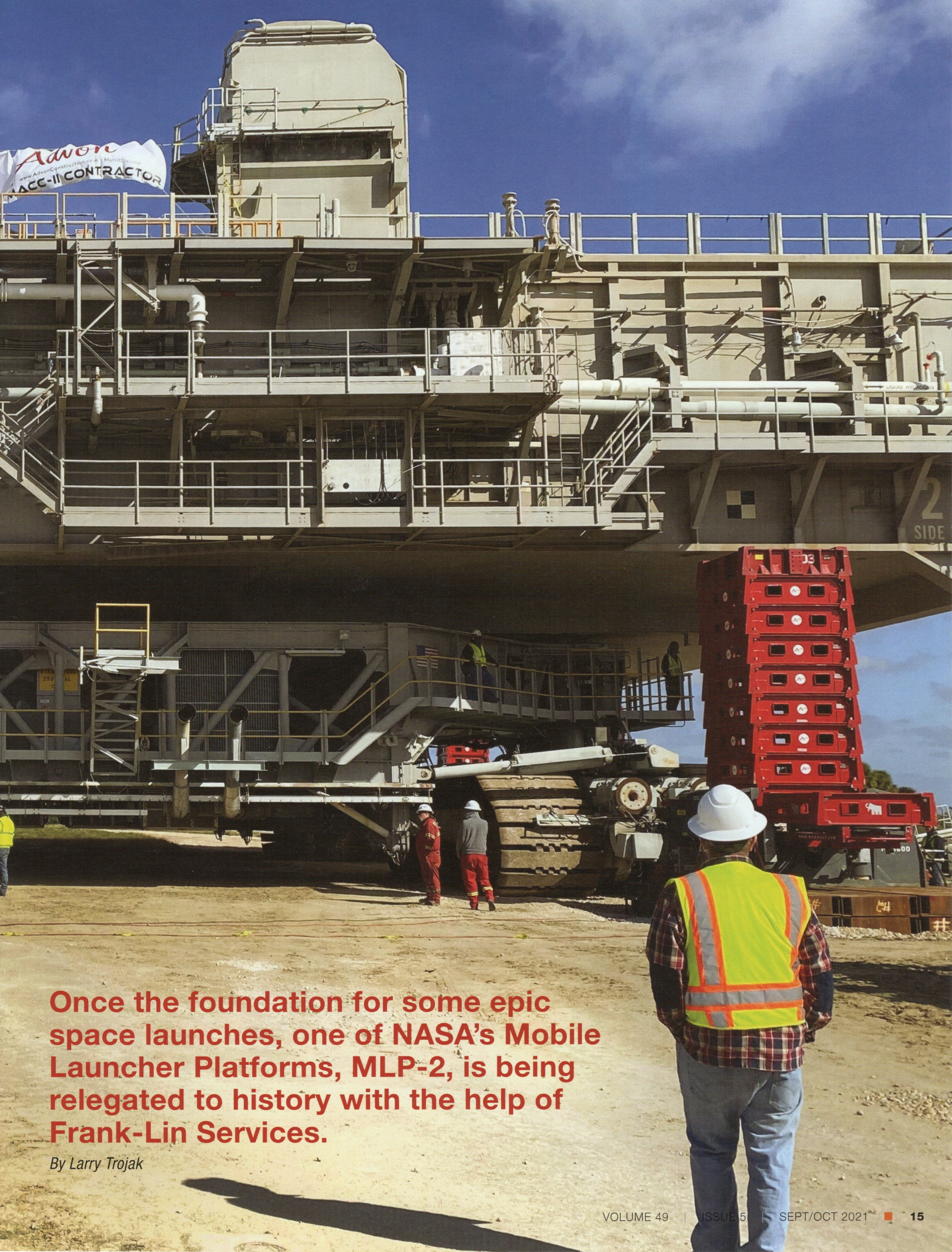




Launching Forth



Once the foundation for some epic space launches, one of NASA's Mobile Launcher Platforms, MLP-2, is being relegated to history with the help of Frank-Lin Services.

By Larry Trojak





Impressive demolition projects at Kennedy Space Center (KSC) — many of which have been covered in the pages of this magazine — have signaled the demise of historic sites at that location for more than a decade now, as the organization strives to better meet the demands of a continually changing space industry. These have included the Central Instrumentation Facility, the massive Vertical Processing Facility and the nearby U.S. Space Camp Florida. Despite that ongoing stream of high-profile projects, there's something particularly compelling about the demolition currently taking place at KSC.

One of NASA's iconic Mobile Launcher Platforms, MLP-2, a behemoth structure that served as the base for launches as far back as the 1960s, has been slated for demolition. The agency is eliminating the historic platform to make room for a newer mobile launcher that, unlike MLP-2, will be capable of supporting

its Artemis-era Space Launch System. Heading up the demo effort, NDA member Frank-Lin Services of Brevard has used an arsenal of tools, including some of the most powerful mobile shears at work today. By the time this issue goes to press, MLP-2 will be relegated to little more than a memory, and area scrap dealer inventories will be increased by 9 million pounds, proving Greek philosopher Heraclitus's premise that: "There is nothing permanent except change."

MLP 101

To better understand the scope of the project facing Frank-Lin, perhaps it's best to understand MLP-2's function when it was operational. Contrary to most conventional thinking, the rockets used to propel their designated payload — be that astronauts or equipment — are not assembled at the launch site. Rather, that process takes place at the 526-foot-tall Vehicle

Assembly Building (VAB). There, the individual, multistage components of the rocket are assembled, or "stacked," directly on the MLP. Then, using a crawler-transporter, the entire MLP/rocket assembly makes the roughly four-mile trip (at a top speed of 1 mph) to the launch pad for eventual launch.

"This is an impressive structure to behold," says Pete Charamut, Frank-Lin's president. "As a company, we've done some sizeable projects, particularly at KSC. But there's something about the MLP that is just awe-inspiring, both for its historic significance and its sheer size. The all-steel, two-story structure included a number of mechanical rooms, several air locks, hydraulic controls, all the fueling umbilicals to support whatever orbiter was on the deck and facilities for the crew operating the platform. It was a bit of a departure from our normal work, but we are a full-service company and have capabilities to match almost any job."

EQUIPMENT USED

- **FIVE KOMATSU EXCAVATORS**
- **GENESIS LXP 400 LOGIX WITH SHEAR JAWS**
- **GENESIS GXT 995 MOBILE SHEAR**
- **JLG ELEVATED BOOMS**
- **PROPANE/ LOX CUTTING SYSTEMS**
- **HYDRAULIC JACKING SYSTEM**
- **KOMATSU PC290-LC11 WITH MAGNET**
- **KOMATSU D39PX DOZER**
- **TAKEUCHI TL12 SKID STEER LOADER**
- **LOWBOYS**
- **TRAILER DUMPS**
- **DUMP TRUCKS**



The platform, one of three that were once in rotation, moved vehicles in place for several manned moon missions, more than 40 space shuttle flights and the launch of Skylab.

There's little denying MLP-2's historic credentials. The platform, one of three that were once in rotation, moved vehicles in place for several manned moon missions, more than 40 space shuttle flights and the launch of Skylab (the precursor to the International Space Station).

SHEER SIZE MEETS SHEAR SIZE

Having done scores of prior projects at KSC undoubtedly played a role in Frank-Lin Services landing the MLP project, working as a subcontractor to Tallahassee, Florida-based Advon Corporation. The company had experience working on large steel structures, which included both steel flame deflectors from Launch Complex 39A and 39B and the Mate/De-Mate device, a steel structure that was used to elevate the shuttle for placement atop its transport Boeing 747 during the Space Shuttle era.

As might be expected, the equipment inventory for a project of this size was equally impressive. Frank-Lin tackled the job with a fleet of five Komatsu excavators ranging in size from PC290s to PC490s from Linder Machinery's branch in Orlando, Florida. According to Chara-mut, Linder's parts and service support was particularly welcome through the demanding times of COVID-19. The larger machines — one equipped with a third-member mounted Genesis LXP 400 Logix multi-jaw processor with shear jaws, the other with a Genesis GXT 995 mobile shear — tackled all the mechanical cutting. Meanwhile, a team of torchers, working off JLG elevated booms and wielding propane/LOX cutting systems, handled the manual cutting.

“The MLP and its associated flame deflectors had been repeatedly exposed to both intense heat from the rocket engines and sudden cooling from a deluge system, which is used to reduce the extreme temps and energy generated



during launch,” Charamut says. “That rapid heating/cooling process caused the steel to harden and increased the difficulty factor during dismantling. But both of our Genesis shears went to battle every day against this steel and, other than the usual hoses and wear parts, stood up to the abuse and gave us the performance we needed.”

He added that, because of the incredible stoutness of the MLP’s shell, cutting was pretty evenly split between the shears and the torchers — there was simply no way around that. However, having the shears handle 50% of the cutting allowed the project to remain on track; without them, the timeline would have been little more than a dream.

UP ON JACKS

In advance of the MLP’s arrival at the demo site (a large open area previously used for parking one of NASA’s Mobile Service Structures), Frank-Lin scraped

and stockpiled the existing crawler stone. The area was then site-balanced and graded to tight specifications to prepare it for one of the more unique aspects of the project: placement upon a hydraulic jacking system provided by the U.S. division of Dutch company Mammoet.

Using the crawler, the platform was moved from the VAB to the demo area, where it was lowered onto the support jacks and the crawler was removed. Mammoet then slowly and systematically lowered the jacks, reducing the structure’s elevation to approximately 5 feet above ground height.

“At that point, the MLP was sitting on an engineered group of strategically placed jacks capable of supporting its 9-million-pound payload,” Charamut says. “It seemed to defy the laws of physics, yet there it was. To afford us better reach to the uppermost portions of the structure, we hauled in 300 truckloads — about 4,500 cubic yards — of import fill and constructed a ramp system to afford the





excavators a better position for shearing. With all that in place, we were able to begin the actual demolition of the MLP.”

TOP-DOWN DEMO

In its most basic sense, the platform consisted of three decks, identified from the top down as “Zero-deck,” “A-deck” and “B-deck.” Using the shears, both of which had a rotational capability, Frank-Lin’s team started at Zero-deck and began the process of making the massive structure disappear.

“The MLP consisted of steel of all sizes and grades, so we could easily shear material up to and including mid-size members,” Charamut says. “To tackle areas that were heavy with 1-inch plate, however, we’d make strategic torch cuts and then grab that section with the shears and complete the removal. We were not constrained by having to get material down to a prepared size, so we were loading out anything that would fit into our trailer dumps — pieces could be 8 feet wide and up to 25 feet long.”

As entire three-deck sections were completed, Charamut’s crews would push the soil toward the MLP, filling the

gap and allowing continued ramp access to the next section.

“Positioning the shear to make the right cut is always critical, but it was even more so on this project because of the complexity of the structure and the sizes with which we were dealing,” he says. “There simply would not have been a way for us to keep production levels up without the ability to rotate the tool.”

With that system at work, Frank-Lin was removing material at a rate of about 125,000 pounds per day. Other machinery at work on the project included a Komatsu PC290-LC11 with a magnet for movement and cleanup of scrap, a Komatsu D39PX dozer for site work, and a Takeuchi TL12 skid steer loader with bucket and broom attachments, as well as an attached dozer blade for incidental work.

THE MEMORY LIVES ON

Frank-Lin’s fleet of trucks, which includes lowboys, trailer dumps and dump trucks, handled the daily removal of ferrous and nonferrous metals to TMR Recycling in Rockledge, Florida. However, not all the steel from this unique

demolition project will be relegated to the scrap heap. Some material from the unit’s Tail Service Mast Umbilical will be salvaged and used to produce 20,000 steel tags made and marketed by MotoArt in partnership with Frank-Lin to preserve the memory of MLP-2.

“We were privileged to be able to tackle this project and, because of this structure’s storied past, we felt it would be nice for people to be able to capture a piece of history,” Charamut says. “In addition, some of the steel from the project is being shipped to the Smithsonian to be put on display, and a recently filmed documentary about MLP-2 is currently in production. So, while MLP-2 met an untimely end, she will not be soon forgotten.”

The MLP demo project is slated for a mid-August 2022 completion. ▣



Larry Trojak is the owner and president of Trojak Communications, a Minnesota-based content marketing specialist. He has written extensively for the demolition, construction, survey, wastewater treatment and recycling markets.