

1964 MEYERS MANX  
(Old Red)  
Valley Center  
San Diego County  
California

HAER CA-2312  
*HAER CA-2312*

PHOTOGRAPHS

COLOR TRANSPARENCIES

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

## **HISTORIC AMERICAN ENGINEERING RECORD**

### **1964 MEYERS MANX (Old Red)**

**HAER No. CA-2312**

Location:	Valley Center, San Diego County, California
Present Owners:	Bruce and Winnie Meyers
Present Use:	Display and limited exhibition
Significance:	<p>The 1964 Meyers Manx, known as Old Red, is nationally significant based on its relation to four criteria for historic significance. First, it is associated with significant trends in automotive history and culture, a significant event. Old Red and the subsequent production of Meyers Manx dune buggies shaped the rise in the popularity of the dune buggy, off-road vehicles, and kit-cars in the United States and abroad beginning in the mid-1960s. Second, it is associated with Bruce F. Meyers, a dune buggy pioneer and a significant person in off-road vehicles and the fiberglass kit-car industry. Third, Old Red features significant design and construction value: it is the first dune buggy built with a fiberglass body and its design and construction techniques helped catalyze the dune buggy industry. Its design has been highly regarded since its inception. Dune buggies that mimicked Old Red played heavily into the pop culture during the 1960s. Fourth, it offers informational value as the first in a series of approximately 7,000 Meyers Manx dune buggies built by B.F. Meyers &amp; Company. The Meyers Manx design was the inspiration for over 250,000 similar cars that were manufactured by other companies, making it the most replicated car in history. The period of significance for Old Red was from its completion in 1964 to the end of the dune buggy era in the late-1970s.</p>
Historian:	Casey T. Maxon, Historic Vehicle Association, May 2014 and May 2016.
Project Information:	<p>The Meyers Manx documentation was sponsored by the Historic Vehicle Association (HVA) and Historic Documentation Programs (HDP) in collaboration with Bruce F. Meyers; Mark D. Gessler, President, HVA; and Richard O'Connor, Ph.D., Chief of Heritage Documentation Programs (HDP) directed the project.</p> <p>The overview history of Old Red was prepared by HVA historian Casey T. Maxon with assistance from owner and builder, Bruce F. Meyers. Photographs were produced by Casey T. Maxon. The field work was performed by Annette Brown of 3D Engineers and the measured drawings were prepared by HDP architects John Wachtel, Jeremy Mauro, and Ryan Pierce.</p>

Hagerty Insurance Agency, Inc. (Traverse City, Michigan) and Volkswagen of America Inc. provided funding to the HVA to support this project.

## Part I: Historical Information

### A. Physical History

1. Date of construction: August 1963 – November 1964
2. Designer/Engineer: Bruce F. Meyers
3. Builder/Contractor/Supplier: Bruce F. Meyers
4. Original Plans, Design, and Construction: Old Red's build was based off of a scale clay model crafted by Bruce Meyers in August 1963.<sup>1</sup> Meyers formed the clay model from sketches and did not utilize any formal plans, schematics or blueprints when constructing the dune buggy. Meyers credits inspiration for the design coming from comic strip cartoon cars used by Mickey Mouse, Donald Duck, and Andy Gump.<sup>2</sup> The body design was meant to be beautiful, rugged, functional for off-road use and simple to produce in fiberglass. The overall layout was designed around a Volkswagen Beetle's suspension, engine and mechanical components. To build the body, Meyers first constructed a plug, essentially a model of the final product. From the plug he formed a mold within which he laid fiberglass to create the finished monocoque body and frame combination. The body was produced in one piece, excluding the hood and front fenders, entirely of thick fiberglass, similar to that of a boat hull, with no metal frame. Meyers incorporated steel support tubes for increased strength and to attach salvaged Volkswagen suspension components in the front and an engine in the rear. These construction techniques were duplicated for the production of eleven more dune buggies that were sold to friends and associates. Later production dune

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<sup>1</sup> Bruce Meyers, interview by Paul Sanderson, March 10, 2014, transcript, Historic Vehicle Association library.

<sup>2</sup> James T. Crow, "Old Red: History's Most Copied Car?" *Road & Track* (September 1976), 38.

buggies utilized shortened Volkswagen Beetle metal frames, or “floorpans,” in order to streamline production, simplify the fiberglass molds and reduce costs.

5. Ownership:

August 1963	Built by:	Bruce F. Meyers Newport Beach, California
	Registration:	OTV 553 (California)
May 1982 <sup>3</sup>	Sold to:	Richard “Dick” Chrysler Brighton, Michigan
	Notes:	Stuart Reed, former B.F. Meyers Company employee helped arrange the sale. <sup>4</sup>
ca. 1988	Sold to:	Jim Marvin <sup>5</sup> Pinckney, Michigan
	Notes:	Former employee of Richard Chrysler
ca. Nov 1996	Sold to:	Chris Lewis Columbus, Ohio
	Notes:	Chris was the boyfriend of Bruce’s step- daughter at the time that purchased it on behalf of the Meyers family. <sup>6</sup>
Spring 1997	Transferred to:	Bruce F. Meyers Valley Center, CA

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<sup>3</sup> Bruce Meyers, “An Old Friend Returns Home,” *Manx Mania* III, no. 2: 1-2, 10.

<sup>4</sup> Christine Reed (daughter of Stuart Reed, former B.F. Meyers employee), in discussion with author, May 2014.

<sup>5</sup> Christine Reed (daughter of Stuart Reed, former B.F. Meyers employee), in discussion with author, May 2014.

<sup>6</sup> Matthew Marx, “Surfer finds lost love: Old Red,” *Columbus Dispatch*, December 27, 1996. and Bruce Meyers, in discussion with author. April 2, 2014.

6. Alterations and modifications:

Old Red was modified and altered in various fashions through the 1960s before being retired from constant use in 1969. When the vehicle was restored in the early 1970s, it had over 130,000 miles on it and had been equipped with multiple engines.<sup>7</sup> As Bruce F. Meyers expanded dune buggy production and formed B.F. Meyers & Company, Old Red was used as a test mule and prototype to design production kits. Old Red was also used in competition and received various upgrades for competition. These alterations are mostly undocumented. The period and out-of-period modifications that are known are listed below.

ca. May 1967 Car prepared for Baja elapsed time record run

The following work was performed:

- Fabric top and side curtains added
- Three oxygen tanks added to be used as auxiliary fuel tanks – removed after the run
- Gates tires installed<sup>8</sup>

ca. 1967 Repairs made after Baja run based on following damage:

- Broken engine mounts
- Front axle and steering bent
- Brake line split
- Tire cut
- First and fourth gear inoperable

ca. 1970s Old Red was restored completely by Miller-Havens Enterprises<sup>9</sup>

The following work is known to have been performed:

- Rewired
- Painted with “Tangerine Orange” lacquer paint<sup>10</sup>
- Replacement engine<sup>11</sup>

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<sup>7</sup> Deke Houlgate, “Motor Sport Today,” *Progress Bulletin* (Pomona, California), May 1, 1969.

<sup>8</sup> “First Came the Manx...,” *Dune Buggies and Hot VWs/The Fun Car Journal* 1, no. 2 (Winter 1968): 38.

<sup>9</sup> Bruce Meyers, interview by Paul Sanderson, March 10, 2014, transcript, Historic Vehicle Association library.

<sup>10</sup> Bruce Meyers, in discussion with author. April 2, 2014.

<sup>11</sup> Based on discussions with Bruce Meyers and the author, it is believed that the current Type 181 Volkswagen engine, serial no. AM020057, was installed by Miller-Havens Enterprises during this time period.

7. Race History:

April 1967

Baja elapsed time record run  
Baja California

Driver: Bruce F. Meyers/Theodore (Ted)  
Mangels

Owner: Bruce F. Meyers

Entrant: Bruce F. Meyers/ B.F. Meyers &  
Company

Car number: None

Race livery: Red paint

Engine: Unknown – Volkswagen

Results: 34 hours, 45 minutes

Notes: This informal run set the world record  
for a run between La Paz and Tijuana,  
Mexico previously held by motorcycles  
set in November 1966 at 39 hours 2  
minutes.

B. Historical Context

Old Red is the first fiberglass dune buggy ever constructed and the prototype for the production Meyers Manx dune buggies. It is a simple, hand formed, fiberglass, off-road vehicle built from 1963 to 1964 by native Californian, Bruce F. Meyers. Old Red is part of a significant time in both automotive and American history. The dune buggy defined a major automotive trend, set an important automotive racing record, prompted an off-road racing phenomenon, and is the automotive representation of an era in American culture that both embraced and battled, ever-popular, free-spirit, California beach culture ethos.

Bruce F. Meyers, born March 12, 1926 in Los Angeles, California, drew on many influences and past experiences to develop Old Red. Before becoming a pioneer in dune buggies and off-road racing, Meyers: served in the Navy during WWII on an aircraft carrier that was struck by a kamikaze attack that killed 389 men; crewed merchant ships; ran a trading post in Tahiti; attended art school; shaped surfboards; built fiberglass boats; and ran a 1932 Ford for top speed runs at the Bonneville Salt Flats.

In the early 1960s, Newport, California-based Meyers had customized a Volkswagen Microbus with wide tires for driving on Southern California beaches and was familiar with vehicles modified for use in the sand and the various automotive trends of the era. Spending time at beaches on the West Coast during this period was the center of Meyers' life. In 1963, after visiting the beach in Pismo, California on a trip to sand sail, Meyers witnessed a number of early dune buggies, essentially production cars stripped of their bodies and crudely modified for driving on the dunes. In particular, Meyers was inspired by a body-less Volkswagen Beetle that appeared to drive across the dunes with greater ease than its front-engined counter parts. This inspired Meyers to build his own dune buggy that would be based on the rear-engined Volkswagen Beetle layout but with a special fiberglass hull that incorporated unique and attractive design elements.<sup>12</sup>

Beginning with crude sketches and a clay model inspired by newspaper cartoon cars, Meyers started construction of his personal dune buggy at his home in Newport Beach California in August 1963. He crafted a plug, a mold, and eventually the fiberglass hull, hood and front fenders that formed the basic design of Old Red by November 1964.<sup>13</sup> Meyers constructed the dune buggy around Volkswagen running gear and parts sourced from a wrecked 1963 Beetle.<sup>14</sup> Rather than use the Volkswagen chassis, Meyers created the overall body as a monocoque design, made entirely of fiberglass and strong enough to not require an underlying steel frame. This allowed the overall wheelbase to be 16 1/2"

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<sup>12</sup> Bruce Meyers, interview by Paul Sanderson, March 10, 2014, transcript, Historic Vehicle Association library.

<sup>13</sup> Bruce Meyers, interview by Paul Sanderson, March 10, 2014, transcript, Historic Vehicle Association library.

<sup>14</sup> Bruce Meyers, in discussion with author. April 2, 2014.

shorter than a stock Volkswagen Beetle in order to optimize the vehicle's design for off-road use.<sup>15</sup>

Meyer's extensive experience in fiberglass boat and surfboard construction enabled him to build a very strong hull and produce a mold that would allow for the production of additional bodies. His natural ability and formal training as an artist helped contribute to the unique and effective design that has been celebrated since its inception.<sup>16</sup> Old Red became the first fiberglass dune buggy built and eventually marketed as a commercial product.

Although Meyers created Old Red with no commercial intention, it inspired orders for customer cars immediately. Connected directly to the vibrant Southern California car scene and automotive media through his then-wife Shirley who worked in the advertising department of *Road & Track* magazine, many early orders went to friends and those capable of spreading the word. The second car built went to Dean Batchelor, editor of *Road & Track*, while number three went to Roger Smith, later to become the largest Manx dealer. Meyers and Shirley saw the sales potential for the dune buggy and formed B.F. Meyers & Company in 1964. With the help of staff at *Road & Track*, they named the fiberglass buggy the "Meyers Manx," an allusion to its snubbed tail in the air, aggressive stance and a nod to its creator.<sup>17</sup> Based off of Old Red, B.F. Meyers & Company would go on to produce and sell the Manx, primarily as a "kit-car." The Meyers Manx kit was sold with everything needed to build a dune buggy, except for the major mechanical components and running gear.

To fulfill early customer demand, Meyers went on to build nine more Manx dune buggy kits with the monocoque layout. The twelve early buggies were not profitable, however and their complicated build slowed production down considerably. The original buggies sold for \$985 each and Meyers lost money on each car. Demand far outstripped supply but raising the price was not a viable option as the kit was already considered pricey. In order to increase production output, lower the price and increase profits, Meyers redesigned the Manx body and kit to be assembled on a shortened Volkswagen Beetle "floorpan." This change did away with the monocoque design and utilized more structural elements of a "donor" Beetle, limiting redundancy in the kit. Meyers drastically reduced production time with very little aesthetic changes, subsequently releasing the volume production version of the Meyers Manx dune buggy.

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<sup>15</sup> Bruce Meyers, "Five Reasons Why Less Is Better," *Manx Mania* II, no. 4: 1-2.

<sup>16</sup> The Manx was included in the California Design Ten exhibition, a juried show in 1968 at the Pasadena Art Museum. The publication for the exhibition of which the Manx was the only included automobile described the dune buggy as being, "Of simple and direct design, the car achieves a certain aesthetic distinction exceeding even its proclaimed functional potential."

In James T. Crow's, "Old Red: History's Most Copied Car?" from the September 1976 *Road & Track*, Crow credit's the Manx "...as one of the most significant and influential cars of all time."

<sup>17</sup> Bruce Meyers, in discussion with author. April 2, 2014.



In 1966, B.F. Meyers & Company was incorporated and, by 1967, was inundated with orders. Customers were attracted to the unique design and the increasing popularity of recreational vehicles drove demand for the Manx. The Manx was not the first Volkswagen Beetle-based kit car sold in the United States, however, but it was the most popular and significant in its impact on American culture and the automotive industry.<sup>18</sup> The Manx became the number one selling kit-car and, at its peak, placed the B.F. Meyers & Company as the eighth largest automobile manufacturer in the United States. With financial support from *Road & Track*, an enormous amount of positive press coverage from many different media outlets and mass public appeal, B.F. Meyers & Company enjoyed sales success and rapid expansion. Throughout the buildup of B.F. Meyers & Company, Meyers used Old Red as a promotional vehicle for his company, loaning it out for the creation of toys, demonstrating its capabilities to journalists and setting a record run traversing the Mexican Baja peninsula.<sup>19</sup>

In the 1960s, Baja travel and expeditions had become increasingly popular with outdoorsman, adventurers and tourists in California.<sup>20</sup> Only hours away from Los Angeles, the barren peninsula provided access to a primitive landscape ripe for exploration and adventure, while expansive beaches were perfect for fishing, swimming and relaxing. The increasing popularity of off-road motorcycles and vehicles further increased the number of visitors to Baja. No formal competitions or racing had been organized, but a few motorcycle enthusiasts sponsored by manufacturers and dealers began to set elapsed time records between the northern and southern cities. The runs were mostly informal, but some were presided over by Mexican authorities who would document via telegram the elapsed time it took to travel between Tijuana and La Paz. By 1967 the record times were all held by motorcycles. Dave Elkins, aboard a Honda CL-72 Scrambler in 1962 and a Triumph in 1966, held the fastest recorded time at 39 hours 46 minutes. The first known, timed four-wheeled run occurred in January 1967, when John Crean and John Cummings, in a Meyers Manx clocked an

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<sup>18</sup> Joe Vittone, owner of Economotors, a Volkswagen and Porsche dealership in Riverside California formed European Motor Products Incorporated (EMPI) and released the Sportster kit dune buggy or “fun car” in 1963. The Sportster kit came with a steel monocoque body and frame that required the purchaser to supply Volkswagen running gear. It was the first off-road vehicle and dune buggy kit car sold. EMPI and B.F. Meyers & Company were major competitors and EMPI eventually offered their own fiberglass dune buggy, the Imp, to compete directly with the Manx.

Bob McVay, “EMPI’s Impish Sportster,” *Motor Trend* (July 1963) 32.

James Hale, *The Dune Buggy Files: Past Present Future* (Dorchester, England: Veloce Publishing Ltd., 2005) 25.

<sup>19</sup> “First Came the Manx...,” *Dune Buggies and Hot VWs/The Fun Car Journal* 1, no. 2 (Winter 1968): 38.

<sup>20</sup> “Baja California Shapes Up.” *Asbury Park Press* (Asbury Park, New Jersey) August 31, 1969.

official 89-hour time that was plagued by mechanical trouble the entire way.<sup>21</sup> Actual driving time only amounted to 29 hours and 17 minutes.<sup>22</sup>

Inspired by the Crean's and Cumming's Manx run and the chiding of Joe Parkhurst, publisher of *Cycle World* magazine and participant in an earlier record setting run, Meyers and his longtime friend Theodore (Ted) Mangels set out to beat the record held by motorcycles. In April 1967, accompanied by two Meyers Manx dune buggies, Meyers and Mangels drove Old Red first from Tijuana to La Paz on a feasibility run before attempting the record. Once in La Paz, Meyers and Mangels set off north to Tijuana after recording their departure with local officials. Having damaged Old Red on the feasibility run, the team was immediately plagued with mechanical problems that only worsened throughout the run. Despite the mechanical setbacks, the Manx beat the previous records held by motorcycles. They checked in with authorities at the Tijuana tourist bureau at 34 hours and 45 minutes after their start in La Paz.

The run was funded by B.F. Meyers & Company and was partially undertaken for publicity that Meyers had hoped would contribute to sales. B.F. Meyers & Company sent out a press release announcing the success with the headline: "Buggy Beats Bikes in Baja." The publicity inspired Ed Pearlman to form the National Off-Road Racing Association and host the inaugural Mexican 1000 in 1967 that is today known as the Baja 1000.<sup>23</sup> Mangels, in a production Manx, clinched the first win at the first Mexican 1000 and solidified the Manx as a competitive off-road racer.

Racing success from the Manx and the increased interest in off-road vehicles helped further the dune buggy boom.<sup>24</sup> Old Red and the subsequent production Manx had created a new genre of vehicles adhering to the stripped down open top style. Dune buggies became a part of the nation's pop culture and appeared in movies, on television and in countless advertisements for a variety of products.<sup>25</sup>

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<sup>21</sup> Marty Fiolka, *1000 Miles to Glory: The History of the Baja 1000* (Phoenix: David Bull Publishing, 2005), 26.

<sup>22</sup> Marty Fiolka, *1000 Miles to Glory: The History of the Baja 1000* (Phoenix: David Bull Publishing, 2005), 26.

<sup>23</sup> Fiolka, *1000 Miles to Glory: The History of the Baja 1000*, 33-39.

<sup>24</sup> Spencer, Walter Troy. "Dune Buggies: We're Even Sending One to the Moon." *The New York Times*. July 11, 1971.

In this article highlighting the environmental impact of off-road vehicles, Spencer points to the dune buggy as the "driving force" behind the increasingly popular activity. "Today the dune buggy is the highly visible tip of a massive iceberg of 'all-terrain vehicles,' and in mobile, affluent America, it is leaving virtually no part of the landscape untouched."

"Dune Buggy Craze," *The Emporia Gazette* (Emporia, Kansas) May 6, 1969.

The *Emporia Gazette* examines the eastward expansion of the fervent dune buggy market as retail giant Sears, Roebuck & Co. announced their own offering of a "make-it-yourself" kit similar to the Meyers Manx.

<sup>25</sup> Spencer, Walter Troy. "Dune Buggies: We're Even Sending One to the Moon." *The New York Times*. July 11, 1971.

B.F. Meyers & Company expanded rapidly and by 1969 recorded over \$1.5 million in sales.<sup>26</sup> Old Red catalyzed and jump-started a national trend.<sup>27</sup> Constantly fighting to keep up with demand, B.F. Meyers & Company even created a slightly redesigned Manx that could be stacked with other bare fiberglass Manx tubs in order to expedite shipping. An international dealer network was put in place and at one time B.F. Meyers & Company had over 200 dealers around the world selling Manx kits and buggies.<sup>28</sup>

Despite constantly increasing demand towards the end of the 1960s, B.F. Meyers & Company faced serious challenges. The genius of the Manx design that allowed it to be easily manufactured out of fiberglass meant that it was also easily reproduced by competitors looking to capitalize on the immense popularity of the dune buggy. Meyers was unable to protect his design from being copied by the competition, despite having a patent filed in 1965.<sup>29</sup> B.F. Meyers & Company filed an infringement lawsuit against several competitors but was unsuccessful.<sup>30</sup> Close to 300 companies worldwide mimicked the Manx design and flooded the market with thousands of vehicles.<sup>31</sup> Many of the dune buggies produced by competitors built considerably cheaper and had significantly lower prices. B.F. Meyers & Company was unable to remain competitive despite the introduction of additional vehicles: the off-road only Tow'd and street going version Tow'dster' and the sleekly designed street roadster, Manx SR. The company closed its doors in 1971. Exact figures as to how many Manx clones were built are not known, but the Meyers Manx Club and many others claim close to 250,000 copies have been manufactured and sold.<sup>32</sup> In total, B.F. Meyers & Company produced approximately 7,000 vehicles from 1964-1971: 5,500 Manx dune buggies, 1,000 Tow'ds, 200 Manx SRs and 75 Resorters.<sup>33</sup>

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<sup>26</sup> "Dune Buggy Bloom Seen: Dune Buggy Popularity Grows," *Independent* (Long Beach, California) November 24, 1969.

<sup>27</sup> "First Came the Manx...", *Dune Buggies and Hot VWs/The Fun Car Journal* 1, no. 2 (Winter 1968): 38.

<sup>28</sup> "Dune Buggy Bloom Seen: Dune Buggy Popularity Grows," *Independent* (Long Beach, California) November 24, 1969.

<sup>29</sup> Bruce F. Meyers, Sand Vehicle or Similar Article, U.S. Patent 203,745, filed February 19, 1965 and issued February 15, 1966.

<sup>30</sup> "Meyers Manx History," Manx Club, accessed May 29, 2016, <http://www.manxclub.com/Resources-ManxHistory.htm>.

Maury Powell, "Speed Scene: Pit Stops Here 'N There," *Pasadena Independent* (Pasadena, California) March 20, 1968.

<sup>31</sup> "Meyers Manx History," Manx Club, accessed May 29, 2016, <http://www.manxclub.com/Resources-ManxHistory.htm>.

<sup>32</sup> John Brewer for the Associated Press, "Dune Buggy Becomes Popular," *The High Point Enterprise* (High Point, North Carolina) October 12, 1975.

<sup>33</sup> "Meyers Manx History," Manx Club, accessed May 29, 2016, <http://www.manxclub.com/Resources-ManxHistory.htm>.

Old Red remained with Meyers after the closing of B.F. Meyers & Company but it was no longer used as daily transportation. It had 130,000 miles on it when he placed it on display at the Briggs Cunningham Museum (Costa Mesa) in 1969.<sup>34</sup> In the mid to late 1970s, Old Red was restored by Drino Miller and Sanford Havens of Miller-Havens Enterprises. Meyers owned Old Red until May 1982 when he sold it to Dick Chrysler. In 1996, after changing ownership again, it was discovered and purchased in Michigan by Meyers' step-daughter's then boyfriend and Central Ohio Vintage Volkswagen Club President, Chris Lewis.<sup>35</sup> In 1997, Lewis transferred ownership of Old Red to Bruce Meyers.<sup>36</sup> The original fiberglass dune buggy was lightly reconditioned by Meyers. He continues his stewardship of Old Red, running it occasionally for display and exhibition use.

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<sup>34</sup> Deke Houlgate, "Motor Sport Today," *Progress Bulletin* (Pomona, California), May 1, 1969.

<sup>35</sup> Matthew Marx, "Surfer finds lost love: Old Red," *Columbus Dispatch*, December 27, 1996. and Bruce Meyers, in discussion with author. April 2, 2014.

<sup>36</sup> Matthew Marx, "Surfer finds lost love: Old Red," *Columbus Dispatch*, December 27, 1996. and Bruce Meyers, in discussion with author. April 2, 2014.

## Part II: Technical Information

### A. General Statement

1. Character: Restored, but accurately representative of the car's 1960s configuration. The car retains its integrity as a historic artifact.
2. Condition: Old Red is in good overall restored condition. The car is operable and is occasionally driven. It features its original chassis components and coachwork but has a replacement engine fitted. The painted (ca. 1970s) body remains in excellent shape with little wear or damage.

### B. Description

#### 1. General Description:

The 1964 Meyers Manx (Old Red) is a Volkswagen Beetle-based two-seater fiberglass dune buggy type roadster automobile. Its body and frame are of a monocoque design consisting primarily of fiberglass with an integrated steel tube substructure for mounting the engine and suspension. Old Red features a rear-engine, rear-wheel drive configuration. The fiberglass body is both angular and curvaceous, featuring high fenders, no doors, a downwardly slanted front-end, fender mounted headlights, and an exposed engine in the rear. The engine was updated in the mid-1970s. It is currently powered by an air-cooled circa-1973 Volkswagen Thing (Type 181) 1595 ccd horizontally-opposed, overhead-valve, four-cylinder, engine rated at 46 horsepower. The engine is naturally aspirated and carbureted by a single Solex 28 PICT 1-barrel with a thermostatically-controlled automatic choke. Old Red's drivetrain consists of a 1963 Volkswagen synchronized 4-speed transaxle connected to the rear wheels by constant velocity (CV) joints. The car has four-wheel independent Volkswagen suspension. The front end is suspended by trailing links connected to the wheels and a pair of transversely mounted torsion bars. The torsion bars are made up of five leaf springs on the top and four on the bottom. Conventional shock absorbers handle damping. The rear axles are sprung by airsprings and coil-over shocks with radius arms connecting the axles to the monocoque chassis. Old Red has four-wheel hydraulic drum brakes. It is painted with "Tangerine Orange" lacquer. The interior of Old Red features many Volkswagen Beetle components including seats, steering wheel, instrumentation and pedal assembly. Overall the car is in good condition, featuring slight wear from occasional use and the effects of time, having undergone its last complete restoration in the mid-1970s. Several updates were made to minor components in the 1990s when Bruce F. Meyers reacquired Old Red.

2. General Specifications - Current:

Type of body:	Open, dune buggy – Meyers Manx
Body material:	Fiberglass
No. of seats:	2
Frame	
manufacturer:	Bruce F. Meyers
Frame no.:	N/A
Frame type:	Monocoque
Frame material:	Fiberglass with integrated steel tube supports and suspension mounts
Engine	
manufacturer:	Volkswagen
Engine no:	AM020057 (Type 181)
Engine type:	Air-cooled; flat, horizontally opposed cylinders; removable cylinder heads; rear longitudinally mounted
Engine material:	Cast aluminum, iron cylinder liners
Valvetrain:	Overhead valve, cam-in-block, mechanical tappets, two valves per cylinder
No. of cylinders:	4
Engine size:	1585 ccd (96.7 cid)
Bore/stroke:	85 mm/69 mm (3.27"/2.72")
Max horsepower:	46 hp @ 4,000 rpm - approximate
Max torque:	72 lbs-ft @ 2,800 rpm - approximate
Compression ratio:	7.3:1
Induction:	Naturally aspirated with a single carburetor
Carburetor(s):	1-barrel, Solex 28 PICT with a thermostatically-controlled automatic choke
Fuel type:	Gasoline
Ignition:	Breaker points type, automatic spark advance
Firing order:	1-4-3-2
Electrical:	12V
Charging:	Alternator
Transmission:	Four-speed manual transaxle – two axle shafts with constant velocity joints
Clutch:	Dry single disc, mechanically actuated
Front Suspension:	Independent, trailing arms – Torsion bar springs and gas shock absorbers
Rear Suspension:	Independent, radius arms, – Airsprings and coil over shock absorbers
Tire size – front:	7.35 - 14
Tire size – rear:	G70 – 15
Brakes:	Four-wheel hydraulic internal expanding drum-type

Steering:	worm-and-sector
Weight:	1,420 lbs <sup>37</sup> (644.1 kg)
Length:	9' – 4-3/4" (2.86 m)
Width:	5' – 1-3/8" (1.56 m)
Height:	4' – 9-1/4" (1.45 m)
Wheelbase:	6' – 8" (1.98 m)
Top speed:	71 mph - approximate

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<sup>37</sup> Measured using Intercomp electronic wheel scales at the Historic Vehicle Association's Gaithersburg office by Casey T. Maxon in April 2014.

### Part III. Sources of Information

#### A. Primary Sources

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#### C. Likely Sources Not Yet Investigated

1. *Dune Buggies and Hot VWs* archives.
2. James Hale archives.
3. National Off-Road Racing Association archives.

Appendix A: Historic Images

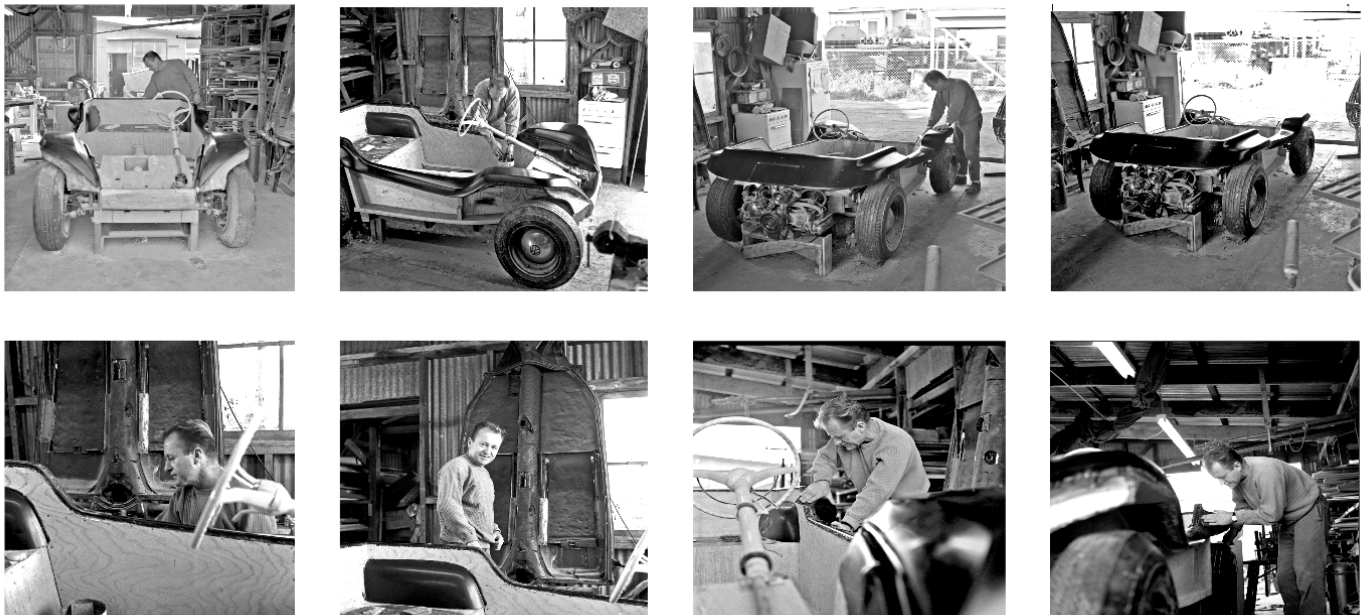


Figure 1. Old Red during initial construction in Newport Beach, California in late 1963. Bruce F. Meyers is forming the plug that shaped the mold for Old Red's fiberglass body and chassis. Photo courtesy of the Bruce F. Meyers archives.



Figure 2. Old Red during construction exhibiting the plug for the hood, cowl, dash, gas tank, and tail lights. Shirley Meyers is seated in the car. Photo taken ca. 1964. Photo courtesy of Bruce F. Meyers archives.



Figure 3. Old Red (with top) in front of first location of B.F. Meyers & Company in Newport Beach, California. Photo courtesy of the Bruce F. Meyers archives.



Figure 4. Bruce F. Meyers posed in front of Old Red in the 1960s. Photo courtesy of the Bruce F. Meyers archives.





Figure 5. Bruce F. Meyers and Ted Mangels posed in front of Old Red after completing their record setting run across Baja ca. 1967. Photo courtesy of the Bruce F. Meyers archives.



Figure 6. The interior of Old Red. Unknown date. Photo courtesy of the Bruce F. Meyers archives.



Figure 7. Old Red photographed in 1981 by Bruce F. Meyers. Photo courtesy of the Bruce F. Meyers archives.



Figure 8. Old Red when it was reunited with Bruce Meyers in 1996. Photo courtesy of the Bruce F. Meyers archives.