

PRESERVATION STRATEGIES:  
BALANCING ACCESS, USE, EXHIBITION AND PRESERVATION

**PRESERVING THE HART-PARR NUMBER 3**

Pete Daniel and Larry Jones

The Hart-Parr number 3 tractor is the oldest known surviving example of an internal combustion tractor built in the United States. George Mitchell, who farmed near the Charles City, Iowa, Hart Parr works, bought the tractor on August 5, 1903, for \$1,580.00. For years it operated on the Mitchell farm primarily for belt work powering a threshing machine and a corn husker-shredder. In 1924 Hart Parr bought the tractor back from Mitchell for \$72.75, a price calculated at fifty cents per hundred pounds of the 15,000 pound tractor. Stressing the high quality tractors marketed near the turn of the 20<sup>th</sup> century, Hart-Parr used No. 3 for years as a promotional prop. In 1929 Oliver Corporation bought Hart Parr, and Oliver continued to promote Oliver Hart Parr tractors and equipment. In 1949, Oliver Corporation lent No. 3 to the Farmer's Museum at Cooperstown, New York, and until restoration this was the last time that No. 3 operated under its own power. Oliver Corporation donated the tractor to the Smithsonian Institution in 1960. When the tractor arrived at the Smithsonian, it had been substantially modified. The canopy had been removed so that it could be more easily transported for demonstrations. In addition, it was painted black. Although it had been on display for years, Larry Jones decided in 1993 that because of the modifications that it lacked authenticity and placed it in off-site storage.

Hart Parr No. 3 is considered the “Grandfather” of the American farm tractor. The tractor’s technology set the precedent for all successful farm tractors built afterwards. Much of this technology is evident in contemporary farm tractors--an internal combustion engine with radiator cooling for the engine, differential, planetary gearing in the transmission of engine power to the drive wheels, front axle steering, belt pulley or power takeoff, canopy to protect the operator, drawbar to which implements are attached or pulled by the tractor, weight distribution giving the tractor maximum traction at the pulling wheels.

According to historians Doug Strawser and Todd Stockwell, Old No. 3, as it was dubbed by Hart Parr’s advertising department, was actually the seventh tractor built during the third Hart Parr production run in 1903. Even though it was a production tractor, it was still a prototype. After George Mitchell bought the tractor, the factory replaced the round radiator with a more functional square one. In 1905 it was modified to burn kerosene. Hart and Parr are credited with coining the word “tractor.” Previously, these machines were called gasoline traction engines.

Although one restoration project did not work out, Larry Jones was alert to sound proposals. While at the I & I Show at Penfield, Illinois, in 2002, Jones was approached by Darius Harms, show coordinator. Harms inquired about the loan status of No. 3. He explained that I & I would be featuring the Oliver/ Hart-Parr line of tractors and equipment in 2003, and he felt it imperative that No. 3 be in attendance. Jones agreed with Harms’s logic but stipulated that the Smithsonian would not lend the tractor in its current state. The museum would consider a loan agreement that included cosmetic restoration, or better yet, complete restoration that would make the tractor fully

operational. Harms agreed to this plan and asked for the museum's requirements. Since we had received other proposals that were unsatisfactory, we approached restoration issues with caution. First of all, the Smithsonian curatorial staff would make all of the decisions. The restoration team would be small and would fully appreciate the historical significance of this tractor. It would understand the tractor's technology and would work in a safe and secure shop with limited public accessibility. Before beginning any work on the tractor, the team would conduct a careful study or survey of the tractor to determine its condition. This would map out the scope of work and suggest how to go about the tasks with museum approval. We required that the shop be strategically located to outside vendors such as a machine shop, so that parts could be hand carried. We would not allow any original parts of the tractor to be shipped via a commercial freight service. A qualified trucker would be required to transport the tractor, preferably from the same facility that would perform the work. Two truck drivers would accompany the tractor at all times while in transit. Finally, the project needed a secure and committed funding plan.

Armed with our outline, Darius Harms assembled a "Dream Team." Oliver Schaefer of Oliver Schaefer Trucking headed the team. He was a former Oliver dealer and operated a restoration shop and salvage operation on vintage Oliver equipment. His daughter, Sherry, an expert on Oliver/Hart-Parr tractors and equipment, a carpenter, electrician, and editor of *Oliver Heritage Magazine* joined the team. John Tichenor brought to the team his lifelong experience with "hit and miss" engines, the very technology that Hart-Parr No. 3's engine utilized. In addition, we had the expertise of two historians, Doug Strawser and Todd Stockwell. This duo had made a lifelong study

of No. 3. They brought to the team a vast amount of crucial knowledge and advice for the restoration project. With this plan in hand, a loan agreement was issued to I & I Antique Machinery Museum at Penfield, Illinois, where the tractor would reside after being restored at Schaefer's in Greenville, Illinois.

On a cold snowy January 29, 2003, morning, Hart-Parr No.3 was removed from storage at the Smithsonian's off-site facility at Fullerton, Virginia, and expertly loaded onto a Schaefer Trucking lowboy tractor and trailer. Accompanying the Schaefer rig were Oliver and Sherry Schaefer, John Tichenor, Norm Snyder, and Landis Zimmerman. Smithsonian off-site staff members were on hand to assist, as were Pete Daniel and Larry Jones. The Smithsonian staff quickly realized that the restoration team moved with precision born of professional experience and helped by staying out of the way. Once loaded, No. 3 was covered with a custom-made tarp. The crew pulled out of Fullerton about 10:00 a.m. They drove straight through to Greenville, Illinois, where they arrived at 2:00 a.m. the next morning.

At 8:00 a.m. on January 30, No. 3 was unloaded into the Schaefer shop. The team immediately set about making a close study of the tractor. Historians Doug Strawser and Todd Stockwell had notes indicating that Mr. Parr had done extensive work on No. 3 to return it to running condition after it was bought back by the Hart-Parr Company in 1925. Following this, No. 3 had toured state and county fairs as well as many Hart-Parr promotional events. After Mr. Parr's demise, No. 3 was left to those who knew very little about the mechanical nature of the tractor nor were concerned with its authenticity, and this attitude took a toll. The canopy support arms had been sawed off to remove the canopy in order to fit the tractor into a railroad box car. As mentioned above, No. 3 had

been painted totally black. One of our historians opined that the Hart-Parr Company had done this in order to “dumb it down” so as not to overshadow the new 17-28 Hart-Parr tractor that they were introducing. No. 3 was often shown with this new tractor to promote Hart-Parr reliability and durability.

Mr. Parr’s notes indicated that a connecting rod had been replaced. The failure of this connecting rod was the reason Mr. Mitchell had quit using the tractor in 1918. This became evident as the team inspected the crankcase area. One of the original “turnbuckle” connecting rods was still in place. After spending several days doing a thorough survey of the tractor, the team determined that Mr. Parr’s notes were accurate and that the tractor was in reasonably good condition. They then set about disassembling the engine and planetary drive system. One piston was stuck but was freed up using penetrating oil. When the pistons were removed, it was discovered that new piston rings would be needed. It was also determined that new wrist pins and bushings in the pistons would have to be fabricated and installed. The other original connecting rod would need re-babbiting. It was also recommend that a setscrew and jamb nut be installed in the pistons to lock the wrist pins in place. The original wrist pin locking system had consisted of a snap ring, an unsatisfactory method that often came loose and scored the cylinder walls. During this time, the restoration team was in constant contact with Larry Jones at the National Museum of American History. Often they talked by telephone several times each day. The team understood that we made the final decisions. During these conversations, discoveries and dilemmas were discussed and solutions found that were satisfactory to preserve the integrality of the object. The restoration team at no time undertook to do any repair or modification unless it was discussed with us first. The

entire team, including the historians and Jones and Daniel had an excellent rapport that continues to this day.

The intake and exhaust valves were removed and ground to correct any compression loss through the valves. The igniters were removed and cleaned. (This engine uses igniters rather than spark plugs. Hart-Parr would not use spark plug ignition until 1904).

With the new parts installed the team felt No. 3 would be ready to start during Larry Jones's inspection visit in early March 2003. Early the following morning after his arrival, the team set about "belting" No. 3 with another tractor, as No. 3's engine was tight from having new piston rings installed. They allowed No. 3's engine to turn over for about ½ hour to seat the rings before any attempt was made to start the engine. This allowed the opportunity to adjust the lubricators, check the valve action and clearance, get the fuel pump operating, along with other crucial adjustments. At the end of this time, John Tichenor primed the engine with gasoline and turned on the ignition. He had difficulty getting the engine to fire, and when it did fire, it ran on only once cylinder. Recalling a film shot in 1949 at Cooperstown, New York, where No. 3 was running, Tichenor could tell from the exhaust that the engine was only running on the left cylinder. The right cylinder was not firing then, and it still was not firing. After this attempt to start No. 3, the team determined that the igniter on the right cylinder had to be rebuilt as well most of the governor linkage. The team saw this as a success even though the tractor did not run properly. It was determined the bearings were properly adjusted, and the piston rings and valves sealed properly.

After the igniter and governor linkage had been rebuilt, they were installed and again No. 3 was “belted.” Almost immediately No. 3’s engine sprang to life firing on both cylinders, and John Tichenor made the necessary adjustments so the engine would run like it was supposed to. John, Ollie, and Sherry were so excited they called Larry Jones from beside the tractor so h could hear it run.

With the engine up and running, it was time to start cleaning the tractor in preparation for painting. The team was reasonably positive the tractor was never all-black but did not know the color scheme. There were theories but no proof. John Tichenor recalled from Mr. Parr’s notes that No. 3 had been sandblasted in preparation for painting. Having done sand blasting, Tichenor knew that there were probably places where paint would still be intact because it was impossible to get the sand blaster nozzle into some areas. He began to scrape in those areas. It wasn’t long until he uncovered red paint in the very areas where he thought it should be. Continuing to search, Tichenor found enough in several areas to secure an exact match. On one of the rear wheels, the original paint was good enough that John masked it off to preserve it for future reference. After the tractor had been cleaned and readied for painting, Tichenor was standing in the doorway with the afternoon sun shining on No. 3’s frame. In this light he could see very definite outlines of “HART PARR.” He quickly summoned Ollie and Sherry Schaefer. They immediately set about marking these letters and measuring them so they could be accurately duplicated.

Jones again visited the Schaefer shop in early June 2003. By that time No. 3 had been fully painted and lettered and was ready for the canopy. As mentioned above, it had been removed with no traces as to its whereabouts.

Fortunately, Sherry Schaefer had original photos of No. 3 in operation on the Mitchell Farm with the canopy intact. From these photos she was able to scale the dimensions and its exact location on the mounting arms. With this information, she ordered the correct lumber and built an exact replica in her shop.

Larry Jones again returned to Greenville, Illinois, in mid-July. By this time No. 3 had been entirely finished and readied for its trip to Penfield, Illinois. The departure was a big event in Greenville; there was a huge media presence along with Illinois State Senators and U. S. Congressmen from the Bond and Champaign counties area. A film crew documented the entire journey. No. 3 was loaded onto a Schaefer Trucking lowboy trailer and secured for the trip to Penfield. By that time a 25-vehicle escort convoy had assembled consisting of several tractor trailers and smaller transports loaded with Oliver and Hart-Parr tractors. The departure time was 10:30 a.m. In keeping with the mid-west tradition of getting things done, at exactly 10:30 a.m. CST, the Schaefer Trucking Kenworth road tractor nosed out onto the road with No. 3 proudly perched on the trailer behind it. Numerous stops had been scheduled along the 200-mile trip to Penfield. At each stop there was a huge turnout of people to greet and inspect No. 3 as she proudly sat on the trailer in her glory and splendor.

The convoy arrived at Penfield, Illinois, to again be greeted by a large crowd. John, Sherry and Ollie started No. 3, backed her off the trailer and headed for the I & I Museum building as there was a huge thunderstorm threatening. All through the weekend No. 3 started easily, performed perfectly, and was the star of its 100<sup>th</sup> birthday party held in front of the I & I grandstand. Each time the unique hit and miss engine started, people flocked to watch No. 3 back out of the museum and move to the grounds.



In retrospect, the restoration of the Hart Parr No. 3 depended on teamwork and communication. The restoration team of Oliver and Sherry Schaefer and John Tichenor worked closely with Smithsonian staff, in particular Larry Jones, and moved with caution and with skill. Historians Strawser and Stockwell had studied the tractor's history in detail and often conferred with the restoration team. It was obvious that the project combined expertise and enthusiasm. Now the Smithsonian Institution can loan and display the Hart Parr No. 3 with pride.

As part of the restoration project at Penfield, Daniel and Jones interviewed Oliver and Sherry Schaefer, John Tichenor, three Mitchell brothers who were the grandsons of George Mitchell, the original owner as well as Jack Gilluly, C. W. Hart's (the Hart of Hart-Parr Company) grandson. These interviews were transcribed and filed as part of the documentary record of the project. John Tichenor also contributed his journal to the files. In addition, we obtained more photographs from the Mitchell descendants. The project was thoroughly documented.

Hart Parr No. 3 is on loan to I & I Antique Tractor Museum, in Penfield, Illinois.

### **General specifications for Hart-Parr No. 3**

Engine Specifications:

Cylinders are 9 inches diameter with a 13 inch stroke.

1655 cubic inch displacement

17 horsepower at the draw-bar

30 horsepower on the belt.

Engine crankshaft speed is 270 rpm.

The friction clutch pulley is 40 inches in diameter with a 12 inch face.

The engine has a two horizontal cylinders, electric ignition (igniter's), hit-and-miss governor and is oil-cooled.

The total shipping weight of the tractor is 15,000 lbs.