pete would fly forward to Grapevine Dry Lake, but Pete turned around and headed for Mud because he preferred the characteristics of this lakebed.

### **Tour Stop 26: Smith Ranch Dry Lake** (Map 8)

One last dry lakebed is left on the tour: Smith Ranch. One landing occurred here with X-15 no. 1 piloted by Jack McKay (1-68-113 on 8 September 1966). Although remote in miles, this lakebed is probably the easiest to access from a paved highway.

Head west out of Tonopah on Hwy 95 for approximately 60 miles to the junction with Hwy 361. Make a right turn and head north for 63 miles. This highway will dead end into Hwy 50 at the tiny community of Middlegate. Highway 50 is a tour unto itself, and has the moniker of “The Loneliest Road in America.” Turn right to go east on Hwy 50 for only 3.2 miles to arrive at the junction of Hwy 722 toward Eastgate.

As you drive from Eastgate you will experience a lot of winding road through the Desatoya Mountains. The elevation rises from approximately 5,000 feet to just under 7,500 feet within a few miles. Coming down out of the mountains, about 22 miles after leaving Hwy 50 you’ll be on relatively flat terrain leading to the dry lake. Highway 722 continues straight from this point for 6 miles, then gently curves to the northeast where you will easily see Smith Ranch Dry Lake on your left.

At 5.4 miles after starting this curve there will be a dirt road on your left, near the center of the south edge of the lakebed. Take this road for about one mile and you will be on the Smith Ranch lakebed. While on the lakebed, recall that Jack McKay landed here in late summer, on his final X-15 flight. Out of this entire great expanse of smooth, hard



View of road to Smith Ranch from Hwy 722.

packed surface, the nose wheel of the rocket plane was punctured by a single surveyor’s nail that happened to be sitting directly on the rocket plane’s rollout path!

When you leave Smith Ranch, return on the dirt road to Hwy 722 and continue east for approximately 24 miles to reunite with Hwy 50. About five miles prior to reaching this junction, the Austin Airport will be on your left.

### **Tour Stop 27: Ely High Range Station** (Map 9)

At this point you are a few hours away from the second and last of the High Range radar stations, this one outside Ely, Nevada. Travel 140 miles east on Hwy 50 from the junction with Hwy 722. To recognize you are getting close to the area, at approximately 130 miles into this segment, Hwy 50, which has been heading generally east at this point, takes a turn to your right toward the southeast. After 2 miles it turns east again, then makes a wide arc back to the southeast. From there, the road will be relatively

straight for 6 miles, leading to the right turn onto the dirt road up to the radar site.

At the time of my visit in mid-May, there was still snow in the mountains, so be sure to keep this in mind for any visit to the site. Also remember that conditions change, but a perfect signpost for the turnoff (at the time of my visit) was a large metal building about 700 feet off the southwest side of Hwy 50, on the dirt road into the mountains.

Once off Hwy 50, the dirt road goes straight for a couple miles, then starts to climb into the mountains. After a total of approximately 4 miles, the road will bend around to the northwest, starting with the first switchback. There are many twists and turns at this point, but stay with this road and don't take any turnoffs. About 1.4 miles later you arrive at the last series of four switchbacks, alternating first to the right, then to the left. At the first of these you will be able to see the radar site directly ahead and above. Another 0.5 miles will bring you onto the Ely High Range radar site property.



Ely High Range Site from below the switchbacks.



Closer view of Ely High Range Site from the road.

Currently the buildings are intact and maintained, and may still occasionally be in use by the U.S. Air Force.

Coordinates for the Ely site are:

Lat. — North 39°, 18 min., 30.22 sec.

Long. — West 115°, 5 min., 11.45 sec.

### Tour Stop 28: Ely, Nevada (Map 9)

After a slow and careful drive 6 miles back down the dirt road to Hwy 50, turn right and continue east for a quick 11 miles, which will take you into the center of downtown Ely. This point is marked by the intersection with Hwy 93. The town is the recommended stopping point after a full day excursion across a large portion of the Nevada landscape.

In this area are ghost towns, gambling halls, and beautiful Cave



One of many bizarre murals in the town of Ely, Nevada.



Lake. If you are in Ely at the right time of the summer, maybe you can catch the famous bathtub races on the lake. A recommended hotel would be the Hotel Nevada and Gambling Hall, where you can request to spend the night in the Jimmy Stewart room.

Ely marks the official end of the itinerary to follow in the footsteps marked by the flights of the hypersonic X-15.

#### **TOUR PART 4: The Return (Maps 1 and 2)**

To return full circle to southern California, head south on Hwy 93, also known as the Great Basin Highway. You will go for approximately 260 miles to reach Interstate-15, then another 25 miles south to Las Vegas. Continue west for 225 miles to Interstate-10, then 27 miles to Interstate-605. Go south for 13 miles, then west on Interstate-105 for 16 miles to reach Los Angeles International Airport. You have now arrived back at the location of the original North American Aviation Los Angeles Division plant where it all started with the rollout of X-15 no. 1 on 15 October 1958.

### **The Pilots of the X-15 Rocket Plane**



**Scott Crossfield**



**Joe Walker**



**Robert White**



**Forrest Petersen**



**Jack McKay**



**Robert Rushworth**



**Neil Armstrong**



**Joe Engle**



**Milt Thompson**



**Pete Knight**



**Bill Dana**



**Michael Adams**

## 4. CONTACTS

Throughout this document are listed various organizations and locations. Below is a contact list.

### PART 1: Museums

National Air and Space Museum  
Independence Avenue at 6th Street  
Washington, D.C. 20560  
(202) 633-2214  
[www.nasm.si.edu](http://www.nasm.si.edu)

National Museum of the U.S. Air Force  
1100 Spaatz Street  
Wright-Patterson AFB, Ohio 45433  
(937) 255-3286  
[www.nationalmuseum.af.mil](http://www.nationalmuseum.af.mil)

Pima Air and Space Museum  
6000 E. Valencia Road  
Tucson, Arizona 85756  
(520) 574-0462  
[www.pimaair.org](http://www.pimaair.org)

NASA Armstrong Flight Research Center  
P.O. Box 273  
Edwards, California 93523  
(661) 276-3311  
[www.nasa.gov/centers/dryden](http://www.nasa.gov/centers/dryden)

Air Force Flight Test Center Museum  
405 South Rosamond Boulevard  
Edwards, CA 93524  
(661) 277-8050  
[www.afftcmuseum.org](http://www.afftcmuseum.org)

Evergreen Aviation and Space Museum  
460 Northeast Captain Michael King Smith Way  
McMinnville, Oregon 97128  
(503) 434-4185  
[www.evergreenmuseum.org](http://www.evergreenmuseum.org)

### PART 2: Memorial Sites

Joshua Memorial Park and Mortuary  
808 East Lancaster Boulevard  
Lancaster, CA 93535  
661-942-8125  
[www.joshuamortuary.com](http://www.joshuamortuary.com)

Desert Lawn Memorial Park  
2200 East Avenue S  
Palmdale, CA 93550  
661-947-7177

Mulhearn Memorial Park Cemetery  
623 Highway 80 East  
Monroe, LA 71203  
318-343-1511  
[mulhearnfuneralhome.com](http://mulhearnfuneralhome.com)

Arlington National Cemetery  
Arlington, VA 22211  
877-907-8585  
[www.arlingtoncemetery.mil](http://www.arlingtoncemetery.mil)

Forest Hill Cemetery  
Upper Park Street  
Madison, Maine 04950  
207-696-3971

Michael Adams Memorial  
[www.mach25media.com/adams.html](http://www.mach25media.com/adams.html)

Astronaut Memorial Foundation/Space Mirror Memorial  
State Road 405  
Kennedy Space Center, Florida 32899  
321-452-2887  
[amfcse.org](http://amfcse.org)



### PART 3: Schools

Joseph A. Walker Middle School  
5632 West Avenue L-8  
Quartz Hill, California 93635  
(661) 943-3258  
[www.westside.k12.ca.us/jw](http://www.westside.k12.ca.us/jw)

William J. "Pete" Knight High School  
37423 70th Street East  
Palmdale, California 93552  
(661) 533-9000

A. Scott Crossfield Elementary School  
2791 Fox Mill Road  
Herndon, Virginia 20171  
(703) 295-1100  
[www.fcps.edu/CrossfieldES](http://www.fcps.edu/CrossfieldES)



X-15 No. 1 at the National Air & Space Museum.

Purdue University, College of Engineering  
Neil Armstrong Hall of Engineering  
701 West Stadium Avenue  
West Lafayette, Indiana 47907  
(765) 494-5345  
[engineering.purdue.edu/ENGR](http://engineering.purdue.edu/ENGR)



Tile mosaic at Joseph A. Walker Middle School, Quartz Hill, California.

